

**THE INFLUENCE OF HUMAN BEHAVIOUR FACTORS ON
CONSTRUCTION PRODUCTIVITY**

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DECLARATION

I, Marcellus Orando, declare that:

The thesis hereby submitted by me for the degree Philosophiae Doctor (PhD) at the University of the Free State is my own work and has not previously been submitted by me at another academic institution. I furthermore cede copyright of the thesis in favour of the University of the Free State.

Signed: Date:

Marcellus Orando

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ABSTRACT

Title of thesis : The influence of human behaviour factors on construction productivity

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Human factors as important sources for increasing efficiency and performance in the construction industry are often cited as contributors to project success. This stems from the limited success of technical management of projects in terms of completing projects in time, within approved cost and to a satisfactory quality.

Against this background, the aim of the study was to investigate behavioural project systems management as a way of increasing success and productivity. The objective of the study was to identify and investigate human factors that may reinforce positive behaviours that in turn may improve productivity.

The study identified and investigated 64 human factors that influence positive behaviours for improved construction productivity. The result of the study showed that although all 64 human factors are very significant in encouraging positive behaviours, 21 of the factors were found to be extremely significant and are more likely to exert a higher influence towards positive behaviours. The highest ranked human factor was identified as 'ability and willingness to accept responsibility' while the least ranked was identified as 'charisma of leadership'.

The study also identified and investigated 23 positive construction worker behaviours that may improve productivity. The result of the study further showed that although all these construction worker positive behaviours are very significant in influencing improved construction productivity, twelve of the positive behaviours were found to be extremely significant and are more likely to exert a higher influence on improved productivity. The highest ranked positive behaviour was identified as “completing task at hand on schedule” while the least ranked positive behaviour was identified as “making sacrifices for the well-being of the company”.

Conclusions drawn from this research are that when the 64 factors are present in a construction environment, they influence the 23 positive behaviours, thus improving construction productivity. In addition, these positive behaviours serve as key behaviour indicators for motivation, commitment, satisfaction and loyalty levels of workers while twelve of these positive behaviours were identified as extremely significant positive behaviours and, serve as key behaviour indicators for motivation, commitment and loyalty levels of workers.

From the research, recommendations that construction practitioners should pay attention and resources to such factors as effective communication, good co-worker relationships, staff skill development and good remuneration and fringe benefits are made in order to have a positive influencing on worker behaviour. Human behavioural management should therefore be introduced in project implementation for improving construction productivity.

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LIST OF ABBREVIATIONS

CPO	Construction Project Organisation
CRISP	Construction Research Innovation Strategy Panel
EI	Extremely Important
ERG	Existence, relatedness and growth
ES	Extremely Significant
I	Important
ILO	International Labour Organisation
ILOCIR	International Labour Organisation Construction Industry report
LMX	Leader Member Exchange
NI	Not Important
NS	Not Significant
OBM	Organisation Behaviour Modification
RII	Relative Importance Index
S	Significant
SI	Somewhat Important
SLM	Situational leadership model
SPSS	Statistical package for the Social Sciences
SS	Somewhat Significant
TQM	Total Quality Management
UAE	United Arab Emirates
UK	United Kingdom
VI	Very Important
VS	Very Significant

PART 1 GENERAL INTRODUCTION

CHAPTER 1 GENERAL INTRODUCTION

1.1 Introduction

The notion to link human factors with success or failure in construction projects has been researched extensively. For example, Steyn, Basson, Carruthers, Du Plessis, Prozesky-Kuschke, Kruger, Pienaar, Van Eck and Visser (2009:215) comment that people are important in a building construction project environment and add “Many projects have revealed frustration caused not by deficiencies in the methodology or poorly constructed schedule methods, but rather by the people involved in the project.” It is consistent with views of other authors such as Wong (2007:21).

Human factors as critical sources in increasing efficiency and performance in the construction industry are often cited as contributors to project success. This stems from the limited success of technical management of projects in terms of completing projects in time, within approved cost and to a satisfactory quality.

This view is ably highlighted by Belout and Gauvreau (2004:1-11). However, the successes brought about by technical management of projects appear to be limited, as explained by Rwelamila and Hall (1995:10).

Therefore it may be necessary to consider behavioural project system management as a way of increasing success and productivity. Identifying and investigating sociological or human factors could thus be seen as a way of unlocking human potential to enhance productivity because these factors that may reinforce behaviour that in turn contributes to project success.

1.2 The statement of the problem

The emphasis in project management at present is on project objectives, strategic goals, work plans, technology, budget, time, schedules, policies, performance standards and procedures. What are not being focussed on are the human factors.

According to Ritz (1994:383) human factors are defined as behavioural circumstances linked to human relations, personality traits, leadership and career development that help to influence the success or failure of construction project implementation.

Wong (2007:2) defines human factors as the values, work styles, emotions and experiences that power behaviours and relationships with other people in ways that affect organisational performance.

Herzberg (1966:72-74) shows that in a working environment there may exist two sets of conditions, namely intrinsic conditions (satisfiers) and extrinsic conditions (dissatisfiers). The intrinsic conditions (satisfiers) include achievement, recognition, the work itself, responsibility, advancement, and growth. When these factors are present, they build strong levels of motivation that result in good job performance. On the other hand, extrinsic conditions (dissatisfiers) such as company policies and administration, work conditions, salary, co-worker relations and supervisory styles, even if they are present, will not necessarily motivate the worker. However, their absence may result in dissatisfaction.

Important human factors which may influence positive work behaviour that may improve productivity include motivation, skill development, communication, organisational culture and leadership. The question is: How can important human factors such as the above-mentioned be managed to affect positive behaviour in order to improve productivity?

1.3 The sub-problems

1.3.1 Sub-problem 1

What are the human factors in motivation, skills development, communication, organisational culture and leadership that influence workers' positive behaviours towards improved productivity?

1.3.2 Sub-problem 2

What are the positive behavioural traits that improve productivity?

1.3.3 Sub-problem 3

What is the relationship between positive worker behaviours and job motivation, commitment, loyalty and satisfaction levels of the worker?

1.4 Hypotheses

1.4.1 Hypothesis 1

Problems related to productivity in construction project implementation are substantially caused by human factors.

1.4.2 Hypothesis 2

Introducing human success factors in project management may result in positive worker behaviours that would improve productivity.

1.4.3 Hypothesis 3

The more important the positive worker behaviours, the higher the motivation, commitment, loyalty, satisfaction levels and productivity of the worker.

1.5 Limitations of the study

This research focuses on the important human factors of motivation, skill development, communication, organisational culture and leadership within the temporary project coalition engaged to deliver a construction project and the construction project itself. The construction project is thus the unit of analysis. The research therefore covers both private and public sector work, civil engineering and building projects, as well as the different types of facilities (e.g. commercial or educational). The study focuses on construction projects within and across Botswana and South Africa to ensure that potential variations due to the national context are controlled and kept uniform as much as possible, and to ensure that the findings reflect the general trend across Botswana and South Africa.

The main limitation of the study is that it considers only human factors of motivation, skills, communication, culture and leadership, even though there are many other human factors that affect productivity.

1.6 Objective of the study

The main aim of the study is to determine the influence of human behavioural factors on construction productivity in Botswana and South Africa. To achieve this, the study sought to

- Investigate the perception of respondents regarding the influence of motivational factors on construction productivity,
- Determine the influence of skill development on construction productivity,
- Investigate the perception of respondents regarding the influence of organisational work culture on construction productivity,
- Determine the influence of communication factors on construction productivity, and
- Determine the influence of leadership style/factors on construction productivity.

1.7 Importance of the study to the influence of human factors on construction productivity

According to Gratton (2000:3) the new sources of sustainable competitive advantage in the 21st century for organisations are people at the 'centre', as it is their creativity and talent, their inspiration and hopes, their dreams and excitement that will give organisations a competitive advantage. The organisation that will flourish in this century will do so because it is able to provide meaning and purpose to individuals. Human capital will therefore be a big asset for success in any organisation in future.

A project manager who can encourage creativity, spot talent, create inspiration, and can create an atmosphere of hope, excitement and motivation in the work place, may be able to ensure project success (Steyn *et al.*, 2009:250).

Motivation of employees is an important factor for the success of any organisation and explains why some workers with fewer capabilities often contribute more to achieving goals than co-workers who have greater abilities, and why some work harder than others do (Mondy & Premeaux, 1993:294).

Human factors are the driving force behind project success. Projects fail when there is no motivation and no respect for human factors. When intellectual and emotional needs are met and systems are in place to support those needs, enormous human energy and productivity are created. When people are in conflict or forced to fit into processes, tremendous opportunity is lost. People generate the motivation and human energy needed to execute projects successfully (Wong, 2007:16).

1.8 Contribution to knowledge

Building on the existing knowledge on organisational work behaviour, this research has provided insight into the influence of human behavioural factors on construction productivity. Empirical evidence of important human factors, which influence positive worker behaviour for improving productivity, is provided. Positive worker behaviour directly relates to the motivation, commitment, loyalty and satisfaction levels of a worker. Those positive worker behaviours identified as more important also indicate higher motivation, commitment, loyalty and satisfaction levels of the worker.

The identified positive worker behaviours can be useful in gauging or benchmarking the levels of construction worker motivation, commitment, loyalty and satisfaction that correspond with improved construction productivity. Construction supervisors, project managers and other industry practitioners can use this knowledge and understanding to determine whether or not their management techniques are improving construction productivity.

1.9 Structure of the study

The research study consists of nine chapters, presented in four parts. Part 1 consists of Chapter 1 which presents a general introduction, statement of the problem, sub-problems, hypotheses, and the limitation of the study as well as the objectives of the study. Chapter 1 also outlines the importance of the study, the contribution of the knowledge and the structure of the study.

Part 2 represents the review of the literature presented in Chapters 2 to 6. Chapter 2 reviews the motivation to identify factors that influence worker positive behaviour towards improved productivity. Chapter 3 reviews work skill development to identify factors that influence worker positive behaviour towards improved productivity. Chapter 4 reviews communication to identify factors influencing worker positive behaviour for improved productivity. Chapter 5 reviews culture to determine cultural dimensions that influence worker positive behaviour towards improved productivity. Chapter 6 reviews leadership to determine leadership styles/factors that influence positive worker behaviour towards improved productivity.

Part 3 presents the research methodology which is reviewed in Chapter 7. Chapter 8 presents research findings and interpretations of the findings.

Part 4 consists of Chapter 9 which comprises a conclusion and recommendations.

PART 2: LITERATURE REVIEW

CHAPTER 2 MOTIVATION AS A FACTOR FOR POSITIVE BEHAVIOURS TOWARDS IMPROVED PRODUCTIVITY ON CONSTRUCTION SITES

2.1 Introduction

It is generally accepted that construction workers can be motivated (Cox, Issa & Frey, 2006:152). It is also agreed that motivation and productivity are directly related to each other (Kazaz, Manisali & Ulubeyli, 2008:96). A number of studies on factors influencing construction work force motivation and productivity in different countries have been done to try to improve productivity (Akoi-Gyebi Adjei, 2009:32; Hanafi, Khalid, Razak & Abdullah, 2010:139; Kazaz *et al.*, 2008:97; Kposowa, 2005:49; Parkin, Tutesigensi & Büyükalp, 2009:110). There are yet no new management strategies for motivating construction workers to improve construction productivity (Akoi-Gyebi Adjei, 2009:32; Hanafi *et al.*, 2010:139; Kazaz *et al.*, 2008:97; Kposowa, 2005:49; Parkin *et al.*, 2009:110).

Firstly, previous studies (Ankrah, Proverbs & Debrah, 2009:26-47; Kazaz *et al.*, 2008:97; Seymour & Rooke, 1995:511-523) on factors and motivation for productivity concentrated on top and middle level managers' perspectives, while construction foremen, site supervisors and craftsmen may in fact be more knowledgeable about labour motivation and productivity. Secondly, motivation of construction workers for productivity is a complex process and construction managers may not fully understand the factors and dimensions of motivation and productivity (Kazaz *et al.*, 2008:97). Thirdly, productivity in the construction industry is largely dependent on the construction labour force, which depends on workers' creativity and efforts, which in turn depend on motivation. Without good human management practices and substantial knowledge of factors which motivate construction workers, improved productivity may not be achieved (Chan & Kaka, 2007:564-584). Although different workers may be motivated differently by different factors and strategies, positive (desired) worker behaviours which may improve construction productivity, remain the same (Cox *et al.*, 2005:368).

The objective of this chapter is twofold: firstly, to identify motivational factors that may improve construction productivity, and secondly to identify a desired (positive) behaviour towards

improved construction productivity. The identified important motivational factors may be used in an appropriate motivation theory to propose positive (desired) construction worker behaviour on the basis of positive behaviours towards improving construction.

2.2 The meaning of motivation

The term motivation is derived from the Latin word *movere*, meaning “to move”. Motivation can be broadly defined as the forces acting on or within a person that cause the arousal, direction, and persistence of goal-directed, voluntary effort (Barnett, 2011a: online). Although motivation is generally regarded as a force, some researchers may attribute the force to availability of reward. For example, for workers to be motivated to act there must be some reason for them to do so – usually the presence of a ‘reward’. This reward may be a positive outcome or the avoidance of a negative outcome (Parkin *et al.*, 2009:107).

Al-Aamri (2010:4) defines motivation in two ways. The first definition is: “The willingness to exert high levels of effort to reach organisational goals, conditioned by the effort’s ability to satisfy some individual need”. The second definition is: “A set of independent and dependant relationships that explains the direction and persistence of an individual’s behaviour holding constant the effects of aptitude, skills, understanding of a task and the constraints operating in the work environment.”

Akoi-Gyebi Adjei (2009:32) defines motivation as direction and persistence of action, concerning why a person chooses a particular course of action in preference to others, and why this person continues with the chosen action, often over a long period, and in the face of difficulties and problems.

Ramlall (2004:53) defines motivation as an unsatisfied internal state of an individual that creates tension and stimulates a drive that makes certain outcomes appear attractive.

Kazaz *et al.* (2008:96) define motivation as a composition of processes and mechanisms which help to direct worker behaviour in a desired manner, or with a more specific context. It is described as all the convincing and encouraging actions which help workers fulfil their tasks willingly to come closer to project objectives.

The concept of motivation seems to be concerned with the forces and desires that explain why and how human actions are activated in accordance with work task requirements (Barnett,

2011a:online). Motivation involves direction, vigour and persistence of actions of people (Akoi-Gyebi Adjei, 2009:32).

Motivation may provide an explanation why some construction workers are better performers than others and may also explain the belief that the prosperity of a business entity depends on the performance of its workers since the desired (positive) worker behaviours may be related to the level of motivation (Haasen & Shea in Cox *et al.*, 2005:369). Knowledge and provision of motivational factors to construction workers may improve construction productivity. Identifying positive (desired) worker behaviours may indicate the level of worker motivation and satisfaction necessary for improving construction productivity (Parkin *et al.*, 2009:107).

A motivated employee may constantly strive towards an attainable goal or sets of goals (Cox *et al.*, 2005:371). Motivation may also influence employees to acquire positive (desired) behaviours that may influence productivity (Parkin *et al.*, 2009:107). Although the available literature does not clearly list and identify all the positive (desired) behaviours, the behaviours cover motivation, commitment, satisfaction and loyalty of the workers to the organisation. According to Cox *et al.* (2005:371) some of the desired worker behaviour for improving productivity may be listed as: perform more work than expected, respond promptly to requests, correct problems, complete task at hand on schedule, plan own work, speak of company with positive regard, speak of own job with positive regard, remain with company in difficult times, ask about future projects, make sacrifices for well-being of company, promote company and abide by company policy. These could be regarded as desired behaviours for improving construction productivity.

Motivation is considered a complex but an important construct, which could be applied through an appropriate motivational theory to encourage desired construction worker behaviour towards improved construction productivity – usually the presence of a ‘reward’. This reward may be a positive outcome or avoidance of a negative outcome (Al-Aamri, 2010:4; Akoi-Gyebi Adjei, 2009:32; Kazaz *et al.*, 2008:96; Ramlall, 2004:53;). To understand motivation and motivational factors, it is important to review important motivational theories.

2.3 Theories of motivation

Motivation is the force which influences positive (desired) worker behaviours and actions and seems to be created through satisfaction of needs, reinforcement, cognition, job characteristics, feelings and emotions (Akoi-Gyebi Adjei, 2009:32; Al-Aamri, 2010:4; Kazaz *et al.*, 2008:96;

Ramlall, 2004:53). In order to identify the influencing factors and how they relate to motivational behaviours, the following motivational theories are reviewed:

2.3.1 Hierarchy of needs

In this section four needs theories of motivation are identified and reviewed below.

2.3.1.1 Maslow's Need Hierarchy Theory

According to Maslow (1943:394-395) human beings strive to satisfy the following needs: physiological, safety, social or belonging, self-esteem, and self-actualisation. These needs are arranged hierarchically. The lowest needs level includes physiological needs, followed by the safety needs level, which includes security of the body, employment, etc. The third level is the interpersonal needs level. The next level comprises social needs, such as affiliation, esteem and self-actualisation. The affiliation needs consist of social interaction, team spirit, appreciation and participation. The esteem needs include praise and awards, responsibilities, training and participation. Self-actualisation needs include challenges, creativity and ownership of ideas and leadership and is the highest level of human needs (Maslow, 1943:394-395).

According to Gibson, Ivancevich, Donnelly and Konopaske (2009:135) Maslow's theory has had a limited field research support. Maslow (1991:103-108) states that the self-actualisation theory in and of itself is not enough, as the assumptions must be amplified into a more thorough formulation, taking into account such factors as the good of other people and the organisation as a whole.

Maslow's theory states that once a need is satisfied it ceases to motivate. It is difficult to apply this theory in a work place as the level and type of employee needs vary from employee to employee (Ramlall, 2004:54), and because human needs are affected by factors such as work styles, work ethics, skills levels, communication, culture and leadership styles which may cause differences in individual worker's needs requirements. As such the theory is limited in predicting worker motivating need factors and behaviours (Gibson *et al.*, 2009:134).

Porter, Steers, Mowday and Boulian (1974:603-609) tested Maslow's hierarchy of needs theory and discovered that a higher need order exists. It is called autonomy and is defined as the worker's satisfaction with opportunities to make independent decisions, set goals and work without close supervision. Hackman and Oldham (1980:78) also define autonomy as "the degree to which the task provides substantial freedom, independence, and discretion to the

individual in scheduling the work and in determining the procedures to be used in carrying it out”.

In terms of this theory, a worker’s satisfaction with freedom for opportunities to make independent decisions, set goals, plan and work without close supervision may be identified as factors for positive (desired) worker behaviours which may improve construction productivity. Two positive (desired) behaviours may be identified here: trustworthiness to work independently and willingness to accept responsibility and accountability at work. These two positive (desired) construction worker behaviours could be some of the useful behaviours identified in the study for gauging motivation and satisfaction level in the construction industry.

2.3.1.2 McClelland’s Need Theory

According to McClelland’s need theory (McClelland, 1965:321-333) individuals acquire needs from the culture of the society. Other than the five needs identified in Maslow’s theory, McClelland identifies three needs: achievement, power and affiliation, and defines these needs as follows: the need for achievement is defined as the drive to excel, to achieve in relation to a set of standards, to strive to succeed. The need for power is defined as the need to make others behave in a way that they would not have behaved otherwise, such as desire to influence others by coaching, teaching or encouraging others to achieve. The need for affiliation is defined as the desire for friendly and close interpersonal relationships.

Could the need behaviours of wanting achievement, power and affiliation be useful in predicting behaviours which may improve construction productivity? For example, can an achievement driven worker be regarded as motivated enough to achieve set standards of work? Can a power driven construction worker be regarded as wanting freedom for independent decision making and planning work in such a way that he/she may coach, teach and supervise other workers to acquire skills so as to accept responsibility and accountability? Can a worker whose need for affiliation is satisfied be considered to have a good working relationship resulting in cooperation and collaboration at work? Can a worker whose need for affiliation is satisfied be considered to make solving of work problems and conflict solving easier and faster? These behaviours, when tested and ranked, could be useful for gauging the level of worker motivation and satisfaction in the construction industry for improved construction productivity.

Gibson *et al.* (2009:142) critique McClelland’s need theory and state that the three needs were determined by subjective techniques without any proper supported validation. Secondly,

McClelland's needs theory, which states that the needs are learned through the culture of the society, seems to be in conflict with some psychology literature which suggests that motives are normally acquired in childhood and are difficult to alter in adulthood. McClelland (1965:321-333), however acknowledges this problem but suggests that politics and religion indicate that adult behaviours may be changed. Thirdly, McClelland's need theory has raised many questions. For example, can learned needs be permanently acquired? Can something learned in training and development programmes be sustained in a workplace? These are issues that McClelland and other researchers have not been able to clarify (Gibson *et al.*, 2009:142).

Further criticism comes from Heylighen (1992:50) and Reid-Cunningham (2008:55) who criticise the theorem for being conceptually and empirically inadequate due to the paradoxes inherent in human nature. For instance, individual behaviour appears to respond to many needs simultaneously and not to just one. In addition, the same need may cause quite different behaviour in different individuals with different cultures. The theory also implies that the needs have to be satisfied exogenously. However, some individuals satisfy their needs by self-determination. These examples all show that the theory does not capture the complex interrelationships among psychological development, personal and situational factors, social networks, historical contexts, cultures, beliefs, and environmental factors that shape motivation of human behaviour.

McClelland's need theory suggests that managers should attempt to develop an understanding of whether and to what degree the workers have one or more of these three needs. They should also determine the extent to which needs manifest in positive factors which may set the difference between leadership qualities and general worker qualities, since those workers with strong affiliation needs may be unable to fulfil supervisory roles (Ramlall, 2004:55).

2.3.1.3 Alderfer's Existence Relatedness Growth (ERG) Theory

Alderfer (1972:658-669) agrees with Maslow that individuals' needs are arranged in a hierarchy. Alderfer, however, suggests that needs could be classified into three, instead of five categories. These categories are existence, relatedness and growth (ERG). Existence needs are satisfied by factors such as food, air, water, remunerations and working conditions. Relatedness needs are satisfied by meaningful social and interpersonal relationships. Growth needs are satisfied by an individual making creative or productive contributions.

Alderfer's three needs are collectively referred to as the existence relatedness growth (ERG) theory and are similar to Maslow's physiological, safety and middle needs categories. Relatedness needs involve interpersonal relationships and are similar to Maslow's belongings and esteem needs. Growth needs relate to the attainment of one's potential and are similar to Maslow's esteem and self-actualisation needs (Arnolds & Boshoff, 2002:697-719).

Alderfer's (1972:658-669) theory differs from Maslow's theory in that Alderfer's ERG theory has both the satisfaction progression process that Maslow proposed as well as a frustration regression process. For example, if a person is continually frustrated in attempts to satisfy growth needs, relatedness needs re-emerge as a motivating force, causing the individual to redirect efforts toward exploring new ways to satisfy this lower-order need category (Alderfer, 1972:658-669).

Alderfer (1977:658-669) defends his theory against criticism by Salancik and Pfeffer and states that the available research evidence supports at least the conceptualisation of the ERG theory. Salancik and Pfeffer (1977:427-456) propose that Alderfer's ERG theory and Maslow's need theory are popular because they are consistent with human rational of choice and attributes of freedom to individuals. Furthermore, these needs theories may be popular despite little research verification, because the theories are simple and easily express views of human behaviour (Salancik & Pfeffer, 1977:427-456).

Alderfer's ERG theory may however provide an explanation of why money appears to be the dominating motivating factor (McKenzie & Harris, 1984:25-29; Olomolaiye & Ogunlana, 1988:179-185; Parkin *et al.*, 2009:106; Zakeri, Olomolaiye, Holt & Harris, 1997:161-166). It might be probable that the higher order needs of a construction worker (e.g. growth) are being blocked, because of some company policy or lack of resources. The construction worker then has no alternative but to focus on money as the motivating factor for positive behaviour for improved productivity.

2.3.1.4 Herzberg's Motivation-Hygiene Theory

Herzberg, Mausner and Synderman (1959:44-45) started their work on the above theory based on the results of an interview survey of 200 accountants and engineers to establish what made them feel good and bad about their job. The result of the interviews revealed that job satisfaction and job dissatisfaction manifest in two sets of experiences: satisfiers and dissatisfiers, all on the opposite and same scale. Herzberg *et al.* (1959:44-45) originally thought

that job satisfaction was the opposite of job dissatisfaction. If a job condition caused job satisfaction, removing it would cause dissatisfaction; similarly, if a job condition caused job dissatisfaction, removing it would cause job satisfaction.

Herzberg (1966:72-74) amplified and improved the study, showing that satisfiers and dissatisfiers are distinct and different. Herzberg further explained that a set of extrinsic conditions (dissatisfiers) such as company policies and administration, work conditions, salary, co-worker relations and supervisory styles, even if they are present, will not necessarily motivate the worker, although their absence may result in dissatisfaction. Because they are needed to maintain at least a level of 'no dissatisfaction', the extrinsic conditions are called the dissatisfiers, or hygiene factors. Ramlall (2004:57) also suggests that satisfaction and motivation would occur only as a result of the use of motivators.

Herzberg's (1966:72-74) study also shows the presence of a set of intrinsic conditions (satisfiers), the job content. These conditions include achievement, recognition, the work itself, responsibility, advancement, and growth. The absence of these conditions does not prove highly dissatisfying. However, when these factors are present, they build strong levels of motivation that result in good job performance. Therefore they are called satisfiers, or motivators.

According to Ankrah (2007:23) good job performance in construction work has been defined typically in terms of the delivery of the projects on time, to specification and within budget, providing good service and achieving reasonable life-cycle cost. It may be deduced that when intrinsic conditions (satisfiers) are present in the construction work place, motivation resulting in positive (desired) behaviour may improve productivity.

House and Wigdor (1967:369-390), summarise Herzberg's theory as follows: firstly, it was originally limited to American engineers and accountants and therefore it is difficult to justify whether it is applicable to all cultures. Secondly, a workplace situation is complex and it may not be possible to simply and easily change hygiene factors or satisfiers and thus produce job satisfaction. Thirdly, workers as individuals may find it difficult to look deep into these factors in order to discover what would motivate and what would dissatisfy a worker. This difficulty would suggest that subconscious factors are not identified in Herzberg's theory. Fourthly, the theory has not been tested for performance, considering that the original theory was arrived at through self-reporting of performance and job activities that had occurred over a long period of time (House & Wigdor, 1967:369-390).

Herzberg's theory factors may be useful for identifying some motivational factors which may improve construction productivity. For example, some of the motivational factors could be identified as meaningful work such as tangible physical structure, opportunity for advancement such as work or task completed on schedule, recognition and opportunity for growth (probably in skills variety and experience) and co-worker relationships. The theory also implies that in a work situation factors such as communication for supervision (in the form of feedback), culture and leadership may be required for maintaining motivation in order to minimise dissatisfaction (Ramlall, 2004:57).

The above theory also seems to suggest that to influence and maintain improved productivity, construction work tasks should be redesigned to allow for worker participation in the work design. Workers should be trained to be multi-skilled and have adequate experience to be free to design and plan the work independently, while keeping good co-worker relationships. The positive (desired) worker behaviours which may be identified from Herzberg's theory could be: willingness and ability to accept responsibility and accountability and the willingness and ability to be cooperative and collaborative at work. These positive (desired) behaviours may become part of the behaviours required for improving construction productivity and for indicating motivation and satisfaction levels in the construction industry.

2.3.2 Process Theories

In this section four process theories of motivation are identified and reviewed.

2.3.2.1 Expectancy Theory

The expectancy theory holds that a worker is motivated to behave in ways that produce desired combinations of positive behaviours (Kreitner & Kinicki, 2007:227). According to Vroom and Deci (1964:15), a worker chooses among alternative courses of action, which are lawfully related to physiological events occurring contemporaneously with behaviour. In other words, a worker's behaviour results from conscious choices among alternatives and these choices are systematically related to psychological processes, particularly perception and the formation of beliefs and attitudes. Three mental components are seen as investigating and directing worker behaviour. These are referred to as valence, instrumentality and expectancy. Vroom and Deci (1964:15) define valence as the effective (emotional) orientations people hold with regard to outcomes. The theory works on the individual's belief that performing at a particular level will lead to the attainment of a desired outcome. Employees are likely to be more satisfied if they

feel their good performance will be equitably rewarded. The most important feature of a worker's valence concerning work-related outcomes is that they refer to the level of satisfaction the worker expects to receive from them, not the real value the worker actually derives from them. Vroom and Deci (1964:15) define performance as an outcome of the degree to which the individual believes that performing at a particular level will lead to the attainment of a desired outcome. In general, the theory predicts that a worker may exert a high level of effort in his work based on perceived significant reward, provided the task itself is challenging and satisfying to the worker. Pinder (1984:365), as cited in Ramlall (2004:57), states that tasks/jobs should be designed so as to generate worker experiences of meaningfulness, responsibility, and knowledge of the result of the effort, so that the task generates motivation as it is performed.

Vroom and Deci (1964:15) link valence to the task expectations in terms of the challenge and interest derived from the task, instrumental to the belief that there is sufficient skill to perform the task successfully and sufficient expectancy to the overall reward associated with the task. The above theory seems to be based on attitudes, beliefs, fairness or equity, depending on the worker's ability and experience. This theory seems to suggest that for a worker to be motivated to improve productivity there should be a work culture and leadership which encourage high self-esteem, ensure equal opportunity for growth and development, fair treatment and an equitable reward system.

According to Kreitner and Kinicki (2007:250) over 77 research studies, including those of Pinder (1984:365) and Porter and Lawler (1968:43), have supported the Expectancy theory which states that people's behaviour results from conscious choices among alternatives, and these choices are related to psychological processes, particularly perception and the formation of beliefs and attitudes.

The Expectancy theory is criticised for difficult testing methods and measuring effort and motivation itself. The expectancy approach contains an implicit assumption that all motivation is conscious. Individual workers may not always be conscious of their motives, expectancies and perceptual processes. The Expectancy theory does not address subconscious motivation. Most of the expectancy models tested have flaws such as inadequate and improper research populations, poor measuring instruments, making the generalisation of such research results difficult. The Expectancy model appears to be closely linked to Western cultures where individual workers want to control their destiny. It could be difficult to apply this model in other cultures where the individual worker's control of destiny is minimal (Porter & Lawler, 1968:98).

This theory implies that in order to help a construction worker improve productivity, the worker's effort and expectancies should be enhanced. Such an enhancement could be by providing reward for good work, training on the job, and coaching, in order to increase the workers' skills and self-efficacy to perform a challenging task. These actions could influence positive behaviour, which may be identified is the willingness to learn to improve skills so as to be able to do a challenging task. Such behaviour may improve productivity and could be used as an indicator for worker motivation and satisfaction levels.

2.3.2.2 Equity Theory

Adams (1963:422-436) originally proposed an equity theory where workers compare their efforts and rewards with those of others in similar work situations. The theory is based on the assumption that workers, who work in exchange for rewards from the organisation, are motivated by a desire to be equitably treated at work. The important terms in the theory are: person, comparison to others, inputs and outcomes.

These terms may be defined as Person – the worker equity or inequity is perceived on. Comparison to others – any workers or group used by a person as a reference regarding the ratio of inputs and outcomes. Inputs– the individual characteristics brought by a person or worker. These may be achieved through (e.g. skills, experience, and learning) or ascribed to e.g. age, sex, and race; and Outcomes – what a person or worker received from the job, e.g. recognition, fringe benefits, remuneration (Adams, 1963:422-436).

Equity exists at work when workers perceive that the ratios of their inputs (efforts) to their outcomes (rewards) are equivalent to the ratios of other similar workers (Ramlall, 2004:55).

Goodman and Friedman (1971:271-288) tested the Equity theory using remuneration as the basic outcome. The findings of this study indicate that workers assigned higher-status offices increased their performance (a response to over-payment inequity), while those reassigned to lower-status offices lowered their performance (a response to under-payment equity). The study supports the Equity theory's predictions that the reaction to inequity will be proportional to the magnitude of the fairness of the reward perceived by the worker for his good work.

Although research tests support the Equity theory, these tests are only comparisons and do not provide insights into the dynamic character of the Equity theory and individual responses. Secondly, the Equity theory ignores reactions to experienced inequities, since two workers may react differently if they perceive different causes of the inequity (Locke, 1975:457-480).

The Equity theory may be useful to managers in ethical issues regarding concepts of organisational, distributive and procedural justice in a work situation. Organisational justice is the degree to which individuals feel fairly treated within the organisations for which they work. Distributive justice is the perception of fairness of the resources and rewards in an organisation. Procedural justice is the perception of fairness of the process used to distribute rewards (Goodman & Friedman, 1971:271-288). In a workplace, workers want to be treated fairly, want to receive fair rewards for good work and are concerned with the fairness of decision making in all areas of work. The Equity theory may be useful in this regard.

2.3.2.3 Goal Setting Theory

Locke (1968:157-189) proposes that goal setting is a cognitive process of some practical use. Locke's view is that an individual's conscious goals and intentions are the primary determinants of behaviour. When a person starts something (e.g. a task, a job, or a new project) much effort will be made until a goal is achieved. The theory also places specific emphasis on the importance of conscious goals in explaining motivated behaviour. Locke uses the notion of intentions and conscious goals to propose and provide research support for the thesis that harder conscious goals result in higher levels of performance if these goals are accepted by the individual.

Locke (1968:157-189) states that the Goal setting theory depends on three factors, namely the level of difficulty of the task, the specificity of the task, and commitment to the task performance in order for the theory to predict performance outcomes.

The goal setting theory implies that the task should be challenging but not too difficult to be accomplished. The goal of the task should not be vague but specific enough to be achievable. The more committed or dedicated a worker is to achieving the goal, the more the worker will be motivated to exert effort towards goal accomplishment.

Latham and Yuki (1975:824-845) state that the goal setting theory has been criticised for being complex and difficult to sustain. They warn that it is also possible that the goal setting can be abused and manipulated by managers in favour for or against some workers. Goal accomplishment may become an obsession. In some situations, goal setters become so obsessed with achieving their goals that they neglect other important areas of their job.

The goal setting theory may be applicable to improving construction productivity. For example, Akoi-Gyebi Adjei (2009:32) studied motivational strategies to improve productivity in the

construction industry in Ghana. The study revealed that task-based work, sub-contracted works and identification with work goals were important motivators to the workers.

The theory implies that in order to help a construction worker improve construction productivity, the work should be allocated to the worker in suitable whole pieces so as to attract interest and challenge with clear instructions on its specificity and a good reward to influence performance commitment.

2.3.2.4 Reinforcement Theory

Kreshel (1990:49-59) states that B.F. Skinner, a world-famous behaviourist, established a behavioural theory which proposes that behaviours can be controlled by altering the consequences (reinforcers and punishments). These behaviours, referred to as operants, can be controlled by altering reinforcers and punishments such that positive (desired) behaviours are reinforced through rewards, while undesired behaviours are punished.

The Reinforcement theory entails that motivated behaviour occurs as a result of reinforcers, which are outcomes resulting from the behaviour that makes it more likely that the behaviour will recur. This theory suggests that it is unnecessary to study needs or cognitive processes to understand motivation, but that it is only necessary to examine the behavioural outcomes. Positive (desired) rewarded behaviour that is reinforced is likely to continue, but unrewarded behaviour is not likely to be repeated (Barnett, 2011a:online).

Gibson *et al.* (2009:166) state that organisations such as Michigan Bell Telephone, Ford Motor Co., American Can Company, United Air Lines, Warner-Lambert Company, Chase Manhattan Bank, Procter and Gamble, and Standard Oil of Ohio, embarked on worker behaviour modification in order to improve performance by way of reinforcing positive behaviours for positive performance. Gibson *et al.* (2009:166) add that a survey of empirical research on organisational behaviour modification (OBM) examined research involving quantity of performance, quality of performance, and absenteeism. The researchers found strong evidence that OBM is making and can make a positive contribution to organisational behaviour. Absenteeism rates decreased and quality of production behaviours improved in those organisations practising OBM in comparison to those not practising OBM.

Kreitner and Kinicki (2007:210) cite the following criticisms to the theory: firstly, reinforcement seems not to change real worker behaviour as misuse of reward may tend to corrupt workers' behaviour. Secondly, workers have beliefs, values, and mental processes, so reinforcing

behaviour without acknowledgement of these human factors is a wrong way to view human behaviour. Thirdly, workers may also become obsessed with extrinsic reinforcers (e.g. remuneration) making behaviour heavily dependent on reinforcers in such a way that work may not be performed without a promise of the reinforcer.

The theory should not be used for identifying any of the factors that influence positive (desired) behaviours for improved productivity as it only emphasises behaviours which may be modified by organisations to improve performance.

2.3.3 Work, Leadership and Incentive Theories

In this section five work, leadership and incentive theories of motivation are identified and reviewed below.

2.3.3.1 Job Characteristics Theory

Ramlall (2004:57) states that Herzberg proposed a set of features that should be built into jobs in order to be satisfying and motivating. The features proposed that work tasks should be horizontally enlarged by simple addition of tasks so as to be enriched to provide motivation.

According to Hackman, Oldham, Janson and Purdy (1975:58) the Job Characteristics theory is based on the idea that the task itself is key to employee motivation. Hackman *et al.* (1975:58) give an example by stating that a boring and monotonous job stifles motivation to perform well, whereas a challenging job enhances motivation. Hackman *et al.* (1975:58) built the above-mentioned Job Characteristics model by combining the ideas of job enrichment and job enlargement. Hackman and Oldham (1980:78) proposed that jobs which require the use of multiple talents are experienced as more meaningful, and therefore more intrinsically motivating, than jobs that require the use of only one or two types of skills. Hackman and Oldham (1980:78) seem to improve Herzberg's theory by suggesting that instead of enriching the task by horizontal addition of similar tasks requiring one or two skills, tasks could be enriched by giving additional responsibilities, such as work usually performed by superiors. In this way, a worker may require a variety of skills to perform, may identify the task as significant, and may gain responsibility and accountability. These are similar to the motivators proposed in a work situation to influence positive behaviour for improved performance (Herzberg, 1966:72-74).

Kreitner and Kinicki (2007:256) explain that the theory proposes that an employee will experience internal motivation from his task when that task generates three critical

psychological states. Firstly, the employee must experience meaningful work as a result of his skill variety, task identity and task significance. Secondly, the employee should have personal responsibility for the outcomes of the task as a result of autonomy enjoyed by the worker. Thirdly, the employee should have knowledge of the actual results of work activities in the form of feedback or by being aware of how effective he/she is in converting his effort into performance.

Kreitner and Kinicki (2007:256) summarise this worker psychological state, saying that firstly, work tasks should be designed to generate a meaningful experience for the employee; secondly, the employee should take responsibility and accountability and thirdly, the employee must have knowledge to perform the task, resulting in a meaningful contribution from the worker's own effort.

For an employee to feel that he/she has taken responsibility and used his/her own ideas and knowledge for good performance, five specific core factors are particularly needed. These factors are: skill variety, task identity, task significance, autonomy and feedback. Skill variety is "the degree to which a task requires a variety of different activities in carrying out the work, involving the different skills and talents of a worker" (Hackman & Oldham, 1980:78). Autonomy is "the degree to which the task provides substantial freedom, independence, and discretion from the individual in scheduling the work and determining the procedures to carrying it out" (Hackman & Oldham, 1980:78). Feedback includes information regarding knowledge of results of the job itself from other people and the organisation.

Wilson (1995:329-344) supports the Job Characteristics theory by stating that the full participation of the worker may not only influence motivation but also influences the worker to become enthusiastic and optimistic at work. According to Cherniss (1999:3) citing Seligman (1990:207), optimism is another emotional competence that leads to increased productivity. Seligman (1990:207) states that new salesmen at an American company, Met Life, who scored high in a test of 'learned optimism', sold 37 per cent more insurance in their first two years than pessimists. Bachman, Stein, Campbell and Sitarenios (2000:176-182) state that the most successful debt collectors in a large collection agency had an average goal attainment of 163 per cent over a three-month period. They were compared to a group of collectors who achieved an average of only 80 per cent over the same time period. The most successful collectors scored significantly higher in the emotional intelligence competencies of self-actualisation,

independence, and optimism. These case studies may suggest that enthusiasm and optimism at work could be regarded as a positive (desired) behaviour for improved productivity.

According to Gibson *et al.* (2009:385), apart from Volvo and other European organisations, available research on the Job Characteristics theory is meagre. The research on Volvo in the late 1970s and early 1980s showed that productivity, absenteeism and turnover were unsatisfactory. However when job characteristics were redesigned and applied at work, there was improvement in that there was a reduction in worker turnover from 35 per cent to 15 per cent.

Kreitner and Kinicki (2007:256) mainly critique the Job Characteristics theory for being time and cost consuming in terms of the prolonged expenditures, and concentration on the upper level needs of the workers. Even though many societies have been successful in providing food and shelter, these needs regain importance when the economy moves through periods of recession and high inflation.

The Job Characteristics theory proposes the following as factors for motivation: skill variety, task variety, task significance, autonomy and feedback. If these factors are present in a work situation, can positive (desired) construction worker behaviour such as willingness and ability to accept responsibility and accountability, and willingness to be trusted so as to work with minimum supervision, be influenced?

Another question is how does a worker acquire multi-skills to work independently/autonomously? The Job Characteristic theory is unclear on what must be done for workers to become fully skilled and experienced so as to work independently.

2.3.3.2 McGregor's Theory X and Theory Y

McGregor (1970:114-122) suggests a leadership/management philosophy which may be applied to manage and direct individual workers' motivational behaviours, aimed at directing human energy for organisational success according to either Theory X or Theory Y.

Theory X assumes and describes the average worker as indolent, lacking ambition, disliking responsibility, as self-centred, indifferent to organisational needs, resistant to change and gullible. As such, the management methods based on Theory X involve coercion and threats, close supervision and tight controls over worker behaviours. The motivators are extrinsic and

basic (Parkin *et al.*, 2009:106). This hard management style may lead to restricted output, mutual distrust, unionism, and sometimes even sabotage.

McGregor draws upon the work of Abraham Maslow (1908-1970) to explain why Theory X assumptions may lead to ineffective management. Maslow's point was that once a need is met, it no longer motivates behaviour, thus only unmet needs are motivational. McGregor argues that most employees already have their physical and safety needs met and that the motivational emphasis has shifted to the social, ego and self-actualisation needs. Management should provide opportunities for the upper-level needs to be met in the work place, or employees would not be satisfied or motivated in their jobs (McGregor, 1970:114-122).

Theory X is criticised for representing the extreme end of human behaviour. Most workers and managers may not acquire these undesired behaviours and as such may lead to workers being blamed without consideration of other factors such as system of work, company policies and training for skill improvement. This type of management style could cause diseconomies of scale in large businesses (Barnett, 2011b:online).

According to McGregor (1970:114-122) Theory Y supports the idea that workers want to do well and that most workers will meet high-performance expectations when appropriately motivated in a supportive climate; and that workers are creative, imaginative, ambitious and committed to meeting organisational goals; are self-disciplined and self-directed, desire responsibility, and accept them willingly; and are motivated by fulfilment of their own needs.

Theory Y assumes that that the physical and mental effort involved in work is natural and that workers actively seek to engage in work. It also assumes that close supervision and the threat of punishment are not the only means, or even the best means, for inducing workers to exert productive effort. Instead, if given the opportunity, workers will display self-motivation to put forth the effort necessary to achieve the organisational goals. Thus, avoiding responsibility is not an inherent quality of human nature; workers will actually seek it out under motivated conditions. Theory Y assumes that the ability to be innovative and creative exists within the human population. Theory Y assumes that rather than a worker valuing security above all other rewards at work, workers desire to satisfy self-esteem and self-actualisation needs (Barnett, 2011b:online).

According to Wong (2007:24) Theory Y supports the idea that workers want to do well and that most workers will meet high-performance expectations when appropriately motivated in a

supportive climate and that workers are creative, imaginative, ambitious and committed to meeting organisational goals; are self-disciplined and self-directed, desire responsibility, and accept them willingly; are motivated by higher-level needs (self-esteem and self-actualisation). This is the proposition that this study is based on. It may be proposed that most workers already have their physical and safety needs met and that the motivational emphasis should be shifted to the social, ego and self-actualisation needs. Management have to provide opportunities for the upper-level needs to be met in the work place as well, otherwise workers would not be satisfied or motivated in their jobs.

Theory Y, like Theory X, is criticised for representing unrealistic extremes of human behaviour. Secondly, empirical studies have not clearly demonstrated the relationship between the assumption in the theory and the managers' work styles and controls which are consistent with McGregor's ideas. Under Theory Y managers simply appear to engage in a seductive form of manipulation as managers seem to be focussed on measures of productivity rather than measures of workers' well-being. Unless workers share in the economic benefits of their increased productivity, they will have simply been duped into working harder for the same remuneration (Barnett, 2011b:online).

Theory Y suggests that intrinsic motivation may be applied as a means to promote self-control and self-direction, when for example site management concentrates on giving the workers objectives to work towards rather than controlling their activities explicitly.

2.3.3.3 Theory Z

According to Ouchi (1981:283) Theory Z is aimed at building trust, integrity, openness, worker involvement, integrated organisation, information sharing using the collectivism Japanese culture and combining it with the American culture based on individualism, freedom, risk taking and quick decision making. This is probably because Ouchi, a Japanese who worked in America, was drawing from his Japanese cultural experience to see how performance may be improved in America by combining the good aspects of the two cultures.

Theory Z, according to the Japanese culture, encourages mutual trust in work places. In the Japanese work culture workers are granted lifetime employment, work participation to acquire responsibility and accountability, share ideas and information, have job rotation and a holistic concern for the worker. Japanese work culture relates with aspects of Theory Y by suggesting

that there should be an organisation culture which ensures a social affiliation and solidarity between workers and the organisation (Gogia, 2011:online).

While Theory Z aims at influencing the positive behaviour of the individual worker, it also proposes that the corporate culture should be the means of control and direction of the worker. Based on Japanese and American management principles, its aim is to create a strong organisational culture which provides a source of social affiliation and solidarity, thereby promoting worker motivational factors that enhance productivity. Japanese culture, which emphasises collective consensus, is contrasted with that of America, which concentrates on individualism. The beneficial characteristics of each are combined in Theory Z (Parkin *et al.*, 2009:106).

Research into whether Theory Z organisations outperform others has yielded mixed results. Some studies suggest that type Z organisations achieve benefits both in terms of employee satisfaction, motivation and commitment as well as in terms of financial performance. Other studies conclude that type Z organisations do not outperform other organisations (Gogia, 2011:online).

Another criticism raised against Ouchi's Theory Z is that although the theory claims that America's productivity is stagnant and declining, corporations based in America, instead of learning from the Japanese corporations, have dismissed their American workforce, and employed workers from other nations to work for low wages. The profits of these companies are not stagnant or declining, but are reaching record-breaking highs. This view is contrary to the principle of Theory Z (Horowitz, 2001:online).

Ouchi's (1981:283) Theory Z is useful in identifying factors which may improve behaviour for improved productivity. The factors could be listed as openness, security in the form of life employment, participation in decision making, information sharing, informal organisational structure, independence of tasks, and good co-worker relationships. If these factors are present in a work situation, can worker behaviours such as the willingness to accept responsibility and accountability, the willingness to communicate and share knowledge, being trustworthy, being cooperative and collaborative and being committed to the organisation's goals be influenced?

2.3.3.4 Employee Incentive Programme Requirements

Sanders and Thompson (1999:221-223) originally developed employee incentive programmes to improve productivity, improve satisfaction and attract and retain employees. The incentive

programme design should be simple, specific, attainable, measurable, equitable and desirable and in addition should be directly tied to the project objectives using appropriate funding, resource allocation and appropriate levels of participation. These programmes were designed to improve feedback, encourage goal setting and foster teamwork according to the following methodology:

- Employee incentive programmes should be implemented to improve productivity, task focus, and task satisfaction, enhance creativity and innovation, reduce absenteeism and attract and retain workers;
- Employee incentives programmes should be designed to improve feedback, encourage goal setting and foster teamwork;
- Employee incentives should be designed to be simple, specific, attainable, measurable and equitable;
- Employee incentive programmes should include direct ties to project objectives, appropriate funding, appropriate participation, programme safeguards, quantifiable results, necessary resources and incentive desirability, and
- Employee incentive programmes are dependent upon people, processes and project environment.

Sanders and Thompson (1999:221-223) contributed to construction companies designing their incentive programmes with simple objectives such as cost, schedule, customer service, safety, environment and quality properly planned to ensure success. However, Cox *et al.* (2005:373) state that Sanders and Thompson's (1999) incentive programmes are still based on better remuneration.

It seems plausible to assume that cost is one of the project parameters for determining success (Rwelamila & Hall, 1995:237). Money in a project could therefore be regarded as a limited resource, which is why projects are run on a budget. For that matter, the extent to which it can be used as an incentive or motivation may also be limited. There may be budgetary constraints in a project. The only option for managers to harness the potential of workers is to build high performing work teams by managing the intrinsic factors such as such as encouraging a feeling of worth, respect and valuing workers through their work consisting of tasks/activities undertaken.

2.3.3.5 Money as a motivator

Money has generated an intense academic debate with regard to human motivation. For instance, Parkin *et al.* (2009:106), in a study of factors affecting the motivation of workers in Turkish construction sites, found that money earned is the foremost motivating and demotivating factor perceived by construction workers. The study of Olomolaiye and Ogunlana (1988:179-185) found that remuneration-related factors were predominant for motivating construction operatives in Nigeria, a developing country. McKenzie and Harris (1984:25-29) claim that money is the only motivator for construction operatives. A study by Zakeri *et al.* (1997:161-166) in Iran also found that money-related issues were the predominant motivating factors among the Iranian construction operatives.

The conclusions of Parkin *et al.* (2009:106) suggest that Turkish construction workers are limited in their ability to satisfy their higher level needs at work. In order to improve the motivation of the Turkish workers, they should be managed in a way that focuses less on control through external factors, as is consistent with Theory X, and more on providing opportunities for internal growth and development, as is consistent with Theory Y. In trying to improve productivity through motivational techniques, the personally and culturally subjective nature of motivation, as well as contextual issues, should be taken into consideration. The development of an appropriate culture within the construction organisation, consistent with Theory Z, may be the best way that management can improve the motivation of the workforce.

The above-mentioned studies show that money is important in motivating workers as remuneration creates feelings of satisfaction. Money seems unrelated to the motivation influenced by doing a challenging work, and as such money may not be an appropriate way to motivate a construction worker. For the purpose of this study, it is proposed that money be accepted as one of the factors for motivation.

2.4 Important studies on motivation in business/organisation firms

Al-Aamri (2010:2) studied employee motivation in Malaysian businesses to identify the factors that promote positive (desired) motivational behaviour. The study identified the following factors that influence positive behaviour for higher productivity: relationship with boss, quality of supervision, quality of communication, recognition for good work and career development.

According to Herzberg's (1959:44-45;1966:72-74) theories on motivation, relationship with boss, quality of supervision and communication may be considered hygiene factors or dissatisfying

factors as they are not connected to the work itself. Recognition and career development are linked to the work itself and these factors may be regarded as motivators (Herzberg, 1959:44-45; 1966:72-74). These motivators should be improved while dissatisfying factors should simultaneously be eliminated. For instance, in the construction industry job satisfiers have been identified as: job making a profit, customer satisfied, job completed on schedule, tangible physical structure, good workmanship, good work relationships with and within a crew, meeting a challenge and job costs below estimate (Cox, *et al.* 2005:370 citing Borcharding & Oglesby, 1974:413-431).

Parkin *et al.* (2009:106), in a study of factors affecting the motivation of Turkish construction workers, found that money earned was the foremost motivating and demotivating factor from the viewpoint of construction workers.

Akoi-Gyebi Adjei (2009:32) studied motivational strategies to improve productivity in the construction industry in Ghana. The result of the study identified the following four motivating factors: task based work packages, challenging tasks, identification with firm's goal and participation in decision making. Akoi-Gyebi Adjei's (2009:32) study also identified the following six factors classified as hygiene factors: teamwork, late payment of interim certificate, supervision based on leadership by example, provision of equipment, love and belongingness, communication and overtime payments.

Cox *et al.* (2006:160) investigated factors that promote positive motivational behaviour in construction subcontract crews. The factors identified by them are: a feeling of confidence based on workers competences, incentives, quality of work, safety performance, praise, a feeling of being a member of the team/crew, job security and money. The study also found that money was the incentive rated highest by respondents.

Cox *et al.* (2005:373) identified consistencies in the behaviour of motivated, satisfied, committed and loyal workers in the construction industry. The key behaviour indicators were identified as: a motivated employee performs work on schedule, attends to requests and problems promptly, completes and plans own work; a satisfied worker speaks well of his work and company; a committed worker stays with the company during tough times, makes sacrifices, and promotes the company to achieve its goals; a loyal worker makes sacrifices, promotes and abides by company policies.

Cox *et al.* (2005:373) suggest the following positive (desired) construction worker behaviour that may improve construction productivity: perform more work than expected, respond promptly to requests, correct problems, complete task at hand on schedule, plan own work, speak of company with positive regard, speak of own job with positive regard, remain with company in difficult times, ask about future projects, make sacrifices for well-being of company, promote company and abide by company policy. These could be regarded as desired behaviours for improving construction productivity.

Kposowa's (2005:41) study of motivation of skilled workers in the South African construction industry showed that the majority of South African construction companies use monetary rewards as incentives and bonuses in order to improve productivity.

Each of the need based theories reviewed suggests a hierarchy of needs. As lower level needs are met, they no longer serve as a motivating factor and the employees direct their attention to addressing a higher level need. It is believed that job security and remuneration belong to the lower worker needs, and the above-mentioned studies suggest that in a construction company these lower levels needs have not been adequately satisfied.

Monetary remuneration as a motivating factor is thus included in this study for measurement and validation of its influence on worker behaviours.

2.5 Further survey

The above-mentioned motivational theories identify some of the human factors that may have an influence on improved construction productivity. Herzberg's (1959:44-45; 1966:72-74) theories on motivation seem to regard communication, organisational culture and leadership as hygiene factors which must be improved to minimise dissatisfaction at the work place, while skill or competences are regarded as motivators. This is because Herzberg's (1959:44-45; 1966:72-74) theories on motivation regard supervision, company policies and administration as hygiene factors. Kazaz *et al.* (2008:96) state that communication is required for supervision of work. Patterson, West, Lawthom and Nickel (1997:8) state that supervision and communication are both linked to organisational culture while Akoi-Gyebi Adjei (2009:32) identifies leadership by example as a hygiene factor. It may be necessary to review skill, communication, culture and leadership in order to identify more factors which may influence productivity.

The study by Cox *et al.* (2005:373) identifies a committed worker as speaking well about his work and company goals, and a loyal worker as abiding by the company policies. This could

suggest skill as being important for maintaining motivation and communication for ensuring that important information is messaged and understood at work. Hackman and Oldham (1980:78) in their theory of job characteristics name skill variety and feedback among the five factors which influence behaviours.

As shown above, skill, communication, culture and leadership appear to be major factors that influence behaviour. These factors would require further investigation in order to identify all factors in the study that may influence construction productivity.

2.6 Conclusion

The objective of this chapter was twofold: firstly, to identify motivational factors which may improve construction productivity, and secondly to identify a desired (positive) behaviour for improved construction productivity.

The motivational factors may be listed as: a good salary, money incentives, company staff housing, and staff lunches, provision of staff and family health care, and transport for workers. Security and safety needs may include work security in terms of long-term employment contracts and adequate safety and health at the work place. The middle level need factors may include being accepted and appreciated as a team member of the work force, participation in decision making, openness, information and knowledge sharing, good co-worker relationships, praise, respect, recognition, fair and equitable treatment of workers, good company policy and equal opportunity. The higher level need factors may include leadership needs in terms of supervision and helping others in terms of solving work problems, including use of own ideas and knowledge at work, independent work (autonomy) or task plan, and feedback. Factors regarding the task or work itself may include task difficulty, task specificity and task performance commitment, task variety, task significance, interesting work, challenging work, informal organisational structure, and independence of tasks. Skills factors may include skill variety, training, learning, coaching, mentoring, growth, experience, self-efficacy, high self-esteem, trust and responsibility. The above list of factors has been identified in motivation and motivational theories.

The positive (desired) worker behaviours identified could be summarised as follows: worker commitment to the organisation's success goals towards the client, being achievement driven, being trustworthy, being cooperative and collaborative, taking action to improving skill through learning opportunities to advance and personally grow so as to be fully skilled, communicating

effectively to resolve work problems and conflicts, willing to take responsibility and accountability at work, being enthusiastic and optimistic at work and communicating effectively to share knowledge and ideas at work and promote the company, perform more work than expected, respond promptly to requests, correct problems, complete task at hand on schedule, plan own work, speak of the company with positive regard, speak of own job with positive regard, remain with the company in difficult times, ask about future projects, make sacrifices for the well-being of the company, promote the company and abide by company policy.

After testing these motivational behaviours through a quantitative survey, they may be used as standards, since recognised behaviours of motivated and satisfied workers are similar for most workers, and therefore the tested behaviours may serve as behaviour indicators or benchmarks for motivation and worker satisfaction assessment.

The above positive (desired) worker behaviours may be useful in gauging or benchmarking the level of construction worker motivation and satisfaction that corresponds to improved construction productivity. Construction supervisors, project managers and other industry practitioners could then use this knowledge to determine whether or not their management techniques are improving construction productivity. In Chapter 3, skills and their influencing factors for improved productivity are reviewed.

CHAPTER 3 CONSTRUCTION WORKER SKILLS AND THEIR INFLUENCING FACTORS FOR DESIRED BEHAVIOUR FOR IMPROVED PRODUCTIVITY

3.1 Introduction

In Chapter 2 various motivational and behavioural factors were identified and investigated. In this chapter the objective is to identify and investigate skill factors and desired behaviours that improve productivity and gauge construction workers' motivation and satisfaction levels.

According to Kazaz *et al.* (2008:100) ineffective management is cited as the primary cause of poor construction productivity rather than unmotivated or unskilled workers. This would suggest that both skill and motivation are requirements for influencing desired behaviours for improvement of construction productivity. An unskilled worker, although motivated, may not have the required ability to perform well and improve construction productivity. Parkin *et al.* (2009:107) state that motivation may only improve construction productivity if the worker has the abilities and skills needed for the job. Hanafi *et al.* (2010:143) found that competency of site supervisors is an important contributing factor influencing labour productivity in installing on-site prefabricated components.

Skill may be required in the follow-up and organisation of labour, in the inspection and approval of completed work, as well as the in the organisation and coordination of work, including sub-contractors' work. Skills are therefore important for influencing behaviour that may possibly improve construction worker productivity (Hackman & Oldham, 1980:78). The various skills factors influencing appropriate skills for desired behaviour for improved construction productivity are therefore identified and investigated in this chapter.

3.2 The concept of skill

According to Smit and Cronjé (2002:311) a worker's ability refers to his or her capability regarding different tasks. Gibson *et al.* (2009:94) define ability as a trait (innate or learned) that permits a person to do something mentally or physically. Smit and Cronjé (2002:311) state that ability consists of two components, namely intellectual capacity and physical capacity. Grobler, Wörnich, Carrell, Elbert and Hatfield (2002:95) add that ability consists of three parts: mental activities, physical activities and knowledge. Kreitner and Kinicki (2007:156) state that ability represents a broad and stable characteristic responsible for a person's maximum performance

on mental and physical tasks. Gibson *et al.* (2009:94) define skill as task related competence. An employee's intellectual capacity may refer to the ability to perform activities intelligently, while physical ability may refer to coordination and strength. Knowledge may constitute the required body of information in a particular work area to be performed by the employee on the job. Kreitner and Kinicki (2007:156) define skill as the specific capacity to physically manipulate objects.

Skill is therefore important in work situations. For instance, skill may allow a worker to study and examine work details in order to understand more of that work. With the necessary skill, a worker may appraise and evaluate the alternative processes of performing the task (Hackman & Oldham, 1980:78). A skilled worker may generate his or her own ideas and communicate them clearly and concisely to others for work improvement, and may also measure, quantify and synthesise the result of his or her action in order to get the big picture. Such a worker could also help other workers improve on their work (Hackman & Oldham, 1980:78). Assisting others to improve their work may be regarded as a desired behaviour for improving productivity and gauging motivation and satisfaction levels of construction workers.

Since skill consists of the willingness and the ability – both physical and mental – to do the work, Hackman *et al.* (1975:58) in the Job Characteristics theory suggest that the task itself is key to employee motivation. Factors such as worker ability, consisting of physical, mental and knowledge, are therefore important in the execution of the task.

The International Labour Organisation identifies some of the macro factors influencing worker skills. It states that in the construction industry, construction workers' skills depend on a number of factors: the general level of development in the country, the general educational level and the skills development level of the country as well as the complexity of the work the domestic construction industry is expected to perform (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:65). These factors all seem to relate closely to the workers' mental and physical ability to perform work. For example, the general level of development in the country may limit opportunities for workers to be exposed to similar work and therefore the worker's experience may be inadequate. The general educational level of the country may determine what level of education such a worker has achieved and hence his ability to work, read and write. The skills development level of the country may determine what kind of training opportunities the workers have had before joining the construction workforce.

Where such workers have not been trained, the employer may have to take responsibility for their training.

The report by the International Labour Organisation Construction (International Labour Organisation Construction. Building, Civil Engineering and Public Works Committee, 1983:65) also states that in Haiti for example, where adult literacy is only 23 per cent, the principal deficiency is clearly basic education. As many supervisors are illiterate, they can hardly be expected to take charge of construction work that requires interpreting of engineering documents. In Sri Lanka the adult literacy rate is about 78 per cent, the supervisors can read and are thus able to interpret engineering documents and take charge of construction work effectively. This may suggest that the more literate a worker is, the more skilled he may be. Literacy may therefore be regarded as a factor that influences workers' mental ability for improving construction productivity.

The important issue is the ability of the construction worker to read and write. This ability may be acquired through formal education, beginning with basic education. Some people may regard basic education as primary school education only, while others would include secondary school education (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:65). To avoid this problem, the factors of basic education and literacy may be grouped together under one factor that may be identified as adult literacy level. Adult literacy level may be identified as a skill factor for acquisition of information for improved construction productivity (International Labour Organisation Construction. Building, Civil Engineering and Public Works Committee, 1983:65-68; Kazaz *et al.*, 2008:104; Mselle & Manis, 2000:46).

Construction workers' skills requirements depend on the nature and complexity of the construction project. For example, when a mason employed in the construction of a gravel road, where he is expected to build simple structures such as retaining walls or culverts on a small scale, will perform a job where technical demands are moderate. Another job may require a mason to work on the construction of a large and complex power station where reading complex drawings is required and finishing work to exacting standards is needed. This kind of project will demand technical skills, including reading, as part of communication skills (Hackman & Oldham, 1980:78; International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:65-68; Rojas & Aramvarekul, 2003:78).

The complexity of a project, which may originate from the nature of tasks, challenging tasks being an example, may be identified as a construction worker skill factor that may influence productivity.

Mselle and Manis (2000:46) state that the key skills for a successful project manager should consist of effective communication to articulate construction objectives, solve problems, supervise work, make timely decisions and obtain subcontractors' commitment to the project objectives. This may be because information or knowledge of how work is to be performed may be constantly required from a project manager.

According to Uwakweh (2000:32) critics of labour productivity research studies state that ignoring the contribution of the human element of workers' efforts and abilities and simply viewing construction workers as mechanical units of labour which may be interchangeable, makes the researchers miss this point of the human factor element of worker skills. The lack of behavioural management literature on improving construction productivity in the construction industry may suggest that it is the researchers who may be missing the point (Rwelamila & Hall, 1995). Uwakweh (2000:32) adds that because all human beings are unique, some workers may produce quality work due to innate abilities, training and motivation, while others do not. Uwakweh (2000:32) points out that as a human resources issue, the contractor may wish to employ the best skilled worker in the market in order to improve his construction productivity. Hackman and Oldham (1980:79) note that a skilled and experienced worker who is able to design, plan and execute a challenging task autonomously and successfully, may be motivated to accept responsibility and accountability. Challenging work may be regarded as a factor that influences productivity, while responsibility and accountability may be regarded as a desired behaviour for improving construction productivity.

The following factors have been found to influence skills for improved construction productivity: nature of work (such as interesting work and challenging work), literacy level, workers' basic education and workers' knowledge or information of work.

In the next section skills development is reviewed in order to identify more skills factors and desired behaviours that influence construction productivity.

3.3 Skill development in construction

According to Kazaz *et al.* (2008:95) the construction work force, especially in developing countries such as Turkey, come from farming communities. In Thailand, for instance, farmers

seek to complement their farm income with construction work employment after the harvest and sometimes travel over long distances to urban centres for this purpose (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:65-68). Suresh and Yew-Wah (2005:31-57) state that the Malaysian construction industry is highly dependent on immigrant labour and that immigrants account for nearly 70 per cent of its work force.

The implication of the above scenario is that the construction industry may tend to have and rely more on semi-skilled workers than those with higher-level skills necessary for the more demanding jobs. Skilled workers may only be available by way of labour importation (Suresh & Yew-Wah, 2005:31-57). Developing countries have a shortage of workers with sufficient capabilities, which necessitates importing skilled labourers for construction projects (Suresh & Yew-Wah, 2005:31-57). Three of the factors identified that may influence skills towards higher productivity are experience, training and learning.

Olomolaiye and Ogunlana (1988:180) state that the construction industry workers' lack of skills affects productivity negatively in Nigeria. According to Alwi, Hampson and Mohamed (1999:2) in the 1990s, the Indonesian construction industry employed approximately 2,5 million workers, of which 88 per cent were unskilled or had a low level of skill, while 11 per cent had medium to high level skills. The remaining 1 per cent had management skills and could take charge of construction work effectively. This statement supports the findings of Olomolaiye and Ogunlana (1988:180) and Suresh and Yew-Wah (2005:31-57) that construction industry workers lack skills to improve productivity in developing countries. According to Alwi, Hampson and Mohamed (1999:2) the shortage of the above skills are due to the lack of skilled communications, with individual workers unable to plan and direct works.

According to Ssegawa and Ngowi (2007:30) the lack of skilled labour in Botswana is one of the contributors to poor construction productivity.

In Turkey and Thailand farm workers supplement construction workers (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:65-68; Kazaz *et al.*, 2008:95). In Malaysia the construction industry depends on imported labour (Suresh & Yew-Wah, 2005:31-57). In Botswana and Nigeria construction workers lack skills to improve construction productivity (Olomolaiye & Ogunlana, 1988:180; Ssegawa & Ngowi, 2007:30). There is an urgent need to consider ways of decreasing the shortage in skilled construction workers. One of the ways to improve skills could be training programmes. Another way could be

to use multi-skilling as a strategy (Mselle & Manis, 2000:46; Rojas & Aramvareekul, 2003:78). This is reviewed in the next section.

Wang, Goodrum, Haas and Glover (2009:999-1008) used two separate data sources, namely extensive craft certification and skills data, and applied correlation and cluster analyses, to identify actual patterns of multi-skilling among craft workers. The results of the study show that multi-skills are divided in four groups, namely civil, mechanical, electrical and general, and that multi-skilling improves construction productivity by mitigating craft shortages through better usage of the existing workforce.

In the construction industry some craftsmen's skills seem to be linked to trades of the builders, such as painting, bricklaying, masonry and concrete mixing. This may suggest that the tasks to complete a project successfully may vary according to the above trades. Although trades may be similar, projects may be different and require different experiences. If workers constantly perform the same task or similar activities they may not gain experience unless one trade is performed and completed to a required standard. Kazaz *et al.* (2008:104) agree with this suggestion. Experience may be required for success and productivity in construction projects. According to a report by the International Labour Organisation's Building, Civil Engineering and Public Works Committee (1983:65-68), the construction industry may need to retain the experience acquired on completion of projects by moving workers to new projects if possible, training them on the job rather than laying them off at the end of a project without investing in formal training because of the temporary nature of projects.

The manufacturing industry on the other hand, although having varying tasks for various processes, does have permanence. According to Kirman (1988:62) the people (management and workers) in the manufacturing industry are site bound. The raw materials are brought to the factory, transformed into products, and the products are moved out for distribution to consumers. Since the people are virtually permanently situated on one site with repetitive work, training programmes can be planned in advance and implemented effectively. Kirman (1988:62) adds that the factory management may see the advantage of increased productivity and may be willing to invest in both formal and informal training.

The above literature suggests that there is a skills shortage in the construction industry. When workers are trained to acquire multi-skills, or skilled, experienced workers recruited, they may be able to plan and work independently. By working independently workers may be able and willing to accept responsibility and accountability. Responsibility and accountability were

identified in Chapter 2 as some of the behaviours for improving construction productivity and gauging the motivation and satisfaction level of the worker.

3.4 Training of construction workers

Construction workers in developing countries mostly have low levels of education and are generally unskilled (Kazaz *et al.*, 2008:95). It is therefore necessary to train construction workers to acquire skills in order to improve productivity.

Enshassi, Mohamed and Ekarriri (2009:31-50) identified and evaluated the factors affecting construction worker skills upgrading in Palestine. The results of their study (Enshassi *et al.*, 2009:31-50) show that mentoring is the preferred training approach, and that decision making, problem solving, communication and goal setting are important skills.

Uwakweh (2005:1320-1327) surveyed the perceptions of apprentices regarding their foremen. The results of the survey reveal seven foremen factor scales: performance improvement, work facilitation, achievement orientation support, work participation, bias, and recognition.

Rojas and Aramvareekul (2003:78) investigated the relative level of relevance of construction labour productivity drivers in the construction industry. Rojas and Aramvareekul's (2003:78) study shows that management skills and manpower issues are the two areas with the greatest potential to influence productivity. These skills are important for frontline managers such as construction foremen in that it may enable them to communicate effectively, articulate construction objectives, solve problems, supervise work, make timely decisions and obtain subcontractors' commitment to the project objectives (Mselle & Manis, 2000:46).

There seems to be agreement that there is a skills shortage among the construction workers and ways of improving their skills need consideration (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:65-68; Kazaz *et al.* 2006:95; Olomolaiye & Ogunlana, 1989:180; Ssegawa & Ngowi, 2007:30; Suresh & Yew-Wah, 2005:31-57). It is, however, unclear what the common agreement is on how best to improve workers' skills in the construction industry (International Labour Organisation Construction. Building, Civil Engineering and Public Works Committee, 1983:65).

There is currently a debate on how job training should be carried out. For example, Kazaz *et al.* (2008:104) state that in a construction environment, where construction workers with little education are employed as craftsmen, workers are mostly trained only by the apprentice-

craftsman relationship on site. The above training methods could be appropriate if the workers were well-educated, but as such the training may not be efficient or may require a very long time for it to be effective, unless good supervision is put in place (Kazaz *et al.*, 2008:104). According to Kazaz *et al.* (2008:96) the best approach is to have occasional short training programmes or day release courses and seminars in educational establishments, supported by the local construction industry, professional societies and governments of developing countries.

The study on oil projects in Canada suggests that with good supervision apprentices can improve construction productivity (Fayek, Shaheen & Oduba, 2003:391-405).

Fester and Haupt (2006:5) state that work place learning provides the underpinning knowledge and attributes of competence needed for the job as a whole, including aspects of the work place culture, work norms and values.

Verster, Hauptfleisch and Kotzé (2008:27) agree that work place learning is important and add that most professions require an in-employment (in-service) training period after qualification to ensure that candidates adjust to practice and are trained to practice as independent functionary professionals. On the job training therefore provides opportunities for the worker to have hands-on experience so as to enable the worker to acquire valuable and specialised knowledge and skills by learning from experience and reflecting on that experience while becoming acquainted with work processes. It is therefore a way of improving construction productivity (Verster *et al.*, 2008:27).

The International Labour Organisation (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:63-64) recommends three options for worker training:

- Vocational training schools should be the main institutions where skilled workers required by various construction trades are trained; while post-secondary schools and colleges should provide higher level knowledge and skills training;
- Contractors' and workers' associations should participate in developing training programmes offered by the vocational training schools, and
- For developed countries such as France and Germany, there should be a requirement for employers to pay part or full remuneration as an incentive to workers who take leave for further training.

Enshassi, Mohamed and Ekarriri (2009:31-50) suggest internal mentoring as the best way to train workers. Hewage and Ruwanpura (2006:1075-1089) and Fayek *et al.* (2003:391-405) support internal apprenticeship as a way of worker training.

The International Labour Organisation (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:63-64) is of the opinion that contractors themselves, supported by their associations, should provide on the job training.

Although the above-mentioned debates seem to suggest that there is no agreement on the appropriate methods of training construction operatives, it may be noted that any form of worker training is important for improving workers' skills towards improving productivity.

Contractors need two types of training to develop their capacity and efficiency, namely technical skills and management skills training. The technical skills such as masonry work, concrete work, steel work and formwork could be acquired through vocational and on the job training programmes. Management skills on the other hand, are required when a construction business grows. When contractors take on bigger and more complex jobs, they need to read and interpret drawings, manage their risks, market, have financial control, bid for contracts and train the work force (International Labour Organisation. Building, Civil Engineering and Public Works Committee, 1983:100).

The literature suggests that although the best training methods to improve workers' skills may be undecided, skill factors such as job training in the form of apprenticeship, mentoring and coaching may be important for workers' learning, and improving worker skills and experience to enable them to work autonomously and accept responsibility and accountability. Having the opportunity to plan work and willingly accepting responsibility and accountability are some of the desired worker behaviours towards improving productivity and gauging motivation and satisfaction level of the workers, as identified in Chapter 2. In the next section important studies are reviewed to identify more skill factors and desired behaviours.

3.5 Important studies

Fayek *et al.* (2003:391-405) studied the impacts on and benefits to the various parties involved in industrial construction projects in Canada. The main finding of the study was that apprentices could be incorporated effectively in industrial construction projects and they could be both productive and cost effective, provided they were given adequate instructions and supervision. This study by Fayek *et al.* (2003:391-405) may suggest that there is a shortage of skilled

construction labour forces even in developed countries such as Canada, and may further suggest that such a shortage of skilled construction labour forces could be overcome by training of construction workers in order to improve productivity.

Hewage and Ruwanpura (2006:1075-1089) researched human issues in the construction industry of Canada. The results of the study show that worker motivation and worker training are required to improve skills such as management, communication, and problem solving. This study by Hewage and Ruwanpura (2006:1075-1089) may suggest that skills are important for sharing information and solving problems in order to improve productivity. Communicating effectively to share knowledge and ideas at work and promote the company were identified in Chapter 2 as some of the desired worker behaviours for improving construction productivity and gauging motivation and satisfaction level of workers.

Uwakweh (2005:525-532) surveyed the perceptions of apprentices regarding their foremen's ability to perform well. The result of the survey revealed seven foremen factor scales: performance improvement, work facilitation, achievement orientation support, work participation, bias, and recognition. The results of the study seem to suggest that foremen should have skills to motivate, facilitate, direct and support workers in such a way that it may improve construction productivity.

Uwakweh (2006:1320-1327) surveyed the perceptions of apprentices regarding their foremen's ability to create a positive work climate. The results of the survey reveal that the apprentices needed an improved motivational climate. As their overall motivational score was low, the study suggested that the contractors were not providing a variety of rewards to the apprentices. In Chapter 2, motivation was identified as important for influencing construction desired behaviours for improving productivity.

Tuuli and Rowlinson (2009:1334-1347) used hierarchical linear modelling to analyse responses from 380 staff members on project management level. The results of the study show that psychological empowerment does not only have direct and positive performance consequences, but also indirect effects, mediated by intrinsic factors such as motivation, opportunity to perform and ability to perform. Motivation was directly linked to positive (desired) worker behaviour that improves performance (Herzberg *et al.*, 1959:44-45; Herzberg, 1966:72-74). The ability to perform and the opportunity to perform were identified as factors that allow a worker to schedule, plan and work autonomously/independently with minimum supervision (Hackman & Oldham, 1980:78). Opportunity to plan and work autonomously/independently are some of the

desired behaviours for improving productivity and gauging the level of motivation and satisfaction level of construction workers, were identified in Chapter 2.

Rojas and Aramvareekul (2003:78) investigated the relative level of relevance of construction labour productivity drivers in the construction industry. The results of their study show that management skills and manpower issues are two areas with the greatest potential to influence productivity. Management skills are important for frontline managers such as construction foremen in that it may enable them to communicate effectively to articulate construction objectives, solve problems, supervise work, make timely decisions and obtain subcontractors' commitment to the project objectives (Mselle & Manis, 2000:46).

Wang *et al.* (2008:795-803) investigated major issues regarding craft training, such as the relative importance of basic core topics, worker training completion rates, the relation between trades' engagement and training, and the barriers of advancing craft training in construction. The results of the study (Wang *et al.*, 2008:795-803) show that training of workers could improve construction productivity.

Fayek, Yorke and Cherlet (2006:391-405) provide an overview of the recent advances and initiatives in the work force in Alberta within the unionised building trades sector of the industrial construction industry in Canada. They highlight the economic significance of these initiatives for the mega construction projects. The result of the study indicates that apprentice mentoring is the appropriate model for training and overcoming lack of skills in the construction industry.

Hanafi *et al.* (2010:143) identify communication skills of site supervisors as an important factor influencing construction productivity. Kaming, Olomolaiye, Holt and Harris (1997:21-30) and Kaming, Holt, Kometa and Olomolaiye (1998:107-113) name delays in supervision of work by site supervisors as a significant factor influencing construction productivity in Indonesia.

Hanafi *et al.* (2010:143) identify site supervisors as frontline managers who ensure that work proceeds at a reasonable rate. They may require skill, ability, knowledge and experience to do their work properly. Muchengwa (2005:65) defines competency as the demonstration and integration of knowledge, skill and personal abilities in the form of attributes and value orientation.

Therefore, an effective site supervisor may require and need sufficient knowledge, ability or talent and experience to solve work problems on site. The conclusion may be drawn that these skills factors are important for sharing information and solving problems in order to improve

productivity. Communicating effectively to share knowledge and ideas at work and promote the company were identified in Chapter 2 as some of the desired worker behaviours for improving construction productivity and gauging motivation and satisfaction level of workers.

Hanafi *et al.* (2010:144) also identify availability of a specific workforce at the worksites and labour skilfulness as factors that influence productivity. Lim and Alum (1995:52-58) identify absenteeism of construction workers as a factor affecting the skill effort level of workers. Zakeri *et al.* (1996:417-426), Kaming *et al.* (1997:21-30) and Kaming *et al.* (1998:107-113) identify worker turnover as a factor affecting the skill effort level of workers. Abdul Kadir, Lee, Jaafari, Sapaun and Ali (2005:42-54) identify lack of construction workers in the market as a factor affecting the skill effort level of workers. These factors provide additional evidence that construction workers may be in short supply, lack skills and need on the job training.

Alinaitwe (2007:169-176) investigated factors affecting the productivity of building craftsmen in Uganda. The results of the study show workers' lack of skills and incompetent supervisors as among the ten most important factors influencing construction productivity.

Thomas, Minchin and Chen (2003:9) case studied four highway construction bridge works. The result of the case study shows that lack of experience in bridge construction seems to be the cause of several problems that plagued each of the four projects. Experience may be regarded as a skill factor.

The above-mentioned important studies suggest that skill factors such as supervision, experience and training on the job may influence skill for improving construction productivity. When these factors are lacking, skill may lack. It is important to train workers to acquire skills in the form of training on the job, coaching, apprenticeship or mentorship. This training may enable workers to be skilled to share knowledge at work and to solve work problems. These skills may also help workers to plan and work independently. It could also help workers to accept responsibility and accountability for work. These behaviours were identified in Chapter 2 as desired behaviours for improving productivity and gauging motivation and satisfaction level of workers.

3.6 Conclusion

The objective of this chapter was to identify and investigate skill factors and desired behaviours that improve productivity and gauge motivation and satisfaction level of construction workers.

The skill factors identified may be listed as literacy level, education level, challenging tasks, supervision, experience, opportunity to work, knowledge of or information regarding work and improving workers' ability/talent through training in the form of on the job training such as coaching, learning, apprenticeship and mentorship. These factors seem to influence some of the desired worker behaviours for improving productivity and gauging motivation and satisfaction level of construction workers. The study attempts to validate if the identified behaviours are indeed influenced by the identified factors.

The positive (desired) construction worker behaviours are identified as willingness to share knowledge at work and solve work problems; willingness of the worker to train to learn in order to improve skill; the ability and willingness to accept responsibility and be accountable for work; the opportunity and willingness to schedule, plan and work independently/autonomously and helping of others on their work. The literature seems to suggest that whatever skill used as management strategy to enable workers to acquire work experience and skill, the above behaviours remain the same for most workers.

The above positive (desired) worker behaviours will be tested to determine their usefulness in gauging or benchmarking the level of construction worker motivation and satisfaction that correspond to improved construction productivity. The understanding and knowledge obtained from studying these desired behaviours could help construction supervisors, project managers and other industry practitioners determine whether their management techniques are motivating and satisfying construction workers enough to improve construction productivity.

Herzberg (1966:72-74) identifies work supervision as a dissatisfying factor. Kazaz *et al.* (2008:101) state that supervisors use communication for supervising work. It is probable that lack of communication dissatisfies in terms of motivating in the work environment. It is in this regard that in the next chapter a review of communication to identify more factors and more positive (desired) behaviours for improving construction productivity and gauging motivation and satisfaction level of construction workers is presented.

In the next chapter communication in construction organisations is reviewed in order to identify influencing factors for positive worker behaviours for improved productivity.

CHAPTER 4 COMMUNICATION FACTORS AND DESIRED WORKER BEHAVIOURS FOR IMPROVED CONSTRUCTION PRODUCTIVITY

4.1 Introduction

In this chapter the objective is to identify and investigate communication factors and desired construction worker behaviours for improved productivity and gauging motivation and satisfaction levels of workers.

According to Kazaz *et al.* (2008:101) increasing construction productivity requires the supply of information and feedback by way of dialogue among construction workers within the construction organisation. Zakeri *et al.* (1996:417-426) identify the lack of information from project supervisors to construction operatives among the top four most important factors which influence labour productivity in terms of the execution of construction projects at work sites in Iran. Hanafi *et al.* (2010:143) identify lack of information, adequacy of relevant information, communication breakdown and communication problems between supervisors and construction workers as important factors influencing labour productivity in the installation of on-site prefabricated components. Studies by Zakeri *et al.* (1996:417-426) and Hanafi *et al.* (2010:143) suggest that communication is important for improving construction productivity. The contribution of communication in this study is therefore regarded as important and both various communication factors and the influence on positive (desired) worker behaviours are thus identified and investigated in this chapter.

4.2 Concept of communication

Steyn *et al.* (2009:270) state that communication is a means of exchanging ideas, information, and knowledge regarding work, reward and relationship between parties and different stakeholders in a project within agreed channels of communication. This exchange of information may be useful in building the required confidence for the worker to acquire skills, experience and good work relationships so that he may be able to accept responsibility and accountability and gain the cooperation of other workers. Experience and skill may allow a worker to have the ability to plan and execute work independently. Good co-worker relationships may allow cooperation and collaboration at work (Hackman & Oldham, 1980:78). Responsibility and accountability, and cooperation and collaboration, may be regarded as some of the desired

worker behaviours for improving construction productivity and gauging motivation and satisfaction level of workers.

Communication is important for ensuring that constant dialogue between the construction worker and supervisor takes place to achieve good work (Kazaz *et al.*, 2008:101). Kazaz *et al.* (2008:101) add that such a worker could communicate effectively to solve work problems and conflicts, share knowledge and ideas and help others to improve work. Cox *et al.* (2005:371) agree that this worker could enquire about future projects, and speaking positively about the company and his own work. The above behaviours could be regarded as desired behaviours for improving construction productivity and may gauge the motivation and satisfaction levels of workers.

George (1994:397) identifies speaking as part of communication. Comprehensible language could be useful in influencing good working relationships and desired construction behaviours such as worker commitment to the organisation's goals for success, towards the client, being trustworthy, and communicating effectively to resolve work problems and conflicts (Kazaz *et al.*, 2008:101). Comprehensible language may be identified as a communication factor.

Axley (1984:430) considers communication a metaphorical pipeline along which information is transferred from one individual to another. Thomason (1988:80) defines communication as the lifeblood of any system of human interaction because without it, no meaningful or coherent activity can take place. A message of respect, honour and reward may be conveyed through communication to the workers to influence behaviours such as cooperation, collaboration, trustworthiness and honesty at work (Kazaz *et al.*, 2008:101). Communication, being a pipeline or lifeblood for information, could be useful in teaching a worker how to work best; and a worker may use communication to learn and improve skills (Axley, 1984:430; Thomason, 1988:80). A skilled and experienced worker may use his own ideas to plan his work and execute work independently/autonomously. The above-mentioned behaviours were identified in Chapter 2 and may be regarded as some of the desired behaviours for improving construction productivity and gauging motivation and satisfaction levels of workers.

Ochieng and Price (2009:3) define communication as a professional practice where suitable tools and regulations can be applied in order to improve the utility of the data communicated, and as a social process of interaction between individuals. The data could be work instructions, rewards, encouragement, respect and recognition for workers' efforts. This may in turn create

good working relationships and participation which could influence desired worker behaviours for improving construction productivity (Kazaz *et al.*, 2008:101).

Bowen, Caffell, Michell and Kabayadondo (2006:22) define communication as a transaction between sender and receiver. Communication is defined as the transfer of information, ideas, understanding or feelings among people (Mondy & Premeaux, 1993:360). According to Gibson *et al.* (2009:429) communication is defined as transmitting information and understanding, using verbal or nonverbal symbols. Kotzé, Berry and Verster (2008:2; citing Steyn *et al.* 2003:274-275) state that communication is the element that sells and resells ideas, explaining the scope and methodologies of the project to diverse groups of people (the public, management, functional departments and other stakeholders) threatening or bargaining with service providers and suppliers, or negotiating to settle disputes or interpersonal conflict between project team members or stakeholders. Communication is important for the success of construction projects' implementation and participation. Wilson (1995:329-344) states that full participation of the worker may not only influence motivation but also influence the worker to become enthusiastic and optimistic at work.

The following information factors may be identified: information and knowledge of work, co-worker relationship and comprehensible language. These communication factors may create desired behaviours through effective communication as being responsible and accountable, planning and executing work independently, worker commitment to organisations' goals, being trustworthy, communicating effectively to resolve work problems and conflict, speaking positively about the company, speaking positively of own job, and enquiring about future projects. The above-mentioned behaviours were identified in Chapter 2 as desired behaviours and could be regarded as positive (desired) construction worker behaviours which may improve construction productivity and gauge the levels of motivation and satisfaction.

4.3 Manifestation of communication in construction

Communication in construction manifests itself in many important ways. Communication is so critical to project success that it has been referred to as the lifeblood of a project by more than one practitioner (Awati, 2010:online). Communication, being the lifeblood of a project, could be useful in teaching a worker how to work best, and a worker may use communication to learn and improve skills. It may allow project team members to collaborate, share, collate and integrate information and knowledge to realise project objectives. Communication is thus important for the exchange of ideas, knowledge and information of work. Timely feedback is

required for the monitor and review of the success of the communication processes and systems with a view to making a basis upon which assessments can be made (Talukhaba, Mutunga & Miruka, 2011:128).

Zulch (2012:164) refers to a case study that presented clear solutions to communication problems related to construction project, namely:

- “Continuous pro-active structured interactions,
- Use the established communication instruments,
- Use the approved project communication framework to communicate to agents”.

The above illustrates the importance of communication to improve site administration operations and thus production.

Managing a project requires constant selling and reselling of ideas, explaining the scope, and work methodologies, motivating workers and solving disputes and work problems (Steyn, 2008:303-304). Communication as such can be useful for training workers to acquire skill, solve work problems, convey motivational rewards and create cooperation among work teams. In this way communication helps in motivation, skill transfer and may allow an experienced worker who is skilful enough to plan his own work. This kind of behaviour was earlier identified as a positive behaviour of a motivated worker who may improve productivity. Communication is therefore very important for the successful implementation of construction projects.

4.4 Communication for improving construction workers’ productivity

According to Kotzé *et al.* (2008:2) communication is the primary method project managers use to influence involved professionals and persuade them to give their best in order to ensure successful project completion. It is important that communication factors, which make communication effective, are present in the project communication implementation processes. Kotzé *et al.* (2008:2) refer to a survey that was conducted to establish the current performance of professional consultants in respect of their communication and communication instruments in the construction industry in the Republic of South Africa. The results of the research indicate that communication is crucial for project success and that literacy is a core skill of communication. George (1994:397) states that communication skills consist of speaking, listening, reading, writing, and presenting information. Emmitt and Gorse (2003:119) state that through speaking we try to eliminate misunderstanding and that architects and construction managers find face-to-face communication the most effective type of communication. This may

suggest that verbal communication is just as important as written communication and that comprehensible language is important in understanding construction information. Comprehensible language and listening may be identified as communication factors that may influence desired worker behaviour which in turn may improve construction productivity.

Kazaz *et al.* (2008:101) state that communication on a construction site may be used for building a mutually respectful relationship and to motivate workers in order to increase construction productivity. Co-worker relationships may be identified as a factor of communication.

Tai, Wang and Anumba (2009:136-149) studied communication in large-scale projects in China in order to identify the problems. The findings of the study show that the root causes of communication problems are lack of good communication mechanisms, weak organisational structures of construction teams, lack of uniform standards for construction information and lack of support for advanced communications technologies. Information may be identified as a factor in communication.

Hanafi *et al.* (2010:143) identify communication breakdown as one of the factors that influences construction productivity. The information breakdown may be regarded as a lack of feedback information implying that information feedback could be regarded as a factor in communication.

Lim and Alum (1995:52-58) investigated factors influencing construction productivity in Singapore. The results of the study show that communication problems between labourers and their supervisors were among the ten most important factors significantly influencing construction productivity. Ovararin (2001:56-76) conducted a literature review on factors that influence labour productivity on construction sites. The result of this review identifies communication failure eighth from thirteen most important factors influencing labour productivity. The deduction from the above-mentioned studies is that communication is important for good worker relationships and trustworthiness, which may both be identified as factors that may create desired worker behaviours for improved construction productivity.

Herzberg (1966:72-74) identifies supervision in the work place as a necessary factor in effective motivation. Supervisors may have to give feedback to a worker in connection with their work. Feedback has been identified in this section as a factor in communication that may be required in the recognition of workers for their good work and effort (Hackman & Oldham, 1980:78).

According to Gibson *et al.* (2009:428) communication has become so important that more and more organisations are implementing programmes designed to assess managerial communication skills and provide follow-up training to overcome any deficiencies. This may be because communication may be important for improving productivity. On a construction site, when communication is used for building a mutually respectful relationship and to motivate workers, construction productivity may be increased (Kazaz *et al.*, 2008:101).

Individual managers spend over 80 per cent of their time at work communicating because their employees want to know how their jobs should be performed, how effectively they are performing in their jobs, how much they will be paid, changes in conditions within the organisation which might affect them and company policies and rules that directly affect their jobs (Mondy & Premeaux, 1993:364). Emmitt and Gorse (2003:119) suggest that individual managers may need to communicate face-to-face with their subordinates in order for them to properly understand the flow of information. This two-way communication, sometimes also called vertical and downward communication, is open communication between a supervisor and a worker (Allan, 1985:41-47; Gibson *et al.*, 2009:435; Newman, 1990:34-39). This may suggest that open communication and communication flow may be regarded as factors for effective communication in a work place.

Regarding positive worker behaviour through communication, the work of Goleman (1996:100) is important for studies on human behavioural management. Goleman analysed 188 companies (large and global) to determine the personal capabilities among leaders which appeared to influence outstanding performance within those organisations, and to what degree they did so. According to Goleman, emotional intelligence – which has communication as part of the social skill component – was twice as important for improved performance as technical skills. The result of this study may suggest that these leaders had autonomy in their work and it may be probable that autonomy may have contributed to their freedom of choice. Gibson *et al.* (2009:134) add autonomy to Maslow's theory and it is identified as a positive behaviour for improving productivity.

Carnegie (1981:95) states that communication to win friends and influence people is to show empathy, to make people feel important, and to appreciate and encourage a person. Gibson *et al.* (2009:450) also identify empathy as important for communication. Carnegie (1981:95) states further that communication with people should consist of recognition and should show great interest, respect and friendliness to people. Carnegie (1981:95) agrees with Maslow's (1943)

theory which suggests that factors such as relationship, respect and acceptance at work may improve performance at work. It may be possible to build cooperative, collaborative and trustworthy relationships at work when construction workers are made to feel important, appreciated and encouraged. According to Maslow (1943:394-395) human beings strive to satisfy the following needs which are basically classified in ascending order of physiological needs, safety needs, social or belonging needs, self-esteem needs, and the need for self-actualisation in order to be motivated. A motivated worker may display the desired behaviour which improves construction productivity and worker satisfaction.

In Chapter 2, motivation is identified as being able to influence positive (desired) worker behaviours and it may give rise to greater worker commitment to the company and willingness to work hard and diligently to improve productivity. Interest, respect and appreciation may also motivate workers to cooperate and collaborate and avoid personal conflict. These are some of the positive (desired) behaviours identified in Chapter 2, which may improve construction productivity and help to gauge worker motivation and satisfaction levels (Maslow, 1943:394-395; Alderfer, 1972:658-669).

Wilson (1995:329-344) states that full participation of the worker may influence not only motivation but also motivate the worker to become enthusiastic and optimistic at work. According to Emmitt and Gorse (2003:119) motivation may be possible when the individual manager communicates face-to-face with subordinates to improve comprehension. With regard to motivation of construction workers Kazaz *et al.* (2008:101) state that Turkish construction workers are very emotional and that their productivity could be improved by inciting speeches. This may suggest that a good speech may stimulate emotions such as enthusiasm and optimism. Cherniss (1999:3) citing Seligman (1990:207) states that optimism is another emotional competence that leads to increased productivity. Seligman (1990:207) states that new salesmen at an American company, Met Life, who scored high in a test of learned optimism, sold 37 per cent more insurance in their first two years than pessimists. Bachman *et al.* (2000:176-182) state that the most successful debt collectors in a large collection agency had an average goal attainment of 163 per cent over a three-month period. They were compared with a group of collectors who achieved an average of only 80 per cent over the same time period. The most successful debt collectors scored significantly higher in the emotional intelligence competencies of self-actualisation, independence, and optimism. These case studies may suggest that clear, comprehensible language may create enthusiasm and optimism at work which could be useful in improving construction productivity and could be

regarded as a positive (desired) behaviour for improved productivity and gauging worker motivation and satisfaction levels.

These factors which make communications effective are identified in the literature as co-worker relationships, construction information, communication flow, open communication, trustworthiness in relationships, information feedback, being respected and accepted at work and using comprehensible language to instruct and supervise work. These factors may create emotional excitement in construction workers, may create good and trustworthy co-worker relationships and could create commitment and loyalty in workers. Workers may exhibit the following positive (desired) behaviours for improved productivity: development of a commitment to the organisation's goals for success such as working hard and completing given assignments on or before time, being trustworthy, being cooperative and collaborative at work, communicating effectively to share knowledge and ideas of work performance, being able to work autonomously, being enthusiastic and optimistic at work, plan own work, speak positively of the company, speak positively of own job, and enquire about future projects (Cherniss, 1999:3 citing Seligman, 1990:207; Cox *et al.*, 2005:369; Goleman, 1996:100; Herzberg, 1966:72-74; Kazaz *et al.*, 2008:101; Maslow, 1943:394-395; McClelland, 1965:321-333; Ouchi, 1981:283; Wilson, 1995:329-344). These could be regarded as some of the desired construction worker behaviours which improve productivity and gauge motivation and satisfaction levels of workers.

The study attempts to determine if factors for effective communication on a construction site could be used for building a mutually respectful relationship and motivating workers in order to influence the above positive (desired) behaviour which may improve construction productivity and gauge worker motivation and satisfaction levels.

4.5 Communication for training construction workers

Fayek *et al.* (2006:1561-1570) point out that apprentices who are employed on a construction site need mentorship, adequate instruction and supervision.

Mentorship, work instruction and supervision could be achieved through face-to-face communication between supervisors and workers in ways which may allow for their training, digesting and evaluating their ideas so that skill and knowledge maybe passed on to the worker (Emmitt & Gorse, 2003:119).

Wong (2007:70) and Joubert (2003:77) suggest that worker participation through an exchange of ideas may motivate workers. Kazaz *et al.* (2008:101) agree and state that Turkish construction workers are very emotional and that their productivity could be improved by inciting speeches. It may be possible to train construction workers to improve their skills and experience through a combination of verbal and written communication (George, 1994:397).

Sanvido (1988:294-312) states that ineffective management is identified as the primary cause of poor performance for construction project implementation. Mselle and Manis (2000:46) state that the key skills for a successful project manager should be the ability to effectively communicate to articulate construction objectives, solve problems, supervise work, make timely decisions and obtain subcontractors' commitment to the project objectives. It may be possible to train construction workers to improve their skills and experience through a combination of verbal and written communication (George, 1994:397). Good communication may be required for training construction workers in order to improve performance.

Workers may need proper guidance on how to execute work on site and be provided with training for improving skill on site. The guidance of work procedure and training on work may require communication and may result in the worker becoming skilled (Kotzé *et al.*, 2008:2). Such a skilled worker may be trusted and may be willing to accept responsibility and accountability. Ovararin (2001:56-76) named competency of site supervisors as the second most important factor for construction project implementation of good performance in the United States of America. Mselle and Manis (2000:46) state that competency in management lies in effective communication. Communication may be important for training construction workers.

Rojas and Aramvareekul (2003:78) show that management skills and manpower issues are two areas with the greatest potential to influence performance. Management skills are important for frontline managers such as construction foremen in it may enable them to use effective communication for the training of construction workers to be skilled and experienced in order to perform work well (Mselle & Manis, 2000:46).

It may be deduced that communication is important for training of construction workers to become skilled and experienced in order to be trusted to work with minimum supervision so that they may be able and willing to accept responsibility and accountability. Trustworthiness and the willingness to accept responsibility and accountability have been identified in Chapter 2 as positive (desired) behaviours. Trustworthiness and willingness to accept responsibility and

accountability are examples of positive (desired) construction worker behaviours for improving construction productivity.

Workers who have learned and mastered communication skills may feel confident to seek additional responsibility so that they may be rewarded in an equitable manner (Hackman & Oldham, 1980:78).

4.6 Communication in the supervision of construction work

According to Steyn *et al.* (2009:301) communication is required to give instruction on how to execute construction works. Kazaz *et al.* (2008:100) cite supervision as the fourth factor within organisational factors which influence construction productivity in Iran. Hanafi *et al.* (2010:143) found that competency of site supervisors was an important contributing factor influencing labour productivity of the installation of on-site prefabricated components. Communication is regarded as an important component of management skills (Mselle & Manis, 2000:46; Ovararin, 2001:56-76; Rojas & Aramvareekul, 2003:78). Communication is important for conveying information from supervisors to construction workers for the proper execution of work (Mselle & Manis, 2000:46).

Workers may need proper guidance on how to execute work on site and management should provide a motivating environment on site. Through communication the supervisor may properly coordinate resources and work on site in order to improve productivity. Communication may be useful for passing knowledge of work from supervisor to the worker so that work is done properly. This acquisition of knowledge may allow a worker to become skilled and experienced. With these attributes the worker may be trusted and have the freedom to plan and execute work independently. This could be regarded as one of the desired worker behaviour factors for improved productivity and for gauging motivation and satisfaction levels (Hackman & Oldham, 1980:78).

This idea of setting a motivating work environment appears to be supported by Carnegie (1981:95). Good work relations may make supervision easier and allow cooperation, collaboration and trustworthiness at work (Herzberg, 1966:72-74). These could be regarded as some of the desired worker behaviours for improved productivity and gauging motivation and satisfaction levels.

Uwakweh (2006:1320-1327) also supports the idea of setting up a motivating work environment for better work supervision. Uwakweh (2006:1320-1327) surveyed the perceptions of

apprentices regarding their foremen. The results of the survey revealed seven foremen factor scales: performance improvement, work facilitation, achievement orientation support, work participation, bias, and recognition. These factors may allow a worker to be optimistic cooperative, collaborative and trustworthy at work, and could be regarded as some of the desired worker behaviours for improved productivity and gauging motivation and satisfaction levels (Herzberg, 1966:72-74).

According to Mondy and Premeaux (1993:367) open communication reduces tension among subordinates and improves trust. Open communication may be useful for giving information feedback in a timely and open manner so as to link the contribution of the ideas and its relevance to the work and may allow a worker to be motivated. Open communication may be regarded as a factor which may provide information on the worker's performance so that he may be trusted and tested for his ability to willingly accept responsibility and accountability for work improvement (Hackman & Oldham, 1980:78). Responsibility and accountability could be regarded as some of the desired worker behaviours for improved productivity and gauging motivation and satisfaction levels.

The work of Jergeas (2009:11) shows that communication is one of the important factors in the supervision of trainee workers.

Ochieng and Price (2009:1-12) examined the cultural factors that influence communication and explored how communication can be made effective in multicultural project environments. The result of the study establishes that communication in multicultural teams is a significant factor in the successful completion of heavy construction engineering projects. Ochieng and Price's (2009:1-12) study points out that communication is a significant contributor in smooth supervision of works contributing to project success.

It may be deduced that communication is important for successful supervision of construction works. Understanding a good inter-connected communication system between the client, project manager, and project team is necessary. With a good and friendly communication setting and good co-worker relationships in the work place, it may be possible that there could be cooperation and collaboration as positive (desired) worker behaviour for improving productivity.

4.7 Communication for resolution of site conflict

Kotzé *et al.* (2008:12) show that agents' lack of empowerment and pro-active communication influence differences that result in claims and disputes. The study also shows the importance of

communication towards reducing conflict. Wong (2007:191) defines conflict as unresolved disagreements between people or a threat of disruption of their lives. According to Wong (2007:191) it may include conflicts such as disagreements that cause people to act outside of their usual behavioural norms. This could be good or bad. According to Wong (2007:192) good conflicts are disagreements that are resolved in a positive manner and which strengthen relationships, while bad conflicts are disagreements that produce negative behaviours and are destructive. Communications which respect, express friendliness and recognise others as important may help or reduce interpersonal conflicts (Carnegie, 1981:95).

Kazaz *et al.*, (2008:101) state that conflict is predictably predominant in industries such as construction with its proliferation of human relationships, and it is impossible to maintain good human relations continually, since morality is a concept that has different perceptions. It may be important to have communications which respect, express friendliness and recognise others as important to help or reduce interpersonal conflict (Carnegie, 1981:95). This type of communication could help build good co-worker relationships such as collaboration, cooperation, trustworthiness, and being accepted and loved at work in order to minimise conflicts (Herzberg, 1966:72-74).

It may be deduced that communication that shows respect, expresses friendliness and recognises others as important may help to reduce interpersonal conflict. This type of communication could help build good co-worker relationships, such as collaboration, cooperation, trustworthiness, and being accepted and loved at work in order to minimise conflicts. These behaviours were identified in Chapter 2 as desired behaviours for improving construction productivity and gauging motivation and satisfaction levels of construction workers.

4.8 Communication for feedback

Feedback is an important element in effective two-way communication because it provides a channel for a receiver to respond (Gibson *et al.*, 2009:440).

Carnegie (1981:227) states that in communicating feedback, the supervisor should use words of encouragement, hope and let the task seem easy to do. Carnegie (1981:227) adds that people would rather hear positive remarks than negative remarks because most people get discouraged by negative criticism. It is probably better when the feedback is negative; to start with positive remarks, then give the negative feedback, ending up with a positive comment. Feedback should provide information which encourages a worker to improve on skills and

experience so as to allow responsibility and accountability to be accepted by the worker (Goleman, 1996:153).

According to Goleman (1996:153) the supervisor should give feedback to the worker in a specific manner and should offer solutions personally in a sensitive manner. For example, recognising the worker for his good ideas, respecting him and allowing him to know how the firm values and respects him for his valuable efforts. Such fair treatment of workers and good language to workers may allow a worker to be optimistic, cooperative, collaborative and trustworthy at work (Herzberg, 1966:72-74). These could be regarded as some of the desired worker behaviours for improved productivity and gauging motivation and satisfaction levels.

Ramlall (2004:59) states that workers prefer feedback from their supervisors. According to Liden and Terence (1985:291-308) direct feedback is possible in face-to-face communication and provides a channel for receiver response that enables the communicator to determine whether the message has been received and has produced the intended response. The feedback should be from both the worker and the supervisor.

According to Hackman and Oldham (1980:79) feedback is important because it gives knowledge and information results of work and performance, provided the worker is allowed effective listening and interpretation of the information, which improves future work. With this knowledge the worker may willingly accept responsibility and accountability for work, a behaviour which may be regarded as desired for improved productivity and gauging worker motivation and satisfaction levels.

Fried and Ferris (1986:419-426) state that feedback is effective for delivering a personal message and encouragement. Feedback as communication tool could be used to inform the worker of how much the company appreciates and values his positive (desired) worker behaviours. The supervisor may have to pinpoint what the worker did well. The report should be clear, concise, creative, thorough and well written. This should be such that the report reinforces the good things, increasing the probability of its recurrence. The feedback could also be verbal as long as it is understood and timely to the act. The feedback report also should be timely. Timelines may mean giving praise promptly when the desired behaviour occurs. There should be learning, speed and degree of feedback in order to influence the behaviour of the worker (Wong, 2007:70).

It may be deduced that timely feedback is a factor in communication. Feedback should provide timely information which encourages a worker to improve on skills and experience so as to allow responsibility and accountability to be accepted by the worker. Feedback was identified as a factor in 4.3 and responsibility and accountability have also been identified in 4.4 as desired behaviour for improving construction productivity and gauging the motivation level of construction workers.

4.9 Communication for positive (desired) construction worker behaviour for improving productivity.

Ouchi's (1981:283) Theory Z suggests that an organisation's culture could promote positive (desired) construction worker behaviour for improving productivity if, among its cultural dimensions, there is openness and sharing of information. This could suggest that communication which is open, clear and understood by workers may be necessary in the organisation for influencing positive (desired) behaviour.

Ankrah (2007:96) suggests that an organisational culture could be designed to promote a specific outcome of the organisation. It may be possible that an organisation could have a culture which focuses on positive (desired) construction worker behaviour for improving productivity, provided there is a degree of participation and openness, and good quality communication among its cultural attributes (Ankrah, 2007:96). This could suggest that open, clear, well understood and frequently sent out communication may be necessary for influencing positive (desired) behaviour.

Feedback should provide information which encourages a worker to improve on skills and experience so as to allow the worker to accept responsibility and accountability (Hackman & Oldham, 1980:79). It may be possible that companies that listen, train workers, communicate timely, use comprehensible and respectful language, maintain communication flow and trust their workers, may be able to influence desired worker behaviours that improve construction productivity and gauge motivation and satisfaction level of workers.

It may be deduced that organisations with the following communication factors may influence some of the desired behaviours for improved construction productivity: information regarding knowledge of work, information repetition, timing, speed and frequency of information, information to be well understood, and open communication feedback and regulation of information flow, mutual trust, simple language and effective listening. The above-mentioned

communication factors may influence the following desired behaviours: a development of a commitment to the organisation's success goals, such as working hard and completing given assignments on or before time, being responsible and accountable, being able to work autonomously, being enthusiastic and optimistic, being trustworthy, and being cooperative and collaborative at work. These behaviours may be useful for gauging motivation and satisfaction levels of construction workers.

4.10 Communications within organisations

According to Gibson *et al.* (2009:435) the design of an organisation should provide for communication in five distinct directions: downward, upward, horizontal, diagonal and grapevine. Mondy and Premeaux (1993:365) describe these five communication directions as communication channels. These communication channels are briefly reviewed below.

4.10.1 Downward communication

Downward communication is the flow of communication from individuals in higher levels of the hierarchy to those in lower levels. The most common forms of downward communication are job instructions, official memos, policy statements, procedures, manuals and company publications (Gibson *et al.*, 2009:435). Some of the formal channels available to carry the information downward are the chain of command, posters and bulletin boards, the house organ, letters, pay inserts, employee handbooks and pamphlets, annual reports and loudspeaker systems (Mondy and Premeaux, 1993:365). This may represent ways in which companies give information and feedback and is a method of sharing knowledge and work information with workers and frontline managers.

4.10.2 Upward communication

Upward communication is the flow of communication from lower to higher levels in an organisation. It may include suggestion boxes, group meetings and grievance procedures (Mondy & Premeaux, 1993:365).

Beck and Beck (1986:15-19) show that achieving upward communication – getting open and honest messages from employees to management – is a difficult task, especially in larger organisations. Allan's (1985:41-47) and Newman's (1990:34-39) studies suggest that of the four formal communication channels, upward communication is the most ineffective. The studies also show that those upper-level managers often do not respond to messages sent from lower-

level employees, and lower-level employees are often reluctant to communicate upward, especially if the message contains bad news (Allan, 1985:41-47; Newman, 1990:34-39).

However, upward communication is often necessary for sound decision making. Some of the upward communication devices are suggestion boxes, group meetings and appeal or grievance procedures. Varying forms of upward communication play a key role in the successful operation of many Japanese businesses (Gibson *et al.*, 2009:435). The Japanese place strong emphasis on face-to-face communication between top-level managers and rank and file employees. For example, in companies such as Sony and Nissan, it is a common practice for non-managerial levels to talk directly to top-level executives on work-related matters. Often, top-level managers participate in orientation and training programmes to enable employees access them. In addition, there are frequently both formal and informal mechanisms to actively solicit suggestions from employees, with rewards given for implemented ideas (Erez, 1992:43-64). This may suggest that it is important for supervisors and managers to listen to workers in order to improve construction productivity.

4.10.3 Horizontal communication

Horizontal communication is communication that follows functions in the organisation, necessary for coordinating and integrating diverse organisational functions. For example in a college of business administration, when the chairperson of the accounting department communicates with the chairperson of the marketing department concerning the course offerings, the flow of communication is horizontal (Gibson *et al.*, 2009:436). Because mechanisms for ensuring horizontal communication ordinarily do not exist in an organisation's design, its facilitation is left to the individual managers. Peer-to-peer communication may be necessary for coordination and may also provide social need satisfaction (Ouchi, 1981:283). This may suggest that a worker, who is communicating effectively, sharing knowledge and ideas of work performance with other workers, may be exhibiting a desired behaviour which may improve construction productivity.

4.10.4 Diagonal communication

Diagonal communication is communication that cuts across functions and levels in an organisation; important when members cannot communicate through upward, downward and horizontal channels and probably the least used in an organisation and most efficient in terms of time and effort within the organisation. An example of such communication would be the

comptroller of a large organisation who may wish to conduct a distribution cost analysis. One part of the task may involve having the sales force send a special report directly to the comptroller rather than going through traditional channels in the marketing department. Thus, the flow of communication would be diagonal as opposed to vertical (upward) and horizontal (Gibson *et al.*, 2009:436). This may suggest that a worker who is communicating effectively and openly to share knowledge and ideas of work performance with other workers, may be exhibiting a desired behaviour which may improve construction productivity.

4.10.5 The Grapevine

The grapevine is a means of communication that cuts across formal channels of communication. Although the nature of its effect on organisational effectiveness is debatable, it cannot be denied that its effect is real. Many organisations' employees listen to the assortment of facts, opinions, suspicions and rumours the grapevine provides. According to research, an organisation has several grapevine systems. Information travelling in a grapevine does not follow an orderly path, and the grapevine is at least 75 per cent accurate (Watson, 1982:107-122). Some grapevine communication is true, while some is not. Rumours may be divided into four parts: pipe dreams or wish fulfilment, the bogie rumour, wedge drivers and home stretchers. Although rumours may be damaging, informal communication systems such as the grapevine itself may provide yet another, albeit weak communication vehicle, to keep the workforce informed about job-related matters (Mishra, 1990:213-228). Grapevine communication appears not to be accurate and may not be a factor for effective communication and may not build desired behaviours for improving construction productivity.

4.11 Improving communication in an organisation

Although managers have a responsibility to develop effective communication, there are times when there is a breakdown in communication due to interference between the communicator, the encoding of the message, the medium, the decoding, the receiver and the feedback. Managers striving to become better communicators must accomplish two separate tasks. Firstly, they must improve their messages – the information they wish to transmit. Secondly, they must seek to improve their own understanding of what other people try to communicate to them. In other words, they must become better encoders and decoders (Mondy and Premeaux, 1993:365).

4.11.1 Regulating information flow

Communication can be regulated in both quality and quantity. The idea is being the exception principle of management, which states that only significant deviations from policies and procedures should be brought to the attention of superiors. In formal communication then, superiors should be communicated with only on matters of importance and not for the sake of communication (Gibson *et al.*, 2009:440). Information flow has been identified in the literature as a factor for effective communication.

Drucker (1995:54-62) states that company executives should be supplied with diagnostic rather than superfluous information. The diagnostic information may contain the how, why and what is required to be done and may make the information easier to understand (Drucker, 1995:54-62).

4.11.2 Empathy

Empathy is the ability to put oneself in the other person's role and assume that individual's viewpoints and emotions. This involves being receiver-oriented rather than communicated-oriented. The form of communication should depend on what is known about the receiver. Empathy requires communicators to place themselves in the shoes of the receiver to anticipate how the message is likely to be decoded. Empathy can reduce many barriers to effective communication (Carnegie, 1981:95; Gibson *et al.*, 2009:450). This may suggest that companies should pay more attention to staff problems and listen more to staff. Management listening to staff may be identified as a communication factor.

4.11.3 Repetition

Repetition is an accepted principle of learning. Introducing repetition or redundancy into communication ensures that if one part of the message is not understood, other parts carry the same message. New employees are often provided with the same basic information in several different forms. Likewise, students receive much redundant information when first entering a university. This ensures that registration procedures, course requirements, and new terms such as matriculation and quality points are communicated (Allan, 1985:41-47) Gibson *et al.*, as quoted in 4.9.1, suggest that downward information repetition in an organisation could be done through posters and bulletin boards, the house organ, letters and pay inserts, employee handbooks and pamphlets, annual reports and loudspeaker systems (Gibson *et al.*, 2009:435). Information repetition may be regarded as a factor of communication.

4.11.4 Encouraging mutual trust

Time pressures may not allow the follow up of communication and encourage feedback or upward communication within an organisation. Under such circumstances, mutual confidence or mutual trust between managers and their subordinates can facilitate communication (Carnegie, 1981:95). Facilitation of communication may be helped by trustworthy relationships which may allow information to be easily accepted by both managers and subordinates (Herzberg, 1966:72-74).

A study of American and Canadian office workers found that only 38 per cent of the workers surveyed felt that management was honest with them and even fewer (27 per cent) believed that management cared about them as individuals. Managers who develop a climate of trust may find that following up on each communication may not be necessary (Gibson *et al.*, 2009:450). Mutual trust may be regarded as a communication factor.

4.11.5 Effective timing

Individuals are exposed to thousands of messages daily. It is impossible to take in all the messages, so many are never received and decoded. Managers should realise that in attempting to communicate with receivers, other messages are being received simultaneously, and thus the manager's message may not be heard. Messages that do not compete with other messages are more likely to be understood. Because of these problems, most companies use retreats when important changes are being made. A group of executives may be sent to a resort to resolve an important corporate policy issue, or a college department's faculty may retreat to an off-campus site to design a new curriculum. On a daily basis, effective communication can be facilitated by properly timing major announcements (Gibson *et al.*, 2009:450; Mondy and Premeaux, 1993:365). Information timing may be regarded as a communication factor.

4.11.6 Simplifying language

Complex language has been identified as a major barrier to effective communication. University students suffer when lecturers use technical jargon that transforms simple concepts into complex puzzles. Government agencies are also known for their often incomprehensible communications. There are instances where professional people use in-group language to communicate with outsiders. Managers should understand that effective communication involves transmitting understanding as well as information. If the receiver does not understand, then the communication has been ineffective. Many techniques discussed in this section have

the sole purpose of promoting understanding. Managers must encode messages in words, appeals, and symbols that are meaningful to the receiver (Gibson *et al.*, 2009:450). According to Maloney (2002:2), communication as construction site/project, means keeping construction workers informed in a language they understand. Alwi *et al.* (1999:2), state that construction workers largely depend on simple and verbal communication for the execution of work. Emmitt and Gorse (2003:119) agree and add that face-to-face communication is the most effective communication among construction workers. Comprehensible language was cited as a factor of communication in 4.3.

4.11.7 Effective listening

To improve communication, managers should seek not only to be understood but also to understand. This involves listening. One method of encouraging someone to express true feelings, desires, and emotions is to listen. Just listening is not enough; one must listen with understanding. Can managers develop listening skills? Numerous pointers have been given for effective listening in organisational settings (Davis, 1980:394). The guideline for listening is as follows: stop talking, put the speaker at ease, show the speaker you want to listen, remove distractions, empathise with the speaker, be patient, hold your temper, go easy on arguments and criticism, and ask questions (Davis, 1980:394). Carnegie (1981:95) adds that the way of communication to win friends and influence people is to show empathy, to make people feel important, to appreciate and encourage a person. Listening may be identified as a communication factor.

4.12 Important communication studies

Tai *et al.* (2009:136-149) investigated communication in large-scale construction projects, in order to show how effective project team communications are the major challenges to a construction project's success in China. The study shows that lack of good communication mechanisms, weak organisational structures of construction teams, lack of union standards for construction information and lack of support for advanced communication technologies are the causes of poor project performances. This study implies that communication is important for improving construction productivity and project success.

Hossain (2009:25-39) explores the relationship between communications and coordination in construction projects through a case study of Dabhol Power Company (construction company) and Azurix Corporation (water services company). The study shows the following results:

centrally positioned actors in a project show more coordinative activity, the betweenness index of centrality is the most potent predicate for coordination and the influence of an actor is associated with coordination more than the actor's prominence. The study implies that centrally positioned actors such as project managers who communicate a lot are important for coordinating construction work successfully.

Gluch and Raisanen (2009:164-175) examined the resources and constraints on environmental-communication practices in four construction projects in Sweden. The study shows a communication breakdown both within the project team and between the project team and its stakeholders. The communication breakdowns were not caused by lack of information, but rather by language differences due to cultural differences, the status of the communicator, and the tools used to mediate the information. The study implies that communication may be important for the success of construction projects.

Tone, Skitmore and Wong (2009:343-361) investigated the impact of cross-cultural communication on the management of construction projects in Samoa. The findings highlight the need for cultural sensitivity when designing an inter-organisational communication strategy for the management of international projects. Secondly, there is a strong link established between changes of perspectives as a result of exposures and experiences by those involved and the impact of cross-cultural communication on the project. The deduction from Tone's *et al.* (2009:343-361) study is that an organisation needs to have a global perspective if it is involved in an international construction market, and should be willing to modify communication strategies that are appropriate within the context of the host culture as communication may be important for improving productivity.

The above-mentioned studies all seem to suggest that communication is important for improving construction productivity and construction project success.

4.13 Further survey

Herzberg (1966:72-74) identifies company policies and administration as dissatisfiers in the work place. It is probable that culture is important in terms of motivating a work environment. Ouchi (1981:283) and Ankrah (2007:96) both agree that an organisation with an appropriate culture for improved worker performance could influence improved construction performance. It is in this regard that in the next chapter, a review of culture and its influencing factors for desired worker behaviours is presented. In the next section findings of the review are summarised.

4.14 Summary of the findings of the review

The objective in this chapter was to identify and investigate communication factors and desired construction worker behaviours for improved productivity and gauging motivation and satisfaction levels of workers.

The literature suggests that open communication, sharing knowledge and information, communication feedback, communication speed, frequency, timing and repetition of information between worker and supervisor, regulation of information flow, being accepted and loved, good co-worker relationships, mutual trust, simple language and effective listening are the factors for effective communication which may influence positive (desired) worker behaviour for improved construction productivity. The above-mentioned factors will be tested for their influence on desired behaviours for improving construction productivity.

The literature further suggests that the above factors may make communication effective by creating good worker relationships. Good relationships could help create cooperation and collaboration at work, and may also create mutual trust and help lessen interpersonal conflicts. Effective communication may create loyalty of the workers to the organisation when workers speak positively about their organisation and their work and ask about future projects. Effective communication may be used to impart information and knowledge about work and train workers to acquire skill and experience. This skilfulness and experience may allow a worker to design and plan work autonomously which in turn may enable a worker to willingly accept responsibility and accountability.

Effective communication may contribute to these positive (desired) worker behaviours for improving construction productivity: worker commitment to organisations' success goals such as working hard and completing given assignments on or before time, being trustworthy, being cooperative and collaborative at work, communicating effectively to share knowledge and ideas of work performance, willing to learn to acquire skills so as to accept responsibility and accountability which may allow workers to act autonomously, being enthusiastic and optimistic at work, planning own work, speaking positively of the company, speaking positively of own job and enquiring about future projects. These behaviours could be used to gauge the levels of worker motivation and satisfaction in the construction industry.

In the next chapter behavioural dimensions of organisational culture are reviewed in order to determine the influence on positive worker behaviour for improved productivity..

CHAPTER 5 CULTURE AND ITS INFLUENCING DIMENSIONS FOR POSITIVE BEHAVIOURS OF CONSTRUCTION WORKERS FOR IMPROVING PRODUCTIVITY

5.1 Introduction

Over the past two decades, culture has attracted a growing research interest in its role in the successful management of construction businesses and projects, particularly with the increasing internationalisation of procurement (Jabnoun & Sedrani, 2005:8-20; Kendra & Taplin, 2004:30-45). At the project and organisational level there have been studies looking at such issues as 'project chemistry' (Nicolini, 2002:167), harmony (Liu, 2002:275), and comparisons between organisational cultures of contractors and consultants (Rameezdeen & Gunarathna, 2003: 595-607).

At national and international project management level, attention is focused on the effects of culture on transfer and implementation of management philosophies (Ngowi, 2000:448; Low & Shi, 2001: 276-285; Tsung-Hsien & Yen-Lin, 2010:617-632).

The above-mentioned studies may all demonstrate a growing awareness in the construction industry of the important part 'softer' issues such as culture play in project performance outcomes. This awareness notwithstanding, the nature of the implied relationship between culture and positive (desired) construction worker behaviour for improved productivity may still remain unclear since few studies provide empirical evidence. It may therefore be impossible to definitively identify cultural orientations/dimensions that influence positive (desired) worker behaviour for improving productivity in the construction industry with its peculiar characteristics, and to strongly advocate and build those cultural orientations/dimensions that improve productivity, whilst taking steps to mitigate the effects of those orientations/dimensions that are incompatible with improved productivity. There may be questions which still remain unanswered or at best have only been addressed in part.

According to Phua and Rowlinson, (2003:777) the construction industry worldwide is known for the adversarial working relationships between stakeholders and which should be changed for construction projects to be completed successfully.

This notion that a cultural shift that avoids traditional adversarial relationships and embraces relationships based on mutual co-operation between project participants, is a major agent for

change that could create better performance within the construction industry (Phua & Rowlinson, 2004:913). This suggested cultural shift may be important for construction project organisations for improvement of productivity. Yet there appears to be no empirical attempt to give insight of how to operationalise the above-mentioned concept (Chen, Parlington, & Qiang, 2009:477-487; Phua & Rowlinson, 2004:913), therefore studies exploring such relationships will undoubtedly be beneficial to the construction industry. Cultural change could be the necessary factor for influencing desired worker behaviours for improving construction productivity and performance.

Better understanding of culture may improve communication, identify important issues, bring attention to ignored issues, and help with the understanding of future organisations and the identification of pervasive variables that affect the whole organisation. It may also help leaders and managers of organisations to get a better insight of the organisations (Pepper, 1995:29).

Culture is important because “it is a powerful, latent, and often unconscious set of forces, that determine both our individual and collective behaviour, ways of perceiving, thought patterns, and values” (Schein, 1999:14). Culture may be important in influencing positive (desired) construction worker behaviour for improved productivity. The objective in this chapter is to attempt to identify and investigate a suitable culture with its cultural dimensions which influence positive (desired) construction worker behaviour for improved productivity.

5.2 Concept of culture

Hofstede (1997:179-180) defines culture as holistic, referring to a whole which is more than the sum of its parts, historically determined, reflecting the history of the organisation, related to the things anthropologists study, such as rituals and symbols, socially constructed, created and preserved by the group of people who together form the organisation, soft and difficult to change. Schein (1997:12) defines culture as a pattern of shared basic assumptions that has been learnt whilst solving problems, that has worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think and feel in relation to those problems. Hensey (2001:49) defines culture as “influenced by traditions, myths, history and heritage “or as “the sum of how people do things around here.” Wong (2007:152) defines it as the shared ways in which groups of people understand and interpret the world in terms of ideas, values, attitudes, traditions, beliefs, morals and customs.

Ali (2006:30) defines culture as knowledge, experiences, beliefs, values, attitudes, meanings, hierarchies, religion, timing, roles, spatial relationships, concepts of the universe, material objects and possessions acquired by a large group of people in the course of generations through individual and group striving.

All the definitions of culture seem to suggest a wide construct of culture relating humans to their natural environment. However, for the purpose of the study, the focus is on the individual worker, and the culture construct is limited to beliefs, values, attitudes, and assumptions experienced through history which influence workers' behaviours. Individual worker's beliefs may refer to the information or knowledge the worker has about work, his relation with other workers, or his relation with the organisation. According to the Industry Culture: A need for change report (Kajewski & Weippert, 2001:7), the individual worker's beliefs may comprise the nature of the organisational environment, acceptable levels of organisational performance, organisation appropriate for success, the organisation and the worker's own belief on co-workers about work behaviour. Work behaviour for instance may involve work methods and roles, management style, formality, dress, cooperation, interpersonal relationships, productivity, quality, absenteeism and time keeping (Kajewski & Weippert, 2001:7). Work methods and roles could be influenced positively if workers participated in decision making and if leadership by example was practiced – especially by those in supervisory roles. Akoi-Gyebi Adjei (2009:32) identifies task based work packages and participation in decision making as influencing worker motivation, which in turn influences improved productivity. In Chapter 2, participation was identified as influencing enthusiasm and optimism as a desired behaviour for improving productivity. Rad and Levin (2004: 71-78) identify people as one of the three categories of project success indicators and add that the team members' inter-relationships with one another, focusing on team work issues such as trust, collaboration, competency, communication and elimination of conflicts, are important for project success. A good management style may require valuing and respecting workers, having good co-worker relationships and communicating effectively with workers (Boyd & Sutherland, 2006:18). In Chapter 3, communication that respects workers and treats them as valuable and important was identified as important for influencing good co-worker relationships such as cooperation and collaboration at work. Co-operation and collaboration at work were identified as desired construction worker behaviour which improves productivity.

Values are classified as two types, namely instrumental values that result in feelings of satisfaction, reflecting desires or preferences that are virtually indistinguishable from attitudes,

and moral values that result in feelings of pride and joy by carrying a sense of what is correct or proper (Kajewski & Weippert, 2001:7). Values of workers are equally important to the success of the organisation. Phua and Rowlinson (2004:914) suggest that to operationalise culture in construction, it is important to explore the deeper underlying motivational roots of the behaviours of individuals or, more specifically, the alignment of individual purpose and motivations with those of the collective. If basic needs of workers, such as a good salary, long-term contracts and work responsibilities are fulfilled, workers may be motivated (Schrader, 1972:257-273). Saari and Judge (2004:397) state that job challenge, autonomy, variety and scope best predict overall job satisfaction, as well as employee retention. Judge, Thoreson and Patton (2001:376-407) indicate that there is a strong correlation between worker job satisfaction and job performance. Cox *et al.* (2005:369) state that satisfaction causes performance, which implies that the degree of job satisfaction experienced by employees determines their level of performance. It is a popular belief that “a happier worker is a productive worker”. However, recently a proposition that work performance causes satisfaction in employees has emerged (Cox *et al.*, 2005:369, Kajewski & Weippert, 2001:8) state that distinction between attitudes and values is conceptually unclear. Saari and Judge (2004:395) seem to agree and state that there is a knowledge gap in three areas of job satisfaction, namely the causes of employee attitudes, results of positive or negative job satisfaction and the way to influence employees’ attitudes. The result of this study may provide answers to such questions.

Kajewski and Weippert (2001-008-C-05:8) describe attitude as “a learnt predisposition to respond in a consistently favourable or unfavourable manner to a given object or idea.” The worker may be able to develop an attitude over time regarding the organisation in terms of company policies, management styles and company treatment of workers. Cox *et al.* (2005:370) state that by giving workers job satisfaction through a job well done and career development or advancement, such workers’ loyalty may be gained. Such loyal workers could sacrifice for, promote, and abide by the organisation (Cox *et al.*, 2005:373).

Workers may need to be educated and trained to reduce the effect of cultural assumptions on work and business market information. According to Kazaz *et al.* (2008:96) the best approach for career development is to have occasional short training programmes or day release courses and seminars at educational establishments supported by the local construction industry, professional societies and governments of developing countries. In Chapter 3, any form of training was noted to improve skills that enabled a worker to be trusted to work autonomously,

which is behaviour identified as desired for improving productivity and engaging the workers' motivation and satisfaction level.

Schein (1999:14) defines assumption in culture as the sum total of all the shared and taken for granted that a group has learnt through its experience of history. These assumptions could be about the work itself or about the organisation, and may be difficult to change. Constant worker education and training could help in the correction of the assumptions. Cox *et al.* (2005:370) state that employee commitment can be fostered when employers invest in the training and the development of their workers.

If the workers' motivational needs are fulfilled, their values and attitudes towards work satisfied, assumptions towards work and business sustainability minimised through education and skill training, the ensuing organisational culture could influence the desired worker behaviour for improving construction productivity and gauging motivation and satisfaction level of workers.

5.3 Cultural dimensions of a society within the geographical location of the organisation

Culture is a wide construct as noted in 5.2 above. It may be described as being almost anything and thus being everything, depending on who is conducting the specific piece of research. Kajewski and Weippert (2001:8) describe culture as stemming from the word "cultivation of soil" i.e. the way in which people act on nature. These environmental aspects of culture are briefly reviewed below.

5.3.1 Language

Tone *et al.* (2009:343-361) state that communication problems have emerged as one of the most significant contemporary challenges facing construction project managers in an increasing international construction market. Ochieng and Price (2010:449-460) point out that communication determines the success of multicultural projects. Fellows and Liu (2002:275) and Wong (2007:153), when discussing cultural dimensions, state that the same term in different languages may mean different things. The language cultural future contains three factors, namely the use of idioms or slang in communication, the uses of words or terms across cultures and the way in which some people speak.

Comprehensible language was identified in Chapter 4 as a factor which may influence construction worker behaviour.

Idioms are well-accepted expressions in some cultures that have a different meaning from the literal words, and may be confusing to people outside that culture. Idioms are most often used in verbal communications, but can also be found in written communications. American business culture idioms referring to animals, the body and sports such as: “chasing rabbits,” “fox guarding the hen house”, “tongue in cheek”, “shake a leg”, “gut check,” “time to punt,” “slam dunk,” and “ball’s in your court” (Wong, 2007:153), could harm project relationships if used carelessly.

There are many words that should be avoided, such as referring to clothing as costumes, ethnic groups as tribes, Asians as Orientals, African Americans as coloured, a group of men and women as guys, women as gals and chicks, and southerners as rednecks (Wong, 2007:153). These terms could harm project relationships if used carelessly.

The tone of voice and way in which people speak to each other is important. Being loud and boisterous may be offensive to some people, and soft-spoken tone, which shows modesty and respect for the other party, may be preferred. Self-aggrandisement is seen as selfish. For example, in Asian and Middle Eastern cultures, communications are more conceptual, indirect and respectful. In contrast, the American culture admires people who speak directly and bluntly. In the African cultures it is customary to start each day at work with an exchange of polite and cheerful greetings, whereas in the United States, a family inquiry may be taken as an invasion of privacy (Wong, 2007:153).

Language would appear to be a factor which at individual level may be managed by the use of international language in the form of visuals. At organisational level a common behaviour may have to be encouraged in the organisational culture. Communications which respect, express friendliness and recognise others as important were identified in Chapter 4 as important for creation of good co-worker relationship (Carnegie, 1981:95). Good co-worker relationships may be identified as important in the influence of desired construction worker behaviour for improved productivity.

5.3.2 Individualism versus collectivism

Ochieng and Price’s (2010:449-460) study implies that workers from individualistic cultures tend to cooperate less in a team, and their study underscores an urgent need for future research to investigate effective guidelines or strategies for effective collectivism and communication in multicultural project teams.

Ngowi (2000:448) identifies collectivism-individualism and achievement-aspiration as two of the five ways of measuring the dimensions of a culture in terms of how status is assigned to individuals in a society, and adds that achievement status refers to 'doing', whereas ascription status refers to 'being'. Phua and Rowlinson (2004:915) state that a growing stream of cross-cultural research describes how basic assumptions, beliefs, values and behavioural norms vary across the individualism-collectivism dichotomy. Individualism refers to personal goals while collectivism refers to group goals.

Teamwork may pose some problems. Those cultures based on individualism, such as the American culture, may strongly retain their sense of individuality, even within teamwork or within a group of workers. In contrast, for most other cultures exemplified by for instance Japan, community and interdependence may be more important than the individual (Phua & Rowlinson, 2004:919; Wong, 2007:157). Collectivism culture may believe that the greater good of the community should always prevail. Collectivism culture may be important and good for creating desired construction worker behaviours such as cooperation and collaboration, which is not the case as regards individualism. Although Phua and Rowlinson's (2004:919) study does not quite support this general view, their study underscores the complexity and richness of the construct of culture and demonstrates how many of the commonly accepted views about the determinants and consequence of culture may be incorrect. The quantification of culture in this study may therefore pose a challenge and a limitation to the study.

5.3.3 Respect for authority

According to Ngowi (2000:448) respect for authority is an important cultural dimension in Botswana. Ali (2006:33) and Oney-Yazici, Giritli, Topcu-Oraz, and Acar (2007:519-531) support Ngowi's view by stating that hierarchy is a cultural dimension. Wong (2007:153) states that in many cultures there is respect for elders, status and authority, such as government officials, military officers, teachers, law enforcement, and company management.

Because of this respect for authority, challenging the status may be difficult for fear of disorder, punishment or conflict, and because of this fear workers may not easily speak up. Some workers may prefer to remain silent about their position until they have had a chance to hear from a senior member of the organisation. It could also affect the manner in which meetings are conducted. Respect may be displayed in greetings, dress, position at the table, speaking style,

and meeting protocol, such as elders being greeted or introduced first, and it may be important to maintain formal behaviour and rank within the hierarchy in the meeting (Wong, 2007:153).

5.3.4 Relationship with peers

Phua and Rowlinson (2004:914) identify cooperative behaviour as one of the cultural dimensions necessary for construction performance improvement. Wong (2007:153) states that in some cultures, people's mutual trust and respect are held in highest regard and any personal disagreements with each other should be disclosed only in private, in order to preserve the relationship.

Bresnen and Marshall (2000:233) claim that there is a growing emphasis in the construction industry on engendering better cooperation, as lack of cooperation contributed to a large extent to the lamentable state of the industry. This lack of cooperation between clients, contractors and others is endemic and may be a defining characteristic of the construction industry. Good co-worker relationships, such as cooperation, collaboration and mutual trust, were identified in Chapter 4 as important for effective communication. Effective communication may be identified as a factor for desired construction worker behaviour for improved productivity. Behaviours such as collaboration, cooperation and mutual trust may be regarded as desired for improving construction productivity.

5.3.5 Nonverbal communication

Body language and gestures can be just as important as verbal communications. For example, not looking people in the eye maybe considered a weakness in one culture but a sign of respect in another. Backslapping, tickling and arm squeezing maybe considered offensive behaviours in some culture but not in others. Physical affection like hugging and kissing may be acceptable in some cultures but inappropriate in others, especially across genders. In some countries, men do not shake hands with women or even take pictures of women (Wong, 2007:153).

With the above-mentioned behavioural risks, there could be confusion at work. Global awareness is required, as well as better observance of other cultures and awareness of how other people react in different situations, followed by according adjustment while maintaining one's natural self (Wong, 2007:153). A language which is easily understood by construction workers is important for work performance (Maloney, 2002:2). Body language and gestures may

not be easily understood and may not contribute to effective communication and are thus not appropriate for influencing desired behaviours for improving construction productivity.

5.3.6 Openness

In some cultures opinions are expressed in an indirect manner, especially when conveying negative news. Indirect communications are meant to maintain group harmony. A person may be reluctant to speak up in a team setting but will open up in the safety of a private setting (Wong, 2007:157). Cummings and Worley (1997:93) seem to agree that openness is important in organisations. They state that an organisational culture is required to establish methods of distributing information in the organisation.

This cultural dimension may make establishing a project team and communications difficult, because some team members may only speak when spoken to, while others may not oppose their elders' views as token of respect. Others still may not want to impose their personal feelings on others. Openness was identified in Chapter 4 as a factor for effective communication for improving construction worker behaviour for improved productivity. An organisational culture which encourages open communication may be preferred for improving worker productivity.

5.3.7 The value of time

Ngowi (2000:500), Ankrah (2007:64) and Wong (2007:157) have all identified time management as cultural dimension. Timely decision processes may be necessary in an organisational culture in order to improve productivity.

Most Westerners are seen as more time dependent compared to most Asians, Africans and Latin Americans, who view time as being more fluid. The American culture is fast paced: some Americans eat fast, drink fast, and work fast. Some countries enjoy a more leisurely pace. Being punctual has its virtues, but in some cultures being late may be common and accepted behaviour. People who attend social parties and meetings on time may be seen as anxious, selfish, competitive, greedy, and hungry. In some Asian cultures, people are expected to arrive late. This same behaviour is seen as extremely inconsiderate in the United States of America and Europe (Wong, 2007:157).

Because of this cultural factor, it could prove difficult to organise a meeting with a highly structured, time-driven agenda. Those whose culture does not value time may prefer meetings to start and end later than scheduled. Timely information was identified in Chapter 4 as a factor

for effective communication for improving construction worker behaviour for improved productivity.

5.3.8 Decision making

In decision making, trust and relationships may be more important than content. It is important to respect how people make decisions. Pressurising for a decision does not demonstrate good relationships. It may be customary to have several discussions and meetings before decisions are made. Cultural superstitions including beliefs in luck, fate and bad omens, which are outside one's control, can come into play and can pervade one's thinking, (Wong, 2007:157). Kajewski and Weippert(2001:8) state that management style, cooperation and interpersonal relationships are some of the belief factors in an organisation.

Good co-worker relationship was identified in Chapter 4 as a factor for effective communication for improving construction worker behaviour for improved productivity.

5.3.9 People's relationship to nature

In some countries, people attempt to control their natural environment. Most Americans and Canadians use manmade fertilisers, insecticides and technologically sophisticated equipment to improve crops and crop yield. Most Middle Easterners view events as fated to happen. When a flood or typhoon wipes out a village, it is seen as God's will. Most Far Eastern countries attempt to deal with nature on nature's terms, and to work in harmony with it. These three perspectives may be referred to as dominance, pre-ordinance and harmony (Gibson *et al.* 2009:63).

In terms of organisational practices, the three perspectives could result in significantly different responses to performance. In a culture in which dominance is practiced, poor performance may result in sanction or punishment. In a preordained culture, poor performance may be expected from some people. In a harmony-oriented culture, poor performance may be met with recognition that the system will be improved for better performance (Ngowi, 2000:500). Dominance and pre-ordinance cultures may not encourage growth and development. In a work situation an appropriate organisational culture may therefore be necessary to shape behaviours which may be desired for improving construction productivity.

5.3.10 Activity orientation

In cultures such as that of the United States of America, emphasis is placed on taking action. Accomplishing results and being recognised for achievements are considered important. Most managers in the result-oriented cultures can motivate employees with promotions, merit-based praises, bonuses, and public recognition. In contrast to this, a 'being' culture emphasises enjoyment, living with the flow, and being gratified for the moment. Most employees in a being culture work for today, and when the job becomes troublesome or detracts from their enjoyment, they quit (Gibson *et al.* 2009:63). Ngowi (2000:500), however, found that in those cultures where there is no recognition for achievements, it may be difficult to motivate employees by rewards alone.

Understanding a culture's activity orientation may provide insight into how employees view work and leisure, what may be rewarding, and how they may make decisions regarding the job. The results-oriented culture could suggest that employees work to accomplish specific goals. The being-oriented culture could find employees working to enjoy life more fully. Thus in a work situation a results-oriented and motivating organisational culture may be necessary to shape behaviours which may be desired for improving construction productivity.

5.3.11 Degree of formality

Most Americans do not ordinarily have a high regard for tradition, ceremony, and social rules. This informality has caused problems in business dealings and negotiations with people from other cultures. Most Latin Americans enjoy and respect ceremony, pomp and circumstance. They tend to like public receptions, lavish meetings, and formal introductions. Most Americans on the other hand feel uncomfortable with such events. In negotiations, most Americans have acquired a reputation around the world for not taking the time to first establish a relationship. Some consider the American style as brash, arrogant and distant. Most Americans want to get to the problem, solve it and carry on with business. This behaviour may appear offensive because in some countries being blunt and informal may be considered impolite and nonprofessional. In contrast, negotiators from most of the Middle East, Latin America and southern European countries find it customary to converse first about non-business areas and topics. They believe that some degree of rapport must first be established between negotiators (Hofstede, 1983:75-83). Hofstede (1983:75-83) identified a degree of formality as one of the cultural dimensions which may influence behaviour in a work place. Cultures with a high degree

of formality may require some degree of rapport between negotiators in order for negotiation to succeed. This could imply the importance of friendly relationships in negotiations. Good co-worker relationship was identified in Chapter 4 as a factor for effective communication for improving construction worker behaviour for improved productivity.

5.3.12 Religion

In some cultures, religion is a dominant factor and as such can have a significant effect on how and what business is conducted, work schedules, and attitudes about ethics. Baptists honour Sunday as a day of rest, whereas in Islamic countries, it is Fridays and in Israel it is Saturday. Islam also forbids 'excessive' profit, which is considered exploitive. Islam preaches moderation and the sharing of wealth with others less fortunate. The concept of sharing wealth is manifested in one form called *zakat*, an annual tax of 2.5 per cent collected from individuals and used for the benefit of the community. Banks in some Islamic nations take equity in financing ventures, sharing profits as well as losses in the joint ventures. Muslims are expected to pray facing the city of Mecca five times every day. In some countries, religion may require its followers to dress in a particular way that may conflict with organisations' norms of appearance (Hofstede, 1983:75-83). Ali (2006:44) agrees that religion can be a dominant influence on culture and adds that the influence of religion in Pakistan culture appears prominent.

Companies and managers should be aware of these religious rituals and differences and should consider making adjustments in terms of the individual, religion and organisation so that these religious practices may be allowed at work.

5.3.13 Uncertainty avoidance

According to Hofstede (1983:75-83) and Ali (2006:37) uncertainty avoidance is identified as a cultural dimension. The dimension concerns the degree to which people are comfortable with ambiguous situations and with the inability to predict future events with accuracy. People with low uncertainty avoidance feel comfortable even though they are unsure about future events. In contrast, people with high uncertainty avoidance are uncomfortable when they are unsure what the future holds. In cultures characterised by high uncertainty avoidance, behaviour is motivated by fear of the unknown. People in such cultures attempt to reduce or avoid uncertainty by establishing rules, policies and procedures. In Japan, for example, where lifetime employment has been common in large organisations, there is high uncertainty avoidance (Ouchi, 1981:283).

The implication is that people with low uncertainty avoidance may operate with few rules and policies, whilst people with high uncertainty avoidance may operate with as many rules and policies as possible. Long-term employment contract was identified in Chapter 3 as a factor which may improve skills and influence behaviours which may be desired for improving construction productivity.

5.3.14 Masculinity-Femininity

According to Hofstede (1983:75-83) the term masculinity is used to designate the degree to which a culture emphasises assertiveness, dominance and independence, while femininity describes a culture's tendency to favour interdependence, compassion and emotional openness.

People in a culture that has a high masculine orientation believe that gender roles in society should be clearly differentiated: men are intended to lead and women to follow. Ambition and assertiveness provide the motivation behind behaviour. In contrast people whose culture is oriented toward femininity believe that the role of gender in society should be fluid and flexible, gender equality is desirable and the quality of life is more important than personal performance and accomplishments (Gibson *et al.* 2009:65).

This clash in cultures may create problems at work when gender equality is addressed. Some workers may resist having female managers and leaders.

The above-mentioned cultural dimensions may make it difficult for individuals to cooperate without an organisational culture to regulate these factors. An appropriate organisational culture may be necessary to shape behaviours which may be desired for improving construction productivity.

5.3.15 Conclusion on culture dimensions of the society within which the organisation is located geographically

Culture appears to be a difficult and a complex construct to understand, as observed in section 5.2 above. It is clear from the above review, that culture may be viewed as being almost anything and thus being everything, depending on who is conducting the specific research. It may also be noted that culture seems to be a latent concept, and therefore, multi-dimensional in nature. It should further be noted that as far as the construct of culture is concerned, there seems to be no single generally accepted definition of culture. This problem may pose a

challenge in an attempt to determine which of the culture constructs should be proposed for this research. Individual workers from the society all have their beliefs, values, attitudes and assumptions influenced differently by the above-mentioned cultural dimensions. However, for the purposes of the study, only those beliefs, values, attitudes and assumptions which relate to the work situation and the organisation's improved performance will be reviewed.

5.4 Organisational culture

The construct of organisational culture was popularised by the publication of articles such as Peters and Waterman's (1982) *In search of excellence* and Deal and Kennedy's (1982) *Corporate cultures: the rites and rituals of corporate life*. Previously, the construct of organisational culture was not considered important for organisational performance. However since these seminal publications, it has become an important issue in mainstream management (Hatch, 1993:657-693; Smircich, 1983:339-358). In the last two decades it has also become important in mainstream management in the construction industry. (Bresnen & Marshall, 2000:233; Kendra & Taplin, 2004:30-45; Phua & Rowlinson, 2004:914).

Organisations are widely regarded as societies (Allaire & Firsirotu, 1984:193-226; Kajewski & Weippert, 2001:8; Tsung-Hsien & Yen-Lin, 2010:617-632). As societies, organisations are imbued with similar structures and systems as the wider society and are important for determining both the individual and the collective behaviours in terms of perceptions, thought patterns and values (Kajewski & Weippert, 2001:4). Like societies, organisations are unique and their individuality may be expressed in terms of their cultures, much like the uniqueness of individuals is often expressed in their personalities (Kajewski & Weippert, 2001:8; Tsung-Hsien & Yen-Lin, 2010:617-632; Kajewski & Weippert, 2001:8). As pointed out in 5.3.15, culture appears to be a difficult and a complex construct to understand. The construct of organisational culture is equally difficult to understand, and it may be viewed as being almost anything and thus being everything depending on who is conducting the research (Ankrah, 2007:40). This research is about the behaviour of the construction operatives within construction project organisations towards the improvement of construction productivity. For the purposes of the study the culture of organisations noted for individual workers will be limited to beliefs, values, attitudes and assumptions of the organisations which improve productivity.

Organisational culture construct, however, poses yet another challenge to the research effort, as various organisational behaviour theorists appear to have different views on an appropriate definition for this construct, depending on the definition of organisation culture. One construct

view defines culture construct as the sum total of the shared and taken-for-granted assumptions. For example, culture may formally be defined as a pattern of shared basic assumptions learned by a group within an organisational setting, through solving its problems of external adaptation and internal integration, which having worked well enough, is considered valid and taught to new members as the correct way to perceive, think, and feel in relation to particular problems (Oney-Yazici *et al.*, 2007:519-531; Schein, 1997:12). Tsung-Hsien and Yen-Lin (2010:617-632) describe organisational culture as holistic, referring to a whole which is more than the sum of its parts, historically determined, reflecting the history of the organisation, related to the things anthropologists study, such as rituals and symbols, socially constructed, created and preserved by the group of people who together form the organisation, soft, and difficult to change. If organisational culture is viewed as an assumption taken for granted about realities or activities within the organisation, which are neither confronted, discussed or debated (Schein, 1997:12), then the construct may be viewed as having fixed something which cannot be changed. This view favours those who view an organisation as something that 'is'. If culture is viewed this way, change will be resisted and therefore difficult, since workers will be used to the mentality of doing things in the same way in the organisation.

The second construct views culture as a variable which is pervasive and affects the organisation. The following definition illustrates this point. Organisational culture is a set of morals, values, attitudes, beliefs, and meanings shared by the members of a group or organisation and is often the primary way in which one 'group' (organisation or team) differentiates itself from others (Kajewski & Weippert, 2001:4). Organisational culture pervades the decision-making and problem-solving process of the organisation, influencing the goals, means and manner of action, and is a source of motivation and demotivation, of satisfaction and dissatisfaction, thereby underlining much of the human activity in an organisation (Kajewski & Weippert, 2001:4). When an organisational culture construct is viewed as a variable of beliefs, values and attitudes, it becomes possible to establish a work relationship between the individual worker and the organisation through these beliefs, values and attitudes. Viewed this way, organisational culture could become a variable construct that an organisation 'has' and could be presented as another variable that could be managed, controlled or manipulated by the organisation to achieve particular ends. This perspective may prove attractive for organisational behaviour researchers and managers alike (Smircich, 1983:339-358), because it may offer potentially another tool in the management arsenal for influencing the course of organisations.

The third construct views organisational culture as a climate or as a way of describing the organisational experience. For instance Ali (2006:16) defines organisational climate as the surface features of a culture derived from a sample of employees' attitudes and perceptions at a particular point in time. Kajewski and Weippert (2001:12) state that organisational culture consists of internal and external environmental realities an organisation faces in order to grow and age confidently. It may be viewed as the current state of organisations and the cognitive aspects – attitudes and perceptions, of individual organisational members. Climate could also be viewed as a way of measuring culture to the extent that it provides a useful generalisable (although less accurate and specific) description of an organisation that is comparable with other organisations (Ankrah, 2007:55). Organisational climate therefore may be considered as a characteristic, measurement, state or a condition of the organisational culture at any given time.

Hofstede, Bond and Luk (1993:483) see climate as being a short-term state, and culture as a longer term state of an organisation. In an exposition of the relationships between the culture and climate paradigms, Denison and Mishra (1995:204-223) conclude that the two research traditions should be viewed as differences in interpretation rather than differences in the phenomenon. It is therefore safe to agree with Hofstede *et al.* (1993:483) that organisational climate and culture are broadly complimentary constructs and therefore climate can also be taken to mean culture. For the purpose of this study, organisational culture construct is viewed as a variable construct that an organisation may have which could be used to shape desired behaviours of construction workers towards improving quality productivity. At organisational level a belief may refer to the nature of organisation environment such competition, organisation performance in terms of productivity, business success in terms reward and appraisal, communication, structure, control and decision-making (Kajewski & Weippert, 2001:7). According to Hawkins (1997:427) the organisation could influence individual worker's behaviour by aligning its beliefs with those of the individual worker. It may be possible that if the individual worker's belief such as work methods and roles, management style, cooperation, interpersonal relationships, productivity and quality and time keeping are aligned to those of the organisation, the worker's desired behaviours for improving construction may be influenced through motivation and job satisfaction.

According to Tsung-Hsien and Yen-Lin (2010:617-632) the success of Taiwan's construction projects depends on ensuring that the needs of the customers are met and their rights and interests intact. Customer satisfaction could be regarded as core value for most businesses. Phua and Rowlinson (2004:914) suggest that to operationalise culture in construction, it is

important to explore the deeper underlying motivational roots of the behaviours of individuals or, more specifically, the alignment of individual purpose and motivations with those of the collective. If the organisation can align its core value of satisfying the customers by fulfilling workers' needs by providing good salaries, long-term contracts and work responsibilities, workers may be satisfied. Cox *et al.* (2005:369) state that satisfaction causes performance, which implies that the degree of job satisfaction felt by employees determines their level of performance. It is generally accepted that happier workers are more productive (Cox *et al.*, 2005:369).

According to Judge and Church (2000:166-198) research studies across many years, organisations and types of jobs show that when employees are asked to evaluate different facets of their job such as supervision, remuneration, promotion opportunities, and co-workers, the nature of the work itself generally emerges as most important. Job satisfaction is probably the main concern of most organisations which should be aligned with the individual workers' attitudes to ensure job satisfaction. Cox *et al.* (2005:370) state that a worker's loyalty may be gained by giving the worker job satisfaction through a job well done, career development or advancement. Such a loyal worker could sacrifice for, abide by and promote the organisation (Cox *et al.*, 2005:373). According to Kazaz *et al.* (2008:96), the best approach for career development is to have occasional short training programmes or day release courses and seminars in educational establishments supported by the local construction industry, professional societies and governments of developing countries. In Chapter 3, any form of training was noted to improve skills which enabled a worker to be trusted to work autonomously, a behaviour identified as desired for improving productivity and engaging the workers' motivation and satisfaction level.

Schein (1999:14) defines assumption in culture as the sum total of all the shared and taken for granted assumptions that a group has made and accepted through experience. On organisation level, these assumptions could be about the organisation or the work itself. These assumptions may be difficult to change and may therefore need to be identified and discussed. Constant worker education and training could help in the correction of the assumptions. Cox *et al.* (2005:370) state that employee commitment can be fostered when employers invest in the training and development of their workers.

Organisational culture construct seems to be equally complex, latent and wide as compared to individual culture construct reviewed in section 5.3 above. Organisational culture also appears

to pervade the decision-making and problem-solving processes of the organisation. Organisational culture also appears to influence the goals, means and manner of action, and appears to be a source of motivation and demotivation, of satisfaction and dissatisfaction, thereby underlining much of the human activity in an organisation. As such organisational culture could be regarded as a useful variable asset that the organisation 'has' for shaping construction worker behaviour for improved quality productivity outcomes. This study attempts to show whether this is possible. Hornby (2000:899) describes policy as a principle that one believes in and that influences behaviour. Company policy could be regarded as influenced by organisational culture and therefore a dimension of organisational culture (Respect for People Working Group, 2004:23; Pepper, 1995:29).

5.5 Importance of culture

The culture within an organisation is seen as important for a number of reasons. Organisational culture is necessary to bring congruence between the organisation's values, its resources and the environment. The culture within the organisation reflects the way that people perform tasks, set objectives and administer the necessary resources to achieve these objectives. It also affects the way people make decisions, think, feel and act in response to the opportunities and threats affecting the organisation. Culture also focuses on communication at all levels of the corporate hierarchy, where individuals identify who they are in relation to one another and the organisation, and where shared understandings form identifiable subgroups/sub-cultures (Ankrah, 2007:55; Pepper, 1995:29).

Corporate cultures have been known to influence employee commitment. Commitment includes employees speaking well of the company, recommending the company's products and services to communicate a sense of confidence and faith in the company. Employees may support the company by investing adequate time and effort in the job, dedicated to doing quality work, and by being tenacious in solving customer problems (Cox *et al.* 2005:370). These behaviours are considered positive (desired) behaviour for improving productivity.

The fit between cultural characteristics and management practices is considered another important factor in the successful implementation of good management practices (Erez & Gati, 2004:583-598). According to Ankrah (2007:55 citing Mullins, 1993), a strong culture is crucial for successful management. It was noted in Ankrah (2007:55 citing Deal & Kennedy, 1982) that a strong culture sets out the system of informal rules which determines how people should

behave most of the time. According to Ankrah (2007:55 citing Tharp 2005), a strong, unique, and appropriate corporate culture has the ability to:

- Reduce uncertainty by creating a common way to interpret events and issues,
- Create a sense of order in that members know what is expected,
- Create a sense of continuity,
- Provide a common identity and a unity of commitment, and
- Provide a vision of the future around which the company can rally.

Ankrah (2007:58) citing Tharp (2005) also notes that organisational culture is understood as an asset that should be managed and that can be leveraged in support of company goals.

This is clearly in line with the school of thought that considers culture to be a variable or something the organisation 'has'. This study supports this view of organisational culture construct.

Culture matters are important, for example Pepper (1995:29) states that culture affects business processes, financial systems, business strategy and marketing plans, which are necessary within the organisation. An existing culture tends to constrain and direct management behaviour, which subsequently affects decision making and problem solving (Kajewski & Weippert, 2001:7). Svensson and Wood (2003:350-361) also refer to ethics as a function of culture. Ethics manifests in three ways, namely morals, the ideology to which organisation members defer, and in the strategic choices made by the organisation as a whole (Ankrah, 2007:58; Kajewski & Weippert, 2001:8). The choices organisational members make should be contingent on their culture.

Ankrah (2007:57) argues that organisations are communities of people with a mission, and each organisation has its own core culture, character, nature and identity. These basic characteristics are so fundamental and deep in hierarchy that they tend to be much more powerful than business processes, financial systems, business strategy, marketing plans, team behaviour and corporate governance (Ankrah, 2007:57 citing Schneider, 2000). Culture defines appropriate behaviour, motivates individuals and asserts solutions where there is ambiguity (Tsung-Hsien & Yen-Lin, 2010:617-632). It governs the way a company processes information, its internal relations and its values (Pepper, 1995:29), and functions at all levels, from the subconscious to the visible. Organisational culture is also believed to influence the success of strategy, mergers, acquisitions and diversification, integration of new technologies, meetings, communication and

socialisation (Ankrah, 2007:58; Kajewski & Weippert, 2001:6; Pepper, 1995:29). It also accounts somewhat for the existence of inter-group comparison, competition and conflict, and the productivity of the organisation (Ankrah, 2007:58; Kajewski & Weippert, 2001:8; Schein, 1997:12).

According to Ankrah (2007:96), Tsung-Hsien and Yen-Lin (2010:617-632), Phua and Rowlinson (2004:914), organisational culture is important and influences performance by its attributes such as the degree of participation, cooperation and openness. Organisations may require factors such as worker participation, freedom to make a decision for influencing positive (desired) behaviour for improving productivity (Hackman & Oldham, 1980:78; Wilson, 1995:329-344). According to Wilson (1995:329-344) full participation of the worker may not only influence motivation but also influence the worker to become enthusiastic and optimistic at work. According Hackman and Oldham (1980:78) the degree to which the task provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out, may result in trustworthiness such that the worker may be willing to accept responsibility and accountability. Cox *et al.* (2005:370) are of the opinion that if employees are rewarded by job satisfaction, they may become committed, motivated, satisfied and loyal to the organisation. These factors (motivation, satisfaction, commitment and loyalty) may influence the desired construction worker behaviours as identified in Chapters 2, 3 and 4. The identified desired construction worker behaviours, when tested, could be useful in gauging motivation and satisfaction levels of construction workers.

5.6 Organisational cultural behaviours

According to Ankrah (2007:96) several researchers suggest that organisational culture influences performance by the degree of participation and openness, approaches to decision making, the quality of communication and working relationships, recruitment and human resource policies, management philosophies and practices adopted on construction projects, strategy, and approaches to construction. The report of the Respect for People Working Group (2004:23) states that working conditions is the term closely related to culture and includes terms and conditions of service, management approaches, pay, reward and behaviour. Smit and Cronjé (2002:309) state that factors such as remuneration, promotion, the job itself, co-worker relationship, supervisors, workers' needs and aspirations could lead to attitude change and job satisfaction.

These attributes or dimensions of organisational culture are referred to as indices of culture (Taylor & Bowers, 1972), aspects of culture (Thompson, 1993), traits of culture (Liu, 1999:413-425), indicators of culture (Ankrah, 2007:96 citing Handy, 1995; Hagberg & Heifetz, 2000), as well as elements of culture (Ankrah, 2007:96 citing Rameezdeen & Gunarathna, 2003). More commonly, as seen in literature on culture, these attributes are referred to as dimensions of culture (Ankrah, 2007:96 citing Schein, 1985; Trompenaars & Hampden-Turner, 1999; Hofstede, 2001).

The above-mentioned attributes or dimensions such as the degree of worker participation, openness, decision making, quality of communication, work relationships, remuneration, management approaches, supervision and reward to satisfy workers needs and aspirations were identified as important for influencing desired worker behaviours in Chapters 2, 3 and 4.

According to Denison (2000:347-376) organisational culture may have four major dimensions, namely involvement, consistency, mission and adaptability, where involvement refers to the extent to which the organisation focuses on developing, informing, involving its people and getting them engaged, concerning employees' capability, ownership and responsibility. Where consistency includes core values, agreement and coordination and integration; mission includes vision, strategic direction and intent, and goals and objectives; adaptability includes creating change, customer focus and organisational learning.

Ankrah (2007:98) identifies dimensions such as leadership, client focus, process and team fragmentation, quality delivery and commitment to people as important to performance in the construction industry.

According to Kajewski and Weippert (2001:42), in an attempt to 'radically improve' the construction industry's performance on 'people issues', a working group was set up and charged with identifying practical and effective ways in which the construction industry could improve its performance. Research outcomes identify the 'failure' of leading firms 'respecting people' potentially caused irreparable damage to their 'bottom line'. In addition, the 'gap' between the 'respect' demonstrated towards operatives (blue-collar workers), and that shown for white-collar workers (management), is identified as the most damaging of all.

The report of the Respect for People Working Group (2004:23) supports the view that people are important in the improvement of construction industry performance and identify

organisational culture dimensions as equity and diversity at the work place, health and safety, working environment, training plan, work force satisfaction and work in occupied premises.

Therefore the most urgent business challenges currently facing the industry is 'looking after people', in other words companies who fail to improve their attitude and performance towards respecting their own people and others, will fail to recruit and retain the best talent and business partners (Kajewski & Weippert, 2001:42; citing Respect for People Working Group, 2000). Respect for People Working Group (2000:37) and the report of the Respect for People Working Group (2004:10) state that in order to ensure improved and overall performance, it is important to involve, engage and empower all people in issues that directly affect them, and make a business case in a commitment to people, who are the biggest asset. Such a commitment should provide for better remuneration and conditions for employees, which ensure happier, healthier and more productive employees, better delivery on quality, cost and time, and more satisfied clients and better profitability.

Based on the above literature review, the belief, value, attitude and assumptions of organisations should focus on the organisation's involvement of its workers or the organisation's commitment to people in terms of leadership, clients focus, processes of work and teams, quality delivery and workers or people within organisation to be fulfilled and job satisfied as suggested by Ankrah (2007:98) as follows:

- Leadership,
- Client focus,
- Processes of work and teams,
- Quality delivery, and
- Commitment to people (Ankrah, 2007:98).

These problem areas are examined below, and the dimensions from the organisational culture behaviour literature which are associated with these problems are highlighted. It is important to emphasise the inter-relatedness of the problems and the dimensions that give rise to, and the solutions that are adopted in respect of these dimensions (Ankrah, 2007:98).

5.6.1 Leadership

Ankrah (2007:99) citing Egan (1998), expresses a lack of widespread evidence of the commitment of leadership to raise the quality and efficiency required to improve performance,

identifies “a lack of leadership” in the construction industry and associates the project delivery process with a management rather than a leadership culture, arguing further that the use of a leadership oriented process minimises inefficiencies, thereby leading to performance improvement. This is an argument in favour of a more committed leadership orientation, a view shared by Chan and Chan (2005:413) who also point to transformational leadership as being a prerequisite for engendering improved performance.

Toor and Ofori (2008:67) state that in a drive towards fulfilling the sustainability agenda, authentic leadership can revitalise the social image of the construction industry.

According to Liu *et al.* (2003:819-829) good leadership has a motivational function. Schein (1997:15) states that culture and leadership are two sides of the same coin and adds that when a culture, for example, becomes dysfunctional, it is the unique role of leadership to perceive the functional and dysfunctional elements of an existing culture, and to manage cultural change in such a way that the group can survive in a changing environment.

Respect for People Working Group (2000:38) and (2004:48) suggest that to change the culture, leadership should apply a change process, by giving direction and destination of change and belief by a new way of doing things. To achieve the change leaders should increase workers’ skills capabilities through training and education, and through mentoring and coaching. Another way to create change is to make people believe their efforts will be rewarded by providing motivational values and needs.

Motivational values and needs are identified as:

- Accomplishment – the need to meet or beat goals or to do better in future than in the past,
- Competition – the need to compare one’s performance with that of others and to do better,
- Approval – the need to be appreciated and recognised by others,
- Belonging – the need to feel part of and accepted by the group,
- Problem-solving – the need to confront problems and create answers,
- Coordination – the need to relate pieces and integrate them into a whole,
- Growth – the need to feel continued improvement and growth as a person, not just improved results,
- Exploration – the need to move into unknown territory for discovery,

- Competence – the need to feel personally capable and competent, and
- Influence – the need to influence others' opinions and actions (Black & Gregersen, 2002:86).

The needs for accomplishment, appreciation, recognition, acceptance and love, growth, competence and influence have been identified in the preceding chapters as factors for influencing desired behaviours. It may be possible that organisational culture behaviours which include these factors in a work situation could influence desired construction worker behaviour for improving productivity and gauging workers' motivation and satisfaction levels.

Other motivational values and needs may be identified as committed leadership. These could include support for employees, people management, loose/tight or overt/suppressed control, decision making practices, decisiveness, direction and goal clarification, process or results orientation, employee or task orientation, influence of lower levels, dealing with uncertainty and risk, and communication (Ankrah, 2007:99). This limited review of leadership is expanded in Chapter 6.

5.6.2 Client focus

According to Tsung-Hsien and Yen-Lin (2010:617-632) the customer drives everything in the best companies. However, this may not be so in the construction industry since the tendency rather has been to focus on the next job and the next employer (Ankrah, 2007:99). This could be because of the nature of the construction business that requires that constructors always focus on trying to secure new orders and maintaining a full order book to assure on-going work. In a study conducted by Dainty, Bagilhope and Neale (2005:39) to assess the competencies of project managers, it was found for instance that *customer service orientation* (a desire to meet customer needs) was of primary importance. Tsung-Hsien and Yen-Lin's (2010:617-632) study also suggests that the needs of customers should be met and their rights and interest kept in order to sustain the competitiveness of construction companies. Client focus may be seen as important for performance improvement.

Dimensions from the literature that can be associated with this particular problem include research into end-user wants/needs, education of clients, auditing client satisfaction, deal or relationship focus, client or market focus, reaction of customers (Ankrah, 2007:99). Employees who support the company by investing adequate time and effort in the job, dedicating themselves to doing quality work, and by being tenacious in solving customer problems, have

been found to exhibit a positive (desired) construction worker behaviour for improving productivity (Cox *et al.*, 2005:370).

5.6.3 Processes of work and teams

According to Denison (2000:347-376) organisational culture may have four major dimensions, namely involvement, consistency, mission and adaptability, where involvement refers to the extent to which the organisation focuses on developing, informing, involving its people and getting them engaged, concerning employees' capability, ownership and responsibility.

Processes of work and teams may be viewed as the dimension of involvement in organisational behaviour construct. Ankrah (2007:99) notes that success does not derive from fragmentation, a fundamental problem/characteristic of the construction industry in which the project process is often executed as "a series of sequential and largely separate operations undertaken by individual designers, constructors and suppliers". Baiden, Price and Dainty (2006:13) suggest that consequently, many of the teams involved in project delivery work towards individually defined objectives that are often in conflict with one another. Phua and Rowlinson (2003:777) state that the construction industry worldwide is known for its adversarial working relationships which exist between the stakeholders. This applies not only to relationships between the client and the main contractor but also to the relationship between the consultants and the contractors, subcontractors and suppliers (Phua and Rowlinson, 2003:777). It may be possible that adversarial work relationships also exist within organisations. Organisational culture dimensions which influence co-worker relationships are identified below.

Dimensions that typically arise from this problem include individualism or groupism, relationship between management and staff, cooperative behaviour, attitudes towards work and others, task organisation, discussion, participation and openness, team focus, finger-pointing or blame culture, dealing with conflicts, communication flow, communication, measurement, documentation and information management (Baiden *et al.*, 2006:13). These dimensions seem to influence work relationship, work participation, communication and freedom for decision.

Co-worker relations, work participation, communications and freedom to make decisions have been identified as influencing the following worker behaviours: worker commitment to the organisation's success goals towards the client, being enthusiastic and optimistic, being trustworthy at work, being cooperative and collaborative at work, willing to accept responsibility and accountability and talking well and supporting the company goals and communicating

effectively to resolve work problems and conflicts in a particular organisation (Wilson, 1995:329-344; Herzberg, 1966:72-74; Hackman & Oldham, 1980:78).

Cox *et al.* (2005:370) state that when workers enjoy job satisfaction, they may start doing more work than expected, responding promptly to requests, correcting problems and completing tasks at hand on schedule. They may also start planning own work, speaking positively of the company, speaking positively of their own job, remaining with the company in difficult times, asking about future projects, making sacrifices for the well-being of the company, promoting the company and abiding by company policy. These could be regarded as desired behaviours for improving construction productivity and gauging motivation and satisfaction of workers.

5.6.4 Delivering quality

Delivering quality involves elements such as waste elimination, innovating for the benefit of the client, and delivering on time and to budget with zero defects (Ankrah, 2007:99). Jabnoun and Sedrani (2005:8-20) identify four factors to measure Total Quality Management (TQM) in United Arab Emirates (UAE) manufacturing firms, namely customer focus and continuous improvement, management commitment to quality, training and empowerment, and benchmarking. Tsung-Hsien and Yen-Lin (2010:617-632) state that employee participation and teamwork, effective communication and company-wide training for quality education were earlier proposed by Deming. This ability to deliver quality may be a fundamental challenge in construction, especially with clients selecting designers and constructors on the basis of lowest cost instead of overall value for money (Hoxley, 2000; 599-605; Kumaraswamy, Rowlinson, and Phua, 2002:3-16; Wong, Holt, and Cooper, 2000:767-774).

For the purpose of this study, relevant quality dimensions to be considered are beliefs, values, attitudes and assumptions towards quality required by client. These may include insight, innovation and adaptation, learning, speed and degree of feedback, attention to detail, quality delivery on time, budget, and elimination of defects (Tsung-Hsien & Yen-Lin, 2010:617-632).

5.6.5 Commitment to people

According to Kajewski and Weippert (2001:42) and the report of the Respect for People Working Group (2004:10) it is noted that it is commonplace to come across phrases like “people are our greatest assets” in construction. However Fernie, Leiringer and Thorpe (2006:91-103) argue that there is still a problem in construction of recognising that it is people who are its greatest assets and hence it is necessary to invest in their training and development, health and

safety, decent site conditions, and fair wages. This problem also encompasses the lack of concern for the environment and the issue of sustainability, as these also relate to a concern for people within the society at large (Ankrah, 2007:100). It is not surprising to find for instance that construction has one of the worst records for health and safety and a poor record for recruitment and retention (Ali, 2006:12). Problems associated with human resources are constantly being reported, especially in the trade magazines like *Construction News* (Anonymous, 2005:14; Booth, 2005:22-25; Kernon, 2005:4; Prior, 2005:5; Prior, 2006:6; Respect for People Working Group, 2004:23; Rimmer, 2006:14).

Some of the dimensions that emerge from this fundamental problem include concern, commitment and morale, the primacy of human resources, motivational conditions, health and safety, sustainability, and environmental awareness (Ankrah, 2007:103). Cox *et al.* (2005:370) agree and identify employee training, welfare and development as dimensions for worker commitment in construction industry. The Respect for People Working Group (2004:23) identifies conditions of service, management approaches, remuneration, reward and behaviours. The focus of this study is the commitment to moral and motivational conditions of workers to enable construction performance improvement.

5.6.6 Relevance of dimensions identified

In a number of reports, namely the Construction Research and Innovation Strategy Panel (CRISP) Culture and People Task Group (2002), Kajewski and Weippert (2001), Industry Culture: A need for change report (Respect for People Working Group, 2001), Respect for People report (Respect for People Working Group, 2004) and Rethinking Construction (Respect for People Working Group, 2000) on a research strategy for culture and people in construction, have a number of dimensions proposed by construction industry experts. These dimensions are training, institutional structure, education, economic cycle, team skills, learning, leadership, image of construction, image promotion, incentives, motivation and attractiveness, safety and health, diversity, clients, legislation, craft versus process, service versus product, method of employment, corporate structures. A comparison of these dimensions and the dimensions already identified in the literature review clearly shows that the chosen dimensions are consistent with the aspects considered important and relevant to this study of desired worker behaviours for improving construction productivity.

5.7 Organisational culture for positive (desired) construction worker behaviour

According to Phua and Rowlinson (2004:913) there is a notion that a cultural shift that eschews traditional adversarial relationships and embraces relationships that are based on mutual co-operation between project participants is a major agent for change that leads to better performance within the construction industry. It is possible that if construction project organisations (CPO) embrace relations based on mutual co-operation among its workers and teams, change that leads to better performance within CPOs may lead to better performance. Kazaz *et al.* (2008:95-106) state that to achieve a high project performance, it is important to get a worker-employer or worker-manager relation based on mutual trust to attain coordination and improving productivity. It would appear that for improved productivity, the workforce and management team should share a positive relationship in an organisational culture that provides the necessary alignment for improved productivity (Hawkins, 1997:427).

Culture, as earlier constructed for this research, consists of beliefs, values, attitudes and assumptions. The beliefs, values, attitudes and assumptions for both the workers and most construction project organisations should be aligned in order to improve their performance in terms of improving their productivity (Rwelamila, Talukhaba & Ngowi, 1999: 335-346). In section 5.6 of this chapter, the organisational beliefs, values, attitudes and assumptions were identified and limited to leadership, client focus, delivering quality, process of work and teams, and commitment to people. In an organisational culture construct, the above dimensions seem to be important for performance improvement (Denison, 2000:347-376; Tsung-Hsien & Yen-Lin, 2010:617-632).

Organisational culture is also identified as a variable asset of organisations, unique and different, much like the uniqueness of individuals is often expressed in their personalities (Ankrah, 2007:39). According to Gibson *et al.* (2009:63), every organisation has a culture, even if this culture is fragmented and difficult to read, it may still be regarded as an organisational culture.

It may be possible that an organisation with cultural organisational dimensions focusing on client satisfaction, delivering quality products, having a management style and company policy which recognises and aligns individual worker motivation, belief and attitude satisfaction requirements with that of the organisation could influence culture of a desired construction worker behaviour

for improving productivity and gauging motivation and satisfaction level of workers (Cox *et al.*, 2005:370).

According to Smit and Cronjé (2002:308) dimensions which can lead to change in attitude may include remuneration, promotion, the job itself, relationships with co-workers, relations with supervisors, and workers' personal needs and aspirations. Smit and Cronjé (2002:308) add that changing employees' negative attitude towards the organisation can improve job satisfaction, which in turn can generate higher productivity. It may be possible that an organisation with a type of culture which practices and encourages good remuneration, fair promotion, offers interesting and challenging jobs or tasks, encourages good co-worker relationships, encourages good relations with supervisors, fulfils workers' personal needs and aspirations, could influence the desired positive worker behaviour for improving productivity and gauging motivation and satisfaction level of workers (Cox *et al.*, 2005:370).

Ouchi's (1981:283) Theory Z suggests that an organisation with a culture that may promote good performance may have the following cultural dimensions: openness, security in form of life employment, participation in decision making, information sharing, informal organisation structure, independence of tasks, and good co-worker relationship. It may be possible that organisations which create the above-mentioned dimensions in a work situation will influence positive (desired) construction worker behaviour for improving productivity and gauging workers' motivation and satisfaction levels (Cox *et al.*, 2005:370).

According to Ankrah (2007:96) organisational culture influences performance by attributes such as the propensity for litigation, the degree of participation and openness, approaches to decision making, the quality of communications and working relationships, recruitment and human resource policies, management philosophies and practices adopted on construction projects, strategy, and approaches to construction. Ankrah's (2007) research also shows that those construction project organisations emphasising work force and performance as cultural dimensions, reported improved construction performance. Dimensions such as openness, training of workers, security in the form of long-term employment contracts, participation in decision making, information sharing, informal organisation structure, independence of tasks, and good co-worker relationships have been identified as influencing desired construction behaviours. These behaviours could be suitable for gauging motivation and satisfaction level of workers (Cox *et al.*, 2005:370).

Patterson *et al.* (1997:9) measured the cultural dimensions of organisations in the United Kingdom and their performance outcomes. The results of the study show that those organisations with cultural dimensions such as good work relationships, work participation, open communication and freedom for decision making performed 29 per cent better than others.

The following cultural dimension attributed to the firms' better performance: concern for employee welfare – extent to which employees feel valued and trusted; autonomy– designing work in ways which give employees wide scope to enact work; emphasis on training – a concern with developing employee skills; and supervisory support (Patterson *et al.* 1997:9). The cultural dimensions are similar to those factors identified in the preceding chapters as important for influencing desired behaviours for improving construction productivity and gauging workers' motivation and satisfaction levels (Cox *et al.*, 2005:370).

Autonomy is “the degree to which the task provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out” (Hackman & Oldham, 1980:78).

Boyd and Sutherland (2006:18) studied the obtaining of employee commitment to living the brand for the organisations in South Africa. The study results suggest that for employees to be committed to the organisation, companies should do two things. Companies must create a culture and value set that views employees and their training and development as central to the culture of the organisation. Secondly, the companies should create a sense of belonging through pride, commitment and loyalty, whilst encouraging personal responsibility and accountability. Training of employees to develop skills is important in enabling workers to assume responsibility to work autonomously which was identified in Chapter 2 as desired behaviour for improving construction productivity and gauging workers' motivation and satisfaction levels.

It may be deduced that an organisation with a culture of positive (desired) worker behaviour to improve productivity may have the following cultural dimensions: openness, security in the form of long-term employment contracts, participation in decision making, information sharing, informal organisational structure, independence of tasks, and good co-worker relationships, quality communications, good recruitment and human resources policies, concern for employee welfare – extent to which employees feel valued and trusted; autonomy– designing work in

ways which give employees wide scope to enact work; emphasis on training – a concern with developing employee skills; and supervisory support.

The study intended to determine if organisations with the above-mentioned cultural dimensions could influence behaviours such as: commitment to the organisation's success goals towards the client, being achievement driven, being trustworthy, being cooperative and collaborative, and taking action to improving skills through learning opportunities to advance and personally grow so as to be fully skilled. Willingness to take responsibility and accountability at work, being enthusiastic and optimistic at work, communicating effectively to solve work and conflict problems, willing to share knowledge and ideas at work are part of another set of behaviours. Performing more work than expected, responding promptly to requests, correcting problems, and completing task at hand on schedule are another set of behaviours. Planning own work, speaking positively of the company and own job, remaining with the company in difficult times, asking about future projects, making sacrifices for well-being of company, promoting the company and abiding by company policy make up the last set of behaviours (Cox *et al.* 2005:370; Hackman & Oldham, 1980:78; Herzberg, 1966:72-74; Wilson, 1995:329-344). These could be regarded as desired behaviours for improving construction productivity and gauging motivation and satisfaction level of workers.

5.8 Important cultural studies

According to Phua and Rowlinson (2004:913) even though the culture concept entered the field of construction management more than a decade ago, there has been virtually no empirical attempt to operationalise the concept and more importantly to systematically measure what effects culture may have on construction project success. Phua and Rowlinson (2004:914) add that addressing this dearth of research in an area that is becoming increasingly popular would seem to be an urgent requirement. It is on this premise that this research includes culture as part of the factors to be included in the study of desired behaviours for improving construction productivity and gauging motivation and satisfaction levels of construction workers.

Despite the established need for research in this field, the state of research on culture in the construction industry is generally still at the pioneering stage (Serpell & Rodriguez, 2002:76-91). The main focus of research into the role and impact of culture in construction is reported by Fellows and Seymour (2002:221-237) as being two-fold, namely:

- “National differences as they affect efforts to change industry practice in the country concerned or as they affect international collaboration; and
- Occupational and organisational differences, how they affect receptivity to new practices and technologies, and inter-firm collaboration.”

Other issues being covered in research, though to a lesser extent, include the linking of culture with power and the exploration of negative effects of cultural homogenisation, and methodologies associated with research in culture (Ankrah, 2007:76 citing Fellows and Seymour, 2002).

5.8.1 Cross-cultural research

A significant proportion of the research on culture in construction is on national differences and their potential effects on project delivery. For instance, Abu Bakar (1998) studied the extent to which Western and Eastern values have shaped the organisational culture and management practices of Malaysian contractors, and Hall (1999) looked at the challenges different cultures posed to expatriate staff working abroad and the training and support made available to them by their organisations. The cultural dimension was found to be an important factor whose effects were difficult to quantify but indisputable, and that inadequate strategic approaches were adopted by construction firms in dealing with this dimension. The research adopted both quantitative and qualitative approaches.

Phua and Rowlinson (2004:913-925) studied the cultural differences of Chinese and Anglo-Saxon project managers in the Hong Kong construction industry, based on the individualism-collectivism construct. Although the study hypothesis was that since the Chinese embraced collectivism and the Anglo-Saxons individualism, the Chinese would cooperate more than Anglo-Saxons, the main findings of the study did not support the above hypothesis. Although some support was found in the study results that in-group favouritism and collectivism do indeed predict cooperation and therefore are potentially important factors for improving cooperation in the construction industry, in that people are attracted to others who are similar to themselves because this similarity reinforces their self-concept and self-esteem. The results of the study explain that the unexpected result of the study findings could be as a result of the uniqueness of Hong Kong with a cultural divergence, divergence and crossvergence between China and the West (Phua and Rowlinson, 2004:913-925). The result of Phua and Rowlinson’s study (2004:913-925) may show that culture is latent, complex, multi-dimensional and difficult to grasp as a concept and as a result difficult and challenging to research.

Chen *et al.* (2009:477-487) studied the cross-cultural understanding of construction project managers of the Chinese construction industry. The study involved looking for differences in behaviours between the two types of project managers. The findings of the study show that although there are some similarities, the important differences between project managers from the United Kingdom (UK) and Chinese project managers are that Chinese managers emphasise commercial awareness while UK managers emphasise health and safety; Chinese managers pay attention to relationships and have concern for the success of the company, while the UK managers will pay attention to project contracts. The result of the study suggests that culture is important for influencing behaviour.

Tone *et al.* (2009:343-361) investigated the impact of cross-cultural communication on the management of construction projects in Samoa. The findings of this study show that there is a need for cultural sensitivity when designing an inter-organisational communication strategy for the management of international projects. An organisation also needs to have a global perspective if it is involved in the international construction market, and be willing to modify communication strategies that are appropriate within the context of host cultures.

Although these studies were all conducted in different countries and address different issues, they demonstrate that insights can be drawn about cultural diversity and its effects in a multi-cultural project context. Cultural differences may make project groups or participants behave differently.

5.8.2 Occupational and organisational differences

Among those studies relating to occupational and organisational differences, notable research undertaken include that of Ankrah (2007:76) which presents the findings of research regarding the relationship between organisational culture and construction project performance. The results of the study show that there is correlation between the organisational culture dimensions of: workforce orientation, team orientation, and performance orientation and construction project performance outcomes. Those construction project organisations with high culture dimensions of workforce, teams and performance, performed better. The implication of the results of Ankrah's (2007) study is to suggest that culture influences project performance.

Tsung-Hsien and Yen-Lin (2010:617-632) investigated the effect of corporate culture and total quality management on construction project performance in Taiwan. The organisational culture construct consisting of involvement, consistency, mission and adaptability were tested against

project performance. The findings of the study show that the mentioned organisational culture dimensions directly relate to construction project performance. Organisations with higher involvement, consistency, mission and adaptability performed projects better than those with less. This study shows that organisational culture influences project performance positively and as a result it also improves productivity. Denison (2000:347-376) had previously carried out a similar study that produced similar results to that of Tsung-Hsien and Yen-Lin, (2010:617-632).

It may be deduced that a construction organisational culture which involves its workers as project participants, improves the workers' capability by training and fulfils their motivational needs and job satisfaction, may improve construction performance. As performance is directly related to productivity, it possible that culture improves construction productivity.

5.9 Further survey

Kajewski and Weippert (2001:38) suggest that to change the culture, leadership should apply a change process by giving direction and a destination of change and belief by introducing new ways of doing things. To achieve the change leaders should increase workers' skills capabilities through training and education, and through mentoring and coaching. Leadership is reviewed in Chapter 6 in order to give an insight of how leadership could contribute to shaping positive behaviours which may be desired for improving construction productivity.

5.10 Conclusion

The objective in this chapter was to attempt to identify and investigate a suitable culture with its cultural dimensions which influence positive (desired) construction worker behaviour for improved productivity.

The literature suggests that most organisational cultures which believe, value, have attitude and assume that client satisfaction in terms of improved project performance on time, budget and to the desired quality, may also lead to improved productivity in order for the organisation to be sustainable and competitive in the market. In the mission to improve productivity an organisation may have to adopt client satisfaction, improving quality productivity, skills and worker satisfaction as its main organisational cultural dimensions which form its belief, value, and attitude and assumption system. In order to influence behaviour of workers, this type of organisation may align the above-mentioned culture dimensions with those of workers through

good company policies and good management styles which satisfy workers' motivational beliefs and needs, job beliefs, attitudes and values through job satisfaction.

The organisation may fulfil the workers' motivational belief and value needs by providing a good salary, money incentives, company staff housing, staff lunches, health care, transport, long-term employment contracts and health and safety at work. Workers in the organisation may also achieve job satisfaction through participation in decision making, being praised when necessary, being respected and valued and given recognition for performing well, and challenging work. The organisation may also have to train and educate the workers in order to eliminate assumptions and issues taken for granted about the organisation's history, business nature, market conditions and the work itself. This training could also improve worker skills and experience and may be in the form of learning, coaching, and mentoring through effective communication and good co-worker relationships.

Firstly, the study attempts to find out if organisations with the above-mentioned cultural dimensions could influence construction worker behaviours such as worker commitment to the organisation's success goals towards the client, being achievement driven, being trustworthy, being cooperative and collaborative, and taking action to improving skill through learning opportunities to advance and personally grow so as to be fully skilled. Secondly, the study results attempt to show that the above-mentioned organisational dimensions may allow workers to communicate effectively to solve work and conflict problems, take responsibility and accountability at work, be enthusiastic and optimistic at work, and share knowledge and ideas at work. Thirdly, the study results try to show that the above-mentioned organisational dimensions may allow workers to perform more work than expected, respond promptly to requests, correct problems, complete task at hand on schedule, plan own work, and speak of company and own job with positive regard. Fourthly, the study tries to show that the above-mentioned organisational dimensions may allow workers to remain with a company in difficult times, ask about future projects, make sacrifices for the well-being of the company, promote the company and abide by company policy. These positive behaviours may improve construction productivity and could be useful as indicators for gauging construction workers' levels of motivation and satisfaction.

In the next chapter leadership styles, traits and theories are reviewed in order to determine the influence on leadership and positive construction worker behaviour for improved productivity.

CHAPTER 6 LEADERSHIP AND LEADERSHIP STYLES FOR POSITIVE WORKER BEHAVIOUR

6.1 Introduction

According to Meijer (1998:147-160) organisations exist because they want work done, and therefore organisations need effective leaders able to motivate their followers to accomplish the desired work and improving productivity.

Effective leaders could motivate their followers to accomplish the desired work and improve productivity through a specific leadership style. According to Giritli and Oraz (2004:253) the word 'style' is roughly equivalent to the way in which a manager chooses to influence other people. Style is an important part of leadership, because it shapes a manager's approach to leadership (Giritli & Oraz, 2004:253).

According to Den Hartog, Van Muijen and Koopman (1997:20) transformation leadership is about inspiring followers to do more than originally expected, including broadening and elevating the interests of followers, generating awareness and acceptance among the followers of the purposes of the group and motivating followers to go beyond their self-interests for the good of the group. Chan and Chan (2005:413) refer to transformation leadership as a pre-requisite for engendering improved performance. Liu, Fellows and Fang (2003:819-829) state that good leadership has motivating functions. Akoi-Gyebi Adjei (2009:32) states that leadership by example motivates. Kazaz *et al.* (2008:97) state that construction managers' motivational speeches improve productivity.

However, no evidence has clearly shown that a particular leadership style is optimal; making it appropriate to conclude that there is no single leadership style best for all managerial situations (Vecchio & Boatwright, 2002:643-671). It is therefore important to explore leadership styles that may influence behaviour of construction workers and their productivity.

Leadership and leadership styles are reviewed in order to identify appropriate leadership styles that may influence behaviours to improve productivity.

6.2 Concept of leadership

There is considerable ambiguity about leadership, even though experts have studied leadership for decades. Leadership is one of the least-understood concepts in business, despite the

countless articles and books written about it. As such, leadership still remains something of a mystery, because the experts still lack consensus on exactly what leadership is and how it should be applied (Giritli & Oraz, 2004:253).

Because of the lack of agreement on the concept of leadership, others consider leadership as a social exchange process in leader-follower relationships which are intricate with social and cultural issues that can affect project performance if not well understood (Chan & Chan, 2005:413). It is therefore important to define and understand leadership and its role in improving productivity.

The following definitions may help in explaining the concept of leadership. Generally, however, leaders are individuals who influence other individuals to do what they might not do in the absence of the leaders' influence. Leadership is defined as an attempt to use influence to motivate individuals to accomplish goals (Gibson *et al.*, 2009:312).

Kreitner and Kinicki (2007:509) define leadership as a process whereby an individual influences a group of individuals to achieve a common goal. Mondy and Premeaux (1993:332) define leadership as influencing others to do what the leader wants them to do.

Leadership thus is concerned with influencing others to accomplish goals. However, the differences between leadership and management also need review.

6.3 Leadership and management

A contemporary debate in literature points to the need to examine the development of leaders from broader sociological, historical and political perspectives, rather than the current emphasis on managerial functions (Chan, 2008:53). Distinction between the concept of leadership and management in order to appreciate the important role of leadership in performance improvement is needed.

Kotter (1990:103-111) explains the difference between management and leadership by suggesting that management is about coping with complexity, while leadership in contrast, may be defined as about coping with change. Grint (2005:1467-1494) argues that management is about application of tried and tested processes, whereas leadership invokes a sense of venturing into uncharted terrains. Fairholm (2004:578) puts it that if you can count it, you can control it, you can programme it and therefore, you can manage it. If you cannot count it or control it, you have to apply leadership.

It would appear that a manager in an organisation is required to carry out functions such as planning, organising and controlling without leading or engaging in leadership. Leadership, on the other hand, involves motivation (Liu *et al.*, 2003:819-829). Leaders may have to interact with workers within an organisation in order to motivate and influence their behaviours for improving productivity.

Gibson *et al.* (2009:313) suggest that a leader can make a difference in measures of organisational effectiveness, productivity efficiency, quality, flexibility, satisfaction, competitiveness and development.

Because of the complexities of the concept of leadership the findings of some studies still show that leadership may not make a difference and may not affect organisations' performance (Hogan & Hogan, 2002:75-78).

Chan and Chan (2005:413) also state that studies by Grant (1984:3-4), Rowlinson *et al.* (1993); and Bresnen and Marshall, (1986), although concentrated in exploring ways for enhancing performance at project and organisational levels in the field, did not focus on the role of site managers as leaders of their team and the range of managerial styles adopted on site. This may explain why some of the studies have not captured the contribution of leadership in performance and productivity. The aim of this study, however, is to show that leadership is required for improved performance in construction project organisations (CPO).

Bargal and Schmid (1989:37-54) state that leadership is viewed as the creator of a vision and architecture. A leader may also be viewed as a creator of an organisational culture (Bargal & Schmid, 1989:41). The concepts of leadership and follower may be applied to create influence (Mondy & Premeaux, 1993:332). Leadership as a characteristic of transformation and transaction is needed for influencing change (Bargal & Schmid, 1989:43). Leadership may be linked to culture through influence and transformation because culture defines appropriate behaviour, motivates individuals and asserts solutions where there is ambiguity (Ankrah, 2007:58).

Leadership is thus required in the motivation of workers and development or creation of an organisational culture for inspiring worker performance. Leadership styles are reviewed in order to gain insight in appropriate leadership for an organisational culture of positive behaviour and thus improved productivity.

6.4 Leadership styles

As leadership is required in the motivation of workers and development or creation of an organisational culture for inspiring worker performance, it may be done through a number of styles. The word 'style' is equivalent to the way in which a manager chooses to influence other people. Various authors give different approaches to classifications of leadership styles. According to Fisher (2009:356) there are leadership styles of being task oriented, slightly less task oriented, leadership which is slightly more on comfortable work environment for people and leadership which wants to create a fully comfortable work environment for people as different leadership styles for influencing behaviour. Gibson *et al.* (2009:314) also identify some important leadership styles for influencing behaviour. It has been found that leadership has significantly affected the performance of construction projects and that it is pivotal in determining project success (Chan & Chan, 2005:413). Randeree and Chaudhry (2012:62) state that leadership is the ability to inspire confidence and support among the people needed to achieve organisational goals. Leadership style is a leader's combination of attitude and behaviour, which leads to certain regularity and predictability in dealing with group members and is the relatively consistent pattern of behaviour that characterises a leader (Randeree & Chaudhry, 2012:62). The important leadership styles are reviewed below.

6.4.1 Likert's system 1 – system 4 (Job-centred and Employee centred leadership)

Fisher (2009:358) developed a measurement scale of understanding leadership and the performance characteristic of organisations. To use this measurement scale, managers and subordinates use a Likert-type scale that rates the leadership processes used and the character of motivational forces, communication processes, interaction-influence processes, decision making processes, goal setting, and control processes.

After both managers and subordinates have completed and entered into the different aspects of management, a Likert scale of 1 to 4 is used as rating instrument, and an organisation may be characterised as System 1, System 2, System 3 or System 4. A rate of 4 represents the highest performance (System 4) and the lowest performance (System 1) is represented by a rating of 1 (Fisher 2009:359).

System 1 organisations are more rigid, inflexible, traditional bureaucratic organisations, while System 4 organisations are more likely to be flexible. The goal of System 1 organisations should be to become more like System 4 organisations which require leadership directions. However,

the process will first include movement through Systems 2 and 3. System 1 leaders incorporate more telling commands, while System 2 leaders use selling techniques to engage workers. System 3 leaders consult with employees, and System 4 leaders join employees. The most satisfied employees are found in System 4 led organisations (Fisher, 2009:359). Systems 1 to 4 can be regarded as leadership styles. System 4 leadership in construction project organisations influences positive worker behaviours for improving productivity to a larger extent.

The study results attempt to show that an employee-centred leadership style rather than a job-centred leadership style may improve productivity. Furthermore the theory of motivating leadership is about recognising and providing for the needs and values of followers.

6.4.1.1 Blake and Mouton's managerial grid

Blake and Mouton (1964:57) provide a managerial grid in which the horizontal axis represents the degree to which managers are concerned with production or results, while the vertical axis represents the degrees to which managers are concerned for workers. Managers score between one and nine on each axis, which produces a combination score. One represents the least concern and nine represents maximum concern. For example, a manager may have a score of (1, 9), (5, 5) or (9, 1) (notice they are not added together, but remain separate scores). The first number (i.e. 1) represents the concern for production and the second number (i.e. 9) is concern for workers (Fisher, 2009:359). A manager who uses a (9, 1) leadership style may show concern for workers and could improve productivity.

Fisher (2009:359) provides descriptions of some of the more common managerial styles. The descriptions may help in identifying suitable management styles for influencing work satisfaction of employees. For example, the (9, 1) leader is more of a taskmaster and attempts to minimise the human side of work (emotions and attitudes). On the other hand, a (1, 9) leader wants to create a comfortable work environment for people, only pushing them to work as hard as it is comfortable. The (5, 5) leader realises that some push for production is necessary, but only enough from a perspective of steady progress and will manage work based on traditionally yielded satisfactory results. The (9, 9) style leader is perhaps the ideal. This type of leader does not assume that there is a conflict between organisational and worker needs. This type of management is creative and works with subordinates to find the best solutions to problems (Fisher, 2009:359).

Blake and Mouton's (1964:57) managerial grid is similar to the presentation of Tannenbaum and Schmidt (1973:162-175) who propose a continuum, which at its extremes defines a leadership-centred (authoritarian) and sub-ordinate-centred (democratic) style. Both Blake and Mouton (1964:57) and Tannenbaum and Schmidt (1973:162-175) view leadership that is least concerned with workers as tightly controlling and un-motivating, whereas leadership that is pro-workers, is participative, inspiring and motivating for improved performance. Tannenbaum and Schmidt (1973:162-175) produced a graphical presentation of the trade-off between a manager's authority and freedom that the subordinates have.

The usefulness of Blake and Mouton's (1964) managerial grid and Tannenbaum and Schmidt's (1973:162-175) continuum is that it may allow a manager to assess the situation of the subordinates in order to choose the leadership style which may influence them. For instance, if the subordinates are less skilled, the manager may choose to coach them and if they are highly skilled, he may let them do what they think is best.

Leadership style (1, 9), according to Blake and Mouton (1964:57) and Tannenbaum and Schmidt (1973:162-175), is democratic leadership and may be preferred for improving construction productivity. Nevertheless, according to Giritli and Oraz (2004:254), a democratic leadership style should not be used in crisis mode when subordinates tend to require direction more than support from their leader. This is consistent with views of Vecchio (2002:643-671) that there is no single leadership style which is best for all managerial situations.

6.4.2 Transactional leadership style

Transactional leadership identifies the needs of followers and helps them achieve levels of performance that result in rewards that satisfy them. In using the transaction style, the leader relies on contingent reward and management by exception. Transaction leadership may not work properly until managers understand what the employee wants, administer rewards in a timely manner, and emphasise the pay-performance link. There is also likely to be confusion, uncertainty, and minimal transactional impact in leader-follower relationships (Gibson *et al.*, 2009:354). According to Giritli and Oraz (2004:254), there are two styles of leadership under transactional leadership, namely the coercive style and the authoritative style. Hornby (2000; 274) describes 'coercive' as using force or threat of force. A coercive leadership style leads by threat, force or discipline. Giritli and Oraz (2004:254) also note that transactional leadership may not work properly without a promise of reward, and that it may be necessary to augment, transactional leadership with transformational leadership to improve employee performance.

6.4.2.1 Coercive leadership style

Coercive leaders manage by controlling subordinates tightly, requiring many reports, and preferring to motivate by using discipline (Giritli & Oraz, 2004:254). However, according to Goleman (2000:82), a coercive leadership style erodes workers' pride, and undermines one of the leader's prime tools – motivating people by showing them how their job fits into a grand shared vision. This type of leadership may not be appropriate for influencing positive worker behaviour for improving construction productivity.

6.4.2.2 Authoritative leadership style

Goleman (2000:83) describes an authoritative leader as a visionary who motivates people by making clear to them how their work fits into a larger vision for the organisation. Giritli and Oraz (2004:254) agree, but observe that an authoritative leader may become overbearing, especially in the presence of experts and peers.

However, Goleman (2000:78) states that new research suggests that the most effective executives use a collection of distinct leadership styles – each in the right measure, at just the right time. This could imply that there is no single leadership style that is appropriate for all situations. Giritli and Oraz (2004:255) suggest that this could be due to the fact that leadership behaviour may not always be under the influence of intrapersonal factors alone, there could be situational and contextual factors also influencing leadership behaviour. In case of transactional leadership, these factors are identified as contingent reward and management-by-exception (active and passive).

6.4.2.3 Transactional leadership style factors

According to Giritli and Oraz (2004:255) factors influencing leadership behaviour could include trust of subordinates in their leader, pressure of time, organisational task system, organisational structure, mode of governance, markets and culture. Randeree and Chaudhry (2012:62) identify authority, hierarchy, organisational size and function, task characteristics, crisis situation and subordinates' level of competence and performance as factors of leadership style. Chan and Chan (2005:415) identify reward and style of management as factors for transactional leadership style. For the purpose of this study, it is proposed that Chan and Chan's (2005:415) transactional leadership style factors be accepted as they directly contribute to the influence of positive worker behaviours.

6.4.2.3.1 Contingent reward

Contingent reward can be considered as one of the most direct ways for followers to work harder in accordance with the mutually agreed performance level. Transactional leaders may use contingent rewards to remunerate followers in return for their services and work. The remuneration may be taken in the form of awards in recognition of achievements, recommendations for increase in salary and promotion, or commendation for outstanding efforts (Chan & Chan, 2005:415). This type of contingent rewards was identified in Chapter 2 as important for satisfying workers' basic needs. Workers who are satisfied with their work may improve their productivity (Randeree & Chaudhry, 2007:220-232).

6.4.2.4 Management-by-exception (active or passive)

Management-by-exception is a kind of management where a worker is given an opportunity to plan and work as autonomously as possible, and intervention by a supervisor is only required when things start to go wrong. A transactional leader who uses management-by-exception can be described as one who intervenes only when the work done or performance level is below the agreed or expected standard. The leader will only take corrective actions when things go wrong (Chan & Chan, 2005:415). This kind of leadership may be appropriate where workers are very skilled and have been trusted and given responsibility to plan and work autonomously. Their behaviour is considered positive for improving work performance (Hackman & Oldham, 1980:78).

Management-by-exception can be active or passive in nature. Some leaders constantly monitor followers to avoid mistakes and actively take corrective actions on committed errors and deviances. This type of leader is considered to be exercising active management-by-exception.

A passive management-by-exception leader does not take action until obvious deviances and mistakes occur, which is then followed by corrective action (Bass, 1990:20). As observed earlier, the above-mentioned leadership style could work with very experienced and skilled workers.

6.4.3 Transformational leadership styles

According to Wofford, Goodwin and Whittington, (1998:55-84) a transformational leadership style is the ability to inspire and motivate followers to achieve results greater than originally planned, through motivation by intrinsic rewards. Fisher (2009:363) states that transformational

leadership empowers subordinates and allows subordinates to participate in the work environment because it promotes input in decision making, delegation of tasks and responsibility to the subordinates.

In transformational leadership, the followers work for transcendental goals, instead of short-term goals, and for achievement and self-actualisation instead of security. Transformational leaders may make major changes in the firm's mission, way of doing things or business, and human resources management to achieve the vision (Collins, 2001:23-33).

According to Chan and Chan (2005:414), transformational leaders typically raise the level of awareness of followers about the importance of achieving valued outcomes, a vision, and required strategy; getting followers to transcend their own self-interest for the sake of the team, organisation, or a larger collectivity; and expanding followers' portfolio of needs by raising their awareness to improve themselves and what they are attempting to accomplish.

Transformational leadership style seems to be the ability to inspire and motivate followers intrinsically rather than by external rewards such as remuneration and work fringe benefits. The research by Hackman, Hills and Paterson (1992:311-319) showed that transformational leadership is a feminine leadership style or a stereotypically gender-balanced style which empowers subordinates.

The various transformational leadership styles may be important for influencing positive worker behaviours and they are reviewed below.

6.4.3.1 Affiliative style

According to Goleman (2000:84), the affiliative leader manages by building strong emotional bonds with employees, resulting in employees becoming fiercely loyal. Giritli and Oraz (2004:254) state that it is a flexible style that creates emotional bonds and harmony between leader and followers, improves positive communication, and increases the moral of the subordinates. This type of leadership may allow workers the freedom to do their job in the way they think is most effective (Goleman, 2000:84). Freedom to decide and plan work was identified in Chapters 2 and 3 as positive behaviour to improve productivity.

6.4.3.2 Democratic style

A democratic style builds consensus through participation, which generates ideas and guidance but requires highly developed and competent subordinates to create ideas and participate in the decision-making process (Bass, 1997:19-34). Participation in decision making was identified in Chapter 2 as a factor which could influence desired worker behaviour for improving productivity. Goleman (2000:85), however, states that democratic leadership is not suitable in times of crisis.

6.4.3.3 Pacesetting style

This style is of a leader who expects excellence and self-direction, sets high standards and demands more from poor performers (Giritli & Oraz, 2004:254). Goleman (2000:86) criticises the pacesetting leadership style because it does not give feedback and destroys workers' commitment to the organisation as employees have no sense of how their personal efforts fit into the big picture.

6.4.3.4 Coaching style

Coaching leaders help employees identify and pursue personal and career aspirations, agree on roles and responsibilities with employees, and excel at delegating, including giving employees challenging assignments (Goleman, 2000:87). Giritli and Oraz (2004:254) state that coaching leaders develop people for the future; create dialogue and flexibility; and establish long-term goals and plans. Career development was identified as one of the factors for desired worker behaviours which improve productivity. The coaching leadership style may be proper for influencing positive worker behaviour for improving productivity. Giritli and Oraz (2004:254) state, however, that coaching style leadership is least effective when employees are resistant to learning or changing ways.

According to Giritli and Oraz (2004:255) there is no single leadership style that is appropriate for all situations. However, the result of Mary's study (2005:105-118) showed that leaders were generally transformational in nature, and transformational leadership qualities were correlated with successful leader outcomes including effectiveness, extra effort and satisfaction with the leader.

Goleman (2000:78) suggests that the most effective executives use a collection of distinct leadership styles – each in the right measure, at just the right time.

Giritli and Oraz (2004:255) suggest that the need to use a combination of leadership styles is due to the fact that leadership behaviour may not always be under the influence of intrapersonal factors alone; there could be situational and contextual factors also influencing leadership behaviour.

Bass (1997:19-34) identifies four factors that describe transformational leadership styles, namely idealised influence, also known as charismatic behaviour (idealised influence), inspirational motivation, intellectual stimulation, and individualised consideration. These factors are important for different transformational leadership styles needed for influencing construction worker behaviours and are reviewed below.

6.5 Transformational leadership style factors

In this section four transformational leadership styles factors are discussed as follows;

6.5.1 Charisma, also known as idealised influence factor

Charisma is a necessary ingredient of transformational leadership, but by itself it is not sufficient to account for the transformational process. In addition to charisma, transformational leaders need assessment skills, communication abilities and sensitivity towards others. They must be able to articulate their vision and they must be sensitive to the skill deficiencies of followers (Gibson *et al.*, 2009:357).

Bass (1997:19-34) identifies charisma as the most important characteristics of the transformational leadership and adds that with charisma transformational leaders can play the role of leader, mentor, coach, reformer or revolutionary.

Charisma is a Greek word meaning 'gift'. Powers that could not be clearly explained by logical means were called charismatic. Charismatic leadership is the ability to influence followers based on an inexplicable gift and attractive powers. Followers enjoy being with the charismatic leaders because they feel inspired, correct and important (Gibson *et al.* 2009:349).

Some leaders have a gift of exceptional qualities – a charisma – that enables them to motivate followers to achieve outstanding performance (Tosi, Misangyi, Fanelli, Waldman & Yammarino, 2004: 405-420).

Presently, no definitive answer has been given on what constitutes charismatic leadership behaviour (Tuomo, 2006:19-21). It is, however, suggested that charismatic leaders are those

who have an unusually high degree of charismatic effect on their followers (Huang, Cheng & Chou, 2005: 38-49).

There are two types of charismatic leaders. Visionary charismatic leaders focus on the long term, while crisis-based charismatic leaders focus on the short term. Through good communication skills, the visionary charismatic leaders link followers' needs and goals to tasks or organisational long-term goals and possibilities. In the same way, visionary leaders link followers' needs and goals with those of the organisation. Linking followers' needs with the organisation is easier if the follower is dissatisfied or challenged by the current situation (Gibson *et al.*, 2009:352). According to Goleman (1996:153) the leader should communicate feedback to the follower in a specific manner while offering solutions personally in a sensitive manner. Hackman and Oldham (1980:79) state that feedback is critical and important because this type of communication will give knowledge and results of subordinates' performance, provided the subordinates can effectively listen and interpret the information.

Crisis-based charismatic leaders have an impact when the organisation must handle a situation for which existing knowledge, resources and procedures are inadequate. The crisis charismatic leader communicates clearly what action needs to be taken and what the consequences will be (Gibson *et al.* 2009:352).

Knowledge about charismatic leadership is still relatively abstract and ambiguous. There is limited understanding about whether charismatic leaders can be harmful in expressing visions that are unrealistic or inaccurate or in the way they attack a crisis (Gibson *et al.* 2009:353).

It may be deduced that charisma is an important factor which may be useful in influencing a transformational leadership style for positive (desired) behaviours which could improve construction productivity.

6.5.2 Inspirational motivation factor

Inspirational motivational factors describe the ability of leaders who are able to motivate and inspire followers and colleagues by building confidence, and creating enthusiasm and spirit in the group. Through the inspirational process, followers are motivated to become more committed to the goals and shared visions in the future growth of the organisation (Chan & Chan, 2005:415).

Motivational factors were identified in Chapter 2 as important for influencing positive worker behaviour for improving productivity.

6.5.3 Intellectual stimulation factor

Intellectual stimulation factors are described as the encouragement and change in followers regarding problem awareness and problem solving, of thought and imagination, and of beliefs and values, rather than encouragement and change of immediate action. Intellectual stimulation is often employed to encourage and stimulate followers to think about old problems in new ways and to put extra effort into their work. As a result, the followers can develop capabilities of exploring, analysing, and solving problems more independently in order to cope with rapidly changing organisational environments (Bass, 1985:99).

The intellectual stimulation factor may be important for worker skills development such as training, research and development on best ways of solving problems.

6.5.4 Individualised consideration factor

Consideration involves behaviour indicating friendship, mutual trust, respect, warmth and support between the leader and the followers. The considerate leader supports open communication and participation (Fleishman, 1953:153-158). According to Cox *et al.* (2005:369) open communication and worker motivation may influence positive (desired) behaviour for improved construction productivity.

By acting as a coach or mentor, some leaders pay particular attention to individual followers' needs for personal growth, advancement, and achievement in organisations. Each follower is taken care of individually and uniquely. The two-way exchange process highlights the mutual trust, sharing, and concerns between leaders and followers (Bass, 1985: 99).

A considerate leader could influence the following positive (desired) behaviours in workers: worker commitment to the organisation's goals towards the client, being achievement driven, being trustworthy, being cooperative and collaborative, taking action to improving skill through learning opportunity to advance and personally grow so as to be fully skilled, communicating effectively to resolve work problems and conflicts, willing to take responsibility and accountability at work, being enthusiastic and optimistic at work and communicating effectively to share knowledge and ideas at work and promote the company (Alderfer, 1972:658-669; Cox

et al., 2005:370; Hackman & Oldham, 1980:78; Herzberg, 1966:72-74; Maslow, 1943:394-395; McClelland, 1965:321-333; McKenzie & Harris, 1984:25-29; Ouchi, 1981:283).

The above-mentioned traits may improve productivity and assist in gauging workers' motivation and satisfaction levels.

6.6 Leadership theories

Many theories of leadership have been developed, yet no single approach adequately captures the essence of the concept. As a result leadership is one of the least understood concepts in business. Leadership theories are intended to explain the relationship between leadership styles and the context in which leadership is evaluated (Giritli & Oraz, 2004:253). These theories are reviewed below.

6.6.1 Situational theories of leadership

A situational theory of leadership is an approach to leadership that requires leaders to understand their own behaviour, the behaviour of their subordinates and the situation before using a particular leadership style. This approach requires the leader to have diagnostic skills in human behaviour (Giritli & Oraz, 2004:253). Evidence has shown that no single style is best for all situations (Vecchio & Boatwright, 2002:643-671).

6.6.2 Contingency Leadership Model

The contingency leadership model is an approach to leadership that links the leadership performance effectiveness to the favourableness of the situation of the subordinates. Gibson *et al.* (2009:321) state that the contingency model of leadership effectiveness is postulated that the performance of groups is dependent on the interaction between the leadership style and situational favourableness. A supervisor who communicates effectively may create cooperative behaviour (Carnegie, 1981:95).

6.6.3 Favourableness of the situation

Fiedler (1967:86) measured an individual's tendency to adopt a specific leadership style, eventually settling on a method that relies on psychological reasoning (Gibson *et al.*, 2009: 321).

Fiedler (1967:86) found that individuals whose personalities favour task completion and a sense of accomplishment would more likely practice task-oriented leadership. An individual whose personality values are warm, supports relationships with others would likely practice relationship-oriented leadership. Fiedler's (1967) studies also convinced him that individuals cannot be both task- and relationship-oriented. Individuals in relationship positions will be more comfortable, nicer and effectively practice the leadership behaviour that supports their own underlying personality. Thus, the most important leadership issue is to match leaders' personalities and styles to the situation in which they will be effective (Gibson *et al.*, 2009: 321).

Situational factors that determine whether a task- or relationship-oriented leadership style is more likely to be effective include leader-member relations, task structure and position power. From theoretical as well as initiative points of view, interpersonal leader-follower relationships are likely to be the most important variable in this situation (Gibson *et al.*, 2009: 322).

Giritli and Oraz (2004:255) identify situational leadership style factors as:

For transactional leadership styles:

- Contingent reward and management-by-exception (active and passive),

For transformational leadership style:

- Charismatic behaviour/idealised influence,
- Inspirational motivation,
- Intellectual stimulation, and
- Individualised consideration.

Fiedler's (1967) theory appears similar to Bass' (1985) transformational leadership theory, comprising transactional and transformational leadership styles which describe a leader as one who helps to develop and maintain a sense of commitment, and raises aspirations and motivation among colleagues and followers.

6.6.4 Hersey and Blanchard's situational leadership

Hersey and Blanchard (1972) propose that leadership is not the result of genetic traits or acquired abilities; instead, effective leadership requires behaviour that matches the situation.

The situational leadership Model (SLM) emphasises followers and their level of maturity in using a leadership style that fits the level. The maturity level in turn depends on readiness. Readiness is defined as the ability and willingness of people (followers) to take responsibility for directing their own behaviour. There are two types of readiness: task and psychology. A person in task readiness has the knowledge and abilities to perform the work without a manager directing the work, whereas in psychological readiness a person may have self-motivation and a desire to do quality work without needing direct supervision (Gibson *et al.*, 2009:328). Willingness to accept responsibility and accountability has been identified as a positive (desired) behaviour for improving productivity (Hackman & Oldham, 1980:78). Ramlall (2004:52-63) suggests that work responsibility and accountability could be gradually implemented, depending on the skill level of the worker.

According to Fisher (2009:360) once the leader has determined the follower's readiness level, he can tell, sell, participate or delegate.

- Telling – the leader defines the roles needed to do the task and tells the followers what, where, how and when to do the tasks,
- Selling – the leader provides followers with structured instructions but is also supportive,
- Participating – the leader and follower share in decisions about how best to complete a high quality task, and
- Delegating– the leader provides little specific, close direction or personal support to the followers.

According to Gibson *et al.* (2009:331) many managers would like to use Hersey and Blanchard's (1972) leadership model because it is practical, meaningful and visible in training settings. As leaders continue to command attention in organisations, the model appears to remain a popular way to adopt an appropriate leadership style in a work situation.

Hersey and Blanchard's leadership theory may be useful in shaping construction workers' positive (desired) behaviours for improving productivity. When a worker is able and willing to take responsibility, it is regarded as a positive behaviour for improving productivity. When construction workers have acquired knowledge and the ability to perform a task they may be trusted and may thus have self-motivation to do quality work. This then may constitute a positive behaviour for improving productivity.

6.6.5 House's Path-Goal Leadership theory

House's (1971:321-339) theory is that a leader needs to influence followers' perceptions of work goals, self-development goals and paths to goal attainment in their positive effect on innovation, ability and work satisfaction.

Gibson *et al.* (2009:325) state that an important part of the leader's job is to clarify what behaviour is most likely to result in goal accomplishment to the subordinates. This activity is referred to as path clarification.

The Path-Goal Leadership theory was originally developed with four specific leadership behaviours (directive, supportive, participative and achievement) and three subordinate behaviours (job satisfaction, acceptance of the leader and expectations about effort-performance-reward relationships). The directive leader leads the subordinates to know what is expected of them. The supportive leader treats subordinates as equals and the participative leader consults with subordinates and considers their suggestions and ideas before reaching a decision while the achievement-oriented leader sets challenging goals, expects subordinates to perform at the highest level, and continually seeks improvement in performance (Gibson *et al.*, 2009:326). Challenging tasks are identified as a motivational factor and motivation was identified as influencing positive behaviour for improving productivity (Herzberg, 1966:72-74).

Further research on the Path-Goal Leadership theory led to the development of two important propositions: leader behaviour is effective to the extent that subordinates perceive such behaviour as a source of immediate satisfaction or as instrumental to further satisfaction. The leader's behaviour is motivational to the extent that it satisfies subordinates' needs for effective performance and complements the environment of subordinates by providing the guidance, clarity of direction and rewards necessary for effective performance (Gibson *et al.*, 2009:326).

The Path-Goal Leadership theory has been criticised for lack of predictive power. Greene (1979:22-41) suggests that subordinates' performance could improve due to the cause of changes in leader behaviour instead of expectations about effort-performance-reward relationships as predicted by the theory, or that the reward relationship and not the leadership behaviour caused improved performance.

Another criticism is that the research results of the Path-Goal Leadership theory has consistently shown that the higher the task structure of the subordinates on jobs, the higher the relationship between supportive leader behaviour and sub-ordinate satisfaction, whereas the

second hypothesis of the Path-Goal Leadership theory research shows that the higher the task structure, the lower the relationship between directive leadership behaviour and subordinate job satisfaction which therefore contradicts the research results (Schriesheim & DeNisi, 1981:589-597).

The Path-Goal Leadership theory is an improvement on the trait and personal behaviour leadership theory because it attempts to identify which factors affect motivation to perform (Gibson *et al.*, 2009:327). Randeree and Chaudhry (2012:64) identify these motivational factors as salaries, fringe benefits, achievement, autonomy, recognition, communication, working conditions, task importance, co-workers, degree of professionalism, organisational climate, interpersonal relationships, working for a reputable agency, supervisory support, positive affectivity, job security, work place flexibility, working within a team environment and genetic factors.

The above-mentioned motivational factors were identified as important for positive worker behaviour for improving productivity (Alderfer, 1972:658-669; Cox *et al.*, 2005:370; Hackman & Oldham, 1980:78; Herzberg, 1966:72-74; Maslow, 1943:394-395; McClelland, 1965:321-333; McKenzie & Harris, 1984:25-29; Ouchi, 1981:283;). The Path-Goal Leadership theory could be useful in influencing positive behaviours by making the motivational rewards available to subordinates who improve performance.

6.6.6 Leader-Member Exchange (LMX) Leadership theory

Graen, Liden and Hoel (1982:868-872) proposed a Leader-Member Exchange Leadership theory (LMX) which proposes that there is no such thing as consistent leader behaviour across subordinates. A leader may be very considerate towards one subordinate and very rigid and structured towards another. Each relationship is unique and it is the one-on-one relationships that determine subordinates' behaviour.

The LMX Leadership theory suggests that leaders classify subordinates with in-group and out-group members. In-group members share a common bond and have a value system, and they interact with the leader. Out-group members have less in common with the leader and do not share much with him/her (Graen *et al.*, 1982:868-872).

The LMX Leadership theory explanation suggests that in-group members are likely to receive more challenging assignments and more meaningful rewards. The research of Kozlowski and Doherty (1989:546-553) indicates that in-group members are more positive about the

organisation's culture with higher job performance and satisfaction than the employees in the out-group (Kozlowski & Doherty, 1989:546-553).

The LMX Leadership theory is similar to Bass' (1985:99) transformational leadership style with individualised consideration factor which involves behaviour indicating friendship, mutual trust, respect, warmth and support between the leader and the followers. The LMX Leadership theory may be useful in explaining how to influence positive behaviour for improving productivity.

6.6.7 Trait theory of leadership

The trait theory of leadership is an approach to leadership that links the leadership performance effectiveness to specific leadership characteristics (physical, mental and personality) associated with leadership success. This theory relies on the research that relates various traits of certain success criteria (Bass, 1997:19-34).

The trait theory of leadership has identified the following characteristics as important for the working of the theory. Personality characteristics listed as follows: energy level, stress tolerance, self-confidence, emotional maturity and integrity. Motivational characteristics of the leader may include socialised power orientation, a strong need for achievement, self-starter and persuasiveness. Ability characteristics may include interpersonal skills, cognitive skills and technical skills. The theory claims that the above-mentioned traits differentiate effective from ineffective leaders (Giritli & Oraz, 2004:253-262).

The trait theory of leadership is criticised for continually adding to the list of traits. This continual 'adding on' to the list confuses those interested in identifying leadership traits. Secondly, trait test scores are not consistently predictive of leader effectiveness. Leadership traits do not operate singly to influence followers, but act in combination. This interaction influences the leader-follower relationship. Thirdly, patterns of behaviour depend largely on the situation: leadership behaviour that is effective in a bank may be ineffective in a laboratory. The trait approach fails to provide insight into what an effective leader does on the job. Observations are needed that describe the behaviour of effective leaders (Gibson *et al.*, 2009:316).

6.6.8 Vroom and Yetton leadership theory

The Vroom and Yetton leadership theory specifies leadership decision making procedures most effective in each of several different situations as autocratic, consultative, share and delegate, oriented toward joint decision of the leader and group (Giritli & Oraz, 2004:253-262).

The different situation decision styles are referenced to as (AI), (AII), (CI), (CII), (DI), (GI) and (GII) and are explained as follows:(AI) indicates that the leader solves the problem or makes the decision himself using information available to him at that time. (AII) means any necessary information is obtainable from the subordinate before the decision on the solution to the problem is taken. You may or may not tell the subordinate what the problem is while getting the information. The role played by your subordinates in making the decision is clearly one of providing specific information that you request, rather than generating or evaluating alternative solutions. (C1) shares the problem with the relevant subordinate getting ideas and suggestions. There you make the decision. The decision may or may not reflect your subordinate's influence. (GI) is where the problem is shared with one of some of the subordinates, and together the problem is analysed and a mutually satisfying solution arrived at in an atmosphere of free and open exchange of information and ideas. Both contribute to the solution of the problem, with the relative contribution of each being dependent on knowledge rather than formal authority. (DI) means delegating the problem to one of subordinates, providing him with any relevant information that he may not have, but giving him responsibility for solving the problem alone. Any solution the person reaches receives the supervisor's support (Gibson *et al.*, 2009:342).

Vroom and Yetton's leadership theory is criticised for indicating that a person can make only definite responses such as yes or no which are difficult to find in work situations. Secondly, the theory does not clearly show how leaders think and process stimuli. Organisations are complex and the theory is again criticised for failing to deal with problems of technological advancement and international competition (Gibson *et al.*, 2009:347).

The above-mentioned theory could be used in explaining the process of work delegation and giving the responsibilities to the subordinates in solving problems and is a behaviour identified in Chapter 2 as positive for improving productivity.

6.6.9 Attribution Leadership theory

Attribution Leadership theory attempts to explain why behaviours are happening, and does not focus on the why issue (Gibson *et al.*, 2009:348). Attributions are more likely to be made when failures or problems occur (Sims & Lorenzi, 1992:221).

The Attribution Leadership theory emphasises two important linkages: the first linkage is that when the leader makes an attribution about poor performance, the attribution is moderated by the three information types: distinctiveness, consistency and consensus. The second linkage

point suggests that the leader's behaviour or response is determined by his attributions. This relationship between attribution and leader behaviour is moderated by the leader's perception of his responsibility depending on whether it is internal or external (Giritli and Oraz, 2004:253-262).

6.7 Leadership for positive (desired) construction worker behaviour

Many studies have been undertaken in the area of leadership styles, they have concerned manufacturing with permanent organisation structures rather than construction industry with temporary structures (Giritli & Oraz, 2004:253-262). It may be a challenge for a manager therefore to choose an appropriate leadership style that is effective for construction. Naum (2001:219) however advises that factors such project characteristics, contractual arrangements, project life-cycle and environmental factors which create complexity in projects can influence different styles of leadership to improve productivity.

Whatever leadership style the construction site situation may demand, managers acting as leaders generally believe that workers either have a natural inclination to dislike work (McGregor's Theory X) or a natural inclination to be creative and productive (McGregor's Theory Y); (Fisher, 2009:356). This may be important because the choice of management style determines the philosophy of influencing desired worker behaviour.

It may be assumed that McGregor's Theory Y may allow such a leader to value, treat, encourage and respect a worker towards desired behaviour for improved performance. A manager leaning towards McGregor's Theory Y may appropriately motivate and provide a supportive work climate, where workers may be creative, imaginative, ambitious and committed to meeting organisational goals; such workers may be self-disciplined and self-directed, may desire and be willing to accept responsibility and accountability.

Bargal and Schmid (1989: 41-42) identified factors such as leadership-follower relationship, transactional and transformational styles of leadership as being useful for administrators for goal setting, motivation, development of human resources, its maintenance and administration in a work place. Giritli and Oraz (2004:254) stated that transformational leadership consists of four leadership styles: affiliative, democratic, pacesetting and coaching styles. The result of Randeree and Chaudhry's (2007:220-232) study showed that leadership style strongly influences employee job satisfaction and organisation commitment. The result of Randeree and Chaudhry's (2007:220-232) study also showed that the most preferred leadership styles in the United Arab Emirates are democratic, team management, consultative and consensus. These

styles could be regarded as transformational leadership styles (Giritli & Oraz, 2004:254). Cox *et al.* (2005:370) study results showed that satisfied workers show loyalty to the organisation, improve performance and behave positively.

Bargal and Schmid (1989:40) identified a leader as a creator of organisational culture. Such a leader could create an organisational culture with the following cultural dimensions: openness, security in form of employment, participation in decision making, information sharing, informal organisation structure, independence of tasks, and good co-worker relationship, good quality of communications, good recruitment and human resources policies, concern for employee welfare – extent to which employees feel valued and trusted; autonomy – designing work in ways which give employees wide scope to enact work; emphasis on training – a concern with developing employee skills; and supervisory support.

The appropriate organisational culture for influencing positive construction worker behaviour for improved productivity was identified and presented. Its cultural dimensions could influence the following desired worker behaviours: worker commitment to the organisation's success goals towards the client, being achievement driven, being trustworthy, being cooperative and collaborative (Alderfer, 1972:658-669; Herzberg, 1966:72-74; Maslow, 1943:394-395).

Taking action to improving skills through learning to advance and personally grow so as to be fully skilled, speaking well and promoting company goals, communicating effectively to solve work and conflict problems, willing to take responsibility and accountability at work, being enthusiastic and optimistic at work and communicating effectively to share knowledge and ideas at work, may be regarded as positive behaviour for improving productivity (Hackman & Oldham, 1980:78; McClelland 1965:321-333; 1965:321-333; McKenzie & Harris, 1984:25-29; Ouchi, 1981:283; Wilson, 1995:329-344).

Performing more work than expected, responding promptly to requests, correcting problems, completing task at hand on schedule, planning own work, speaking positively of the company, speaking positively of own job, remaining with company in difficult times, asking about future projects, making sacrifices for well-being of company, promoting company and abiding by company policy are regarded as positive behaviour for improving productivity (Cox *et al.*, 2005:370).

Any leadership style which could create an organisational culture with the above cultural dimensions could influence desired worker behaviour for improving productivity.

In transactional leadership, a worker is given a goal to perform without intervention and a known resultant reward is promised (Gibson *et al.*, 2001:354).

In this way transactional leadership allows the worker to work autonomously. Autonomy was earlier identified as a factor which may influence positive (desired) construction worker behaviour for improving productivity.

A transformational leader pays attention to followers' needs and assigns meaningful projects as the followers grow personally (Bass, 1997:19-34). Chan and Chan (2005:415) state that a transformational leadership style with intellectual stimulation factors may influence followers to personally develop capabilities of exploring, analysing, and solving problems independently in order to cope with rapidly changing organisational environments.

The transformational leadership style is important for training and coaching workers on the construction site until they develop sufficient skills to accept responsibility to work with minimum supervision.

A transformational leader helps followers to rethink rational ways to examine a situation encouraging followers to be creative (Bass, 1997:19-34). Chan and Chan (2005:415) agree and state that a transformational leadership style with intellectual stimulation factors may influence followers to develop themselves to be able to explore, analyse, and solve problems independently in order to cope with rapidly changing organisational environments.

The transformational leadership style could create some freedom for workers to contribute ideas in executing work. Such a leader could therefore influence positive (desired) worker behaviour by introducing the following factors in a work place: worker training to acquire skills, effective communication in the form of feedback, worker participation in decision making, respect, value and love of the workers and autonomy at work for the skilled workers to work as independently as possible (Bass, 1985:99; Chan & Chan, 2005:415; Giritli & Oraz, 2004:254; Randeree & Chaudhry, 2007:220-232).

6.8 Important leadership studies

Skipper and Bell's (2006:75-80) study shows that there are different leadership behaviours for a top performing group and a control group of construction project managers. The findings of the above-mentioned study also showed that the top performers had better leadership behaviours than control managers.

Skipper and Bell's (2006:75-80) research results seem to suggest that leadership behaviours appear to improve construction project performance. This may imply that a leadership style is important for improving performance in organisations.

Chan and Chan (2005:413-422) evaluated the transformational and transactional leadership styles among building professionals in the construction industry. The findings of the study can be summarised as follows:

- Transformational and transactional leadership are exhibited in the same individual building professionals, but to different degrees and intensities. Building professionals use transformational leadership more frequently than transactional leadership in their work,
- Laissez-faire leadership style is seldom used by building professionals,
- Under transformational leadership, the most prominent behaviour used is inspirational motivation, followed by idealised attributes, intellectual stimulation, idealised behaviours, and individualised consideration,
- Under transactional leadership, the most prominent behaviour used is contingent reward, followed by management-by-exception (active), and management-by-exception (passive), and
- Transformational leadership and transactional leadership are complementary to each other. Transformational leadership can augment transactional leadership to produce greater synergistic effects on employees' work outcomes than either transformational or transactional leadership in isolation. However, transactional leadership cannot augment transformational leadership to the same extent (Chan & Chan, 2005:413-422).

The implication of Chan and Chan's (2005:413-422) study is that transformational leadership styles are important for performance improvement in the construction industry.

Giritli and Oraz (2004:254) studied the similarities and differences in leadership styles of Turkish construction industry professionals. The findings of Giritli and Oraz's (2004:254) study show that male managers are less democratic than female managers, managers in higher positions are stronger in pacesetting leadership style than those in lower management positions, and senior managers tend to do the job rather than delegate to the subordinates.

Randeree and Chaudhry (2007:220-232) examined the extent to which different leadership styles impact employee job satisfaction and organisational commitment in the United Arab

Emirates (UAE) construction industry. The findings of Randeree and Chaudhry's (2007:220-232) study show that the consultative and consensus leadership styles are prevalent in the UAE construction industry, employee's job satisfaction is strongly affected by leadership and leadership significantly affects organisational commitment of employees in the construction industry in the UAE.

The implication of Randeree and Chaudhry's (2007:220-232) study is that leadership styles are important for influencing positive worker behaviour for improving productivity.

6.9 Summary of findings

In this chapter, leadership application was reviewed in order to identify important factors and appropriate leadership styles that may influence workers to acquire positive behaviours to improve construction productivity.

Various leadership theories were reviewed. Transformational leadership styles seem to be the preferred leadership styles for influencing workers to acquire positive (desired) behaviours.

Situational and contextual factors such as charisma, inspiration and motivation, intellectual stimulation and individualised consideration influence the following styles of transformational leadership: affiliative, democratic, pacesetter and coaching. The literature, however, cautions that sometimes in a work situation, it may require that the transactional leadership style also be applied. Transactional leadership consists of styles: coercive and authoritative. There are also two situational and contextual factors for transactional leadership, namely contingent reward and management by exception, whether active or passive.

When a combination of leadership styles is applied in a work situation to introduce the following cultural dimensions: openness, security in form of employment, participation in decision making, information sharing, informal organisation structure, independence of tasks, and good co-worker relationship, good quality of communications, good recruitment and human resource policies, concern for employee welfare – extent to which employees feel valued and trusted; autonomy-designing work in ways which give employees wide scope to enact work; emphasis on training – a concern with developing employee skills; and supervisory support, worker positive behaviours may be influenced.

This literature survey results show that not one style seems to be totally adequate, thus a combination of leadership styles and traits are required to put the above-mentioned factors in a work environment, in order to influence the following positive behaviours:

- Worker commitment to the organisation's success goals towards the client,
- Working hard to improve quality and productivity,
- Being achievement driven,
- Being trustworthy,
- Being cooperative and collaborative,
- Taking action to improving skill through learning opportunity to advance and personally grow so as to be fully skilled,
- Speaking well and promoting company goals, communicating effectively to solve work and conflict problems,
- Willing to take responsibility and accountability at work,
- Being enthusiastic and optimistic at work,
- Communicating effectively to share knowledge and ideas at work,
- Helping others to improve on work,
- Performing more work than expected,
- Responding promptly to requests,
- Correcting and solving work problems,
- Completing task at hand on schedule,
- Planning own work,
- Speaking of company with positive regard,
- Speaking of own job with positive regard,
- Remaining with company in difficult times,
- Asking about future projects,
- Making sacrifices for the well-being of the company,
- Promoting the company and
- Abiding by company policy.

The above listed positive worker behaviours may be useful as an instrument within the construction industry for gauging or benchmarking the level of construction worker motivation, commitment, loyalty and satisfaction that correspond to improved construction productivity. Construction supervisors, project managers and other industry practitioners could then use this

knowledge to determine whether or not their management techniques are improving construction productivity.

The research methodology to validate the behaviour factors that have all been identified as positive behaviour, are presented in the next part and chapter.

PART 3: RESEARCH

CHAPTER 7 RESEARCH METHODOLOGY

7.1 Introduction

In Chapters 2 to 6 three objectives resulting from the literature reviews are presented. The first objective is to review important human factors such as motivation, skills development, communication, culture and leadership in detail to give insight into the factors that influence positive worker behaviour towards improved construction productivity. The second objective is to identify workers' positive behaviours which ensure improved construction productivity. The third objective is to find the relative importance of the identified positive worker behaviour that can be linked to the motivation, commitment, loyalty and satisfaction levels of workers. This was necessary to obtain sufficient knowledge on the researched topic and establish current theory on the researched area.

According to Leedy and Ormrod (2002:100), it is necessary to identify the human factors influencing positive behaviour for improved productivity. For the purpose of this study the factors were classified under motivation, skills development, communication, culture and leadership. Positive worker behaviours for improved productivity were also identified and classified as motivation, commitment, satisfaction and loyalty. The resulting data was established by deductive reasoning.

A research design similar to that of Kazaz *et al.* (2008:97) and Cox *et al.* (2005:371) is used to measure the questionnaire results.

The primary data, collected by means of a structured questionnaire using a Likert scale of 1 to 5, was collected from the respondents' perception on motivation, skill, communication, culture, and leadership that result in positive (desired) behaviours for improved construction productivity. The results were then tested against the secondary data to determine if it supports the relevant hypothesis of the study.

The remainder of this chapter consists of the research design, research population, research sample size, research questionnaire sectioning, testing of the questionnaire, research bias problems, and conclusion for data interpretation.

7.2 Research design

The research design was based on the following: First it was based on knowledge gathered from extensive review of literature and current theories of motivation, skill development, communication culture and leadership. Secondly, the research design was based on the empirical work of others. For example the work of Boyd and Sutherland (2006:9-20), who conducted an empirical study in South Africa to obtain factors that influence employee performance, and they proposed that the ranking aspect of the factors identified in that study also be applied in methodology of study. Thirdly the research design was based on case studies of similar researches. A research design similar to that of Kazaz *et al.* (2008:97) and Cox *et al.* (2005:371) is used to measure the questionnaire results. Fourthly, design was based on own study through measuring and evaluating answers provided in the questionnaire to the construction industry of Botswana and South Africa. This approach enabled cross scrutiny of theory and research and allowed a firm foundation for results and conclusions.

The research design is to evaluate the effect of basic motivational factors on construction workforce productivity in Botswana as in South Africa and rank the factors and the behaviours according to a Likert scale of 1-5.

Two statistical methods were used to analyse the data provided by the questionnaire. The first was acquiring percentage values by frequencies of the answers received and the second was to calculate a relative importance index (RII) of the factors. The percentage values frequencies of answers are used for ranking the factors where two or more factors have the same RII.

While establishing the perceived behaviour factors and key behaviour indicators, the researcher used a Likert scale of 1 – 5 as the instrument, and eliminated factors and behaviours which measured less than 2.60 on the Likert scale. The correspondence answer frequencies and a chi-square test were used to measure the factors and behaviours. A combination of this methodology, using statistical SPSS software, was applied in this research.

Any issues not cleared through a structured questionnaire survey were resolved by interviewing a few experts in the construction industry. A copy of the questionnaire is included as Appendix A.

7.3 Defining the research population and sample size

The construction project is thus the unit of analysis. The research covers both private and public sector work, civil engineering and building projects, as well as the different types of facilities (e.g. commercial or educational). The study focuses on construction projects within and across Botswana and South Africa to ensure that potential variations due to the national context are controlled and kept uniform as much as possible, and to ensure that findings reflect the general trend across both countries.

The research population consists of the construction operatives in the Botswana and South African construction industry. The targeted population areas therefore were government and public, including construction projects carried out by medium to large private construction firms. The aim was to survey the whole construction industry. The population consists of contractors, consulting professionals, academics, local government officials, government built environment professionals and construction workers, totalling 100 in number.

7.4 Composition of the questionnaire

The purpose of the questionnaire was to collect relevant data for the study to answer the problem, and to test the hypothesis based on the expertise of the selected sample. The questionnaire was preceded by a letter to stakeholders, explaining the objectives of the questions, namely “The influence of behavioural factors on improved construction productivity in Botswana as in South Africa”.

The questionnaire was subdivided into four sections, related to the sub-problems and the hypotheses as follows:

- A Profile of the respondent,
- B Behaviour factors which influence positive behaviour,
- C Identification of positive worker behaviours and ranking the positive behaviours to levels of motivation, commitment, loyalty and satisfaction of workers for improved productivity, and
- D General comments, if any, regarding the study.

The data collected from the questionnaires was analysed using SPSS and RII in order to determine the ranking of the factors and the behaviours.

7.5 Testing the questionnaire – pilot study

The pilot questionnaire was distributed to 10 to 20 independent respondents generally practicing as construction operators, including site supervisory staff with reasonable experience in the construction industry.

The pilot study was necessary to eliminate any shortcomings and for necessary corrections before producing the final questionnaire.

7.6 Bias

Descriptive surveys are particularly susceptible to bias. Nkado (1999:80) and Leedy and Ormrod (2005:208), define 'bias' as any influence, condition or set of conditions that singly or together distort the data from what may have been obtained under the conditions of pure chance.

Every effort was made to eliminate the likelihood of biased data, although the possibilities of bias data are acknowledged. The aspects that may contribute to bias include the following:

- Variances in sample population – the ratio of supervisor staff and craftsmen on the construction site,
- Different work environments in organisations – varying visions and mission statements, varying professional ethics,
- Poor attitude towards education and research on the part of some respondents,
- The possibility that respondents may not divulge information, and
- Non-response.

To reduce bias in the study, the construction industry of Botswana and South Africa was included to obtain a population of at least 100 respondents. The research results are presented and reviewed in the next chapter.

7.7 Conclusion

In order to meet the research objectives, it was concluded that the main human factors of motivation, skills development, communication, culture and leadership be divided further into seven subfactors of interpersonal relationships, skill development, fringe benefits, communication, roles, staff work conditions and welfare , and management styles. From these

seven subfactors it may be easy to identify and validate the sub-subfactors which influence the positive behaviours for improving construction productivity.

CHAPTER 8 RESEARCH FINDINGS AND DISCUSSIONS

8.1 Introduction

Before beginning a descriptive survey in order for the research to validate data obtained through literature review of Chapters 2 to 6 of the study, a structured questionnaire consisting of four parts was prepared. Part A is for data regarding the profile of the respondent, Part B is for data concerning motivational behaviour factors, Part C regards data for positive behaviours for improved productivity and Part D is for general comments and contributions from the respondents. The subdivisions of the questionnaire were necessary to allow data to be categorised for consistency and good analysis.

At the start of the analysis, it was important to determine the basis of evaluating the data obtained from the questionnaires issued to 100 respondents in Botswana and South Africa. A valuation basis was adopted from Kazaz *et al.* (2008:98), as shown in Table 8.1 below. In Table 8.1, the basis of valuation is presented to show the scale effect for analysing data arising from the research study. Table 8.1 consists of three columns. Column 1 indicates the level of significance of the data, column 2 shows the level of importance of the data and column 3 shows the values of the data to be analysed. A scale value of data equal to or less than 1.80 is ignorable, a scale value of 1.80 to 2.60 may be considered as somewhat important, and a scale value of more than 2.60 but less than 3.40 may be regarded as significant or important. Scale value of 3.40 and less than 4.20 is considered very significant or very important while a scale value of 4.20 and less than 5.00 is considered extremely significant or extremely important. The above is part of a valuation scale for 1 to 5 for determining significance levels of data as adopted, where 1 represents “not significant” and 5 represents “extremely significant” divided into 0.8 intervals, as shown in Table 8.1 below.

The results of the empirical study data are presented in Tables 8.2 to 8.16. To analyse the data presented in Tables 8.2 to 8.16, statistical SPSS software was used. It involved calculating the frequencies of responses, relative importance in terms of ranking, effect level, mean index and standard deviation of the responses to each factor and positive behaviours listed and identified in the literature survey. Profiles of the respondents were analysed by simple descriptive statistics. The mean index was used to determine the relative importance and “the goodness of fit” or “the similarity of the sameness” of the factors as well as the positive behaviours observed.

Table 8.1 The evaluation scale for data

Level of Significance	Level of importance	Scale value
Not Significant (NS)	Not Important (NI)	≥ 1.80
Somewhat Significant (SS)	Somewhat Important (SI)	$1.80 \leq 2.60$
Significant (S)	Important (I)	$2.60 \leq 3.40$
Very Significant (VS)	Very Important (VI)	$3.40 \leq 4.20$
Extremely Significant (ES)	Extremely Important (EI)	$4.20 \leq 5.00$

(Adapted from Kazaz *et al.*, 2008:98).

Where the mean index of the factors and behaviours are the same, percentage values by frequencies of the answers were used to rank the relative importance of the factors and the positive behaviours.

8.2 Respondents' profiles

One hundred respondents were invited to participate in answering the questionnaire. Sixty-seven (67%) per cent of the possible 100 respondents were involved in the study conducted in Botswana and South Africa, as shown in Table 8.2 below. The result of the data captured regarding the profile of the respondents is shown in Table 8.2. Column 1 is for reference, column 2 shows the various profiles of the respondents being investigated, column 3 indicates the frequencies of the data obtained and column 4 the percentages of the participants.

Item 1 in Table 8.2 gives the categories of the respondents. The respondents are categorised as individuals or individuals on behalf of firms,, with 70.1% being individuals and 29.9% being firms. This resulted into 67 participants in the study, in other words a 67% response, which on the whole gives a very good result for reaching a good conclusion on the research.

The 29.9% firm/company respondents are from consulting and other construction organisations. Sixty-two point seven (62.7%) per cent of the respondents indicated that they were registered with a professional council or board compared with 37.3% who are not registered. This implies that the data collected is reliable and a very good and a reliable conclusion may be drawn from this research effort.

Item 3 presents the qualifications of the respondents. Responses showed that 22.4% of the respondents had more than one degree, another 22.4% of the respondents also had more than a diploma, and this would mean that 44.8% of the respondents have tertiary education. This would imply the respondents are quite knowledgeable in matters of construction productivity.

Table 8.2 Profile of respondent

1	Profile of respondent	Frequency	%
	Individual	47	70.1
	Individuals on behalf of firms	20	29.9
	Total	67	100
2	Are you registered with a professional council or board?		
	Yes	42	62.7
	No	25	37.3
	Total	67	100
3	What is your qualification/expertise?		
	Secondary school certificate	10	14.9
	Tertiary institution diploma	22	32.8
	Tertiary institution first degree	15	22.4
	Tertiary institution more than one degree	15	22.4
	Others(Those with less than school certificate)	5	7.5
	Total	67	100%
4	Position in construction industry		
	Project/Construction manager	16	23.9
	Architect	10	14.9
	Project coordinator	4	6.0
	Quantity surveyor	10	14.9
	Electrical engineer	3	4.5
	Mechanical engineer	2	3.0
	Civil/Structural engineer	9	13.4
	Foreman	3	4.5
	Charge hand	3	4.5
	Driver	3	4.5
	Crane operator	1	1.5
	Others	3	4.5
	Total	67	100%
5	Number of years' experience in construction industry		
	1-5 years	9	13.4
	6-10 years	20	29.9
	11-20 years	18	26.9
	21-45 years	20	29.9
	Total	67	100%

The qualification or expertise of the respondents, for those holding at least a secondary school certificate, is 14.9%. This may be taken to represent ordinary skilled construction workers who are literate and able to understand construction drawings. They were included in the survey because these workers have experience in the construction industry and adequately understand the processes of construction. The 14.9% representing those respondents with a school certificate and the 7.5% representing those respondents with less than a school certificate totals to 22.4% of the respondents with basic education and less than tertiary education as compared with what the literature survey's proposition that construction operatives were uneducated and unskilled. The study result of 22.4% respondents with basic education and 77.6% of respondents with at least tertiary education would suggest that uneducated and unknowledgeable participants were excluded from the study. The implication being that the participants are knowledgeable enough to have sufficient skills/trainable to improve productivity,

since 32.8% of them have a tertiary institution diploma, 22.4% a tertiary institution first degree, 22.4% holds more than one degree, while a mere 7.5% represents others, with less than secondary school certificate qualifications, as shown in Table 8.2. These results suggest that most of the respondents are qualified to work in the construction industry through private and public companies. Twenty-nine point nine (29.9) % respondents participated as companies or firms.

Item 4 of Table 8.2, shows the respondents' profession. The result in the study show that the respondents include project/construction managers (23.9%), architects (14.9%), project coordinators (6.0%), quantity surveyors (14.9%), electrical engineers (4.5%), mechanical engineers (3.0%), civil/structural engineers (13.4%), construction foremen (4.5%), construction charge hands (4.5%), construction vehicle/machine drivers (4.5%), crane operators (1.5%) and others, probably ordinary skilled workers (4.5%). The composition of the respondents would suggest that data obtained covers a reliable situation of the construction industries in Botswana and South Africa as the large majority of participants are project managers, implying that the resultant data is reliable.

Item 5 of Table 8.2 presents the experience of the participants. The minimum work experience is shown as 13.4 years while the longest work experience is shown as 29.9 years, averaging 25 years for the work experience of the respondents involved in the construction industry in Botswana and South Africa. This indicates a high work experience of the population participating in the research project. This high level of experience suggests that the data obtained from the study is quite reliable.

The conclusion from the analysis of the profile of the respondents is that data obtained is very good for a very reliable conclusion of the study.

8.3 Positive behaviour main factor groups for improving productivity

In this section, five main factor groups' results consisting of motivation, roles and responsibility, communication, organisational work culture and leadership are presented to show their levels of significance for influencing positive behaviour for improving productivity.

8.3.1 Motivational behaviours factors

The result of motivational behaviour factors significance levels is presented in Table 8.3 below. Column 1 of Table 8.3 shows motivational behaviour factors, column 2 illustrates the ranking of

the motivational behaviour factors, column 3 indicates effect level of the factors, column 4 gives the minimum statistical values, column 5 is the maximum statistical values, column 6 is the mean of statistical values and column 7 demonstrates the standard deviation of statistical values answers by the respondents. Using the Table 8.1 evaluation scale presented and adapted from Kazaz *et al.* (2008:98), 12 motivational behaviour factors were evaluated. Six of the 12 factors identified and evaluated, as shown in Table 8.3, were found to be extremely significant (mean index of more than 4.20) while six of the twelve factors were found to be very significant (mean index of more than 3.40). This would suggest that the 12 motivational factors are all more than significant and are of the same group or the goodness of fit or the similarity of the sameness, as such they all required and exceptionally important for influencing positive behaviours.

Table 8.3 Motivational behaviour factors (N=67)

Item: Motivational behaviour factors	Rank in total	Effect level	Min	Max	Mean	SD
Remuneration and fringe benefits						
Salary which is attractive	1	ES	3	5	4.43	.583
Money incentives (as form of encouragement)	2	ES	2	5	4.42	.721
Staff treatment						
Being given due value and respect at work	3	ES	2	5	4.37	.671*
Being given due recognition	4	ES	1	5	4.37	.671
Being praised when necessary	5	ES	1	5	4.36	.573
Remuneration and fringe benefits						
Health and safety at work	6	ES	1	5	4.25	.725
Provision of healthcare	7	VS	2	5	4.15*	.875
Long-term employment contract	8	VS	1	5	4.15	.875
Staff work conditions						
Participation in decision at work	9	VS	2	5	4.12	.789
Remuneration and fringe benefits						
Company staff housing	10	VS	2	5	4.04	.895
Transport for workers	11	VS	1	5	3.9	1.116
Staff lunches	12	VS	1	5	3.55	1.077
Average		VS			4.19	

The most important behaviour factor was identified as an attractive salary (extremely significant/ES – 4.43) while the least important factor was identified as staff lunches (very significant/VS – 3.55). The least of the extremely significant factors within this group was identified as health and safety at work (extremely significant/ES – 4.25). The most important of the very significant factors was identified as the provision of health care for staff and their family (very significant/VS – 4.15). The motivational behaviour factors shown in Table 8.3 were those identified in the literature study as being factors that will influence worker behaviour positively if applied during project development.

Viewed as a group, motivational behaviour sub-subfactors were found to be the second most important group (Table 8.8) with an average mean index of 4.19 (very significant/VS), as seen in Table 8.3 and Table 8.8. Twelve factors were investigated in this group, and an attractive salary (extremely significant/ES – 4.43) was found to be the most important, while money incentives (as a form of encouragement) (extremely significant/ES – 4.42) as second most important. Being given due value and respect at work (extremely significant/ES – 4.37) ranked third most important; being given due recognition (extremely significant/ES – 4.37) ranked fourth most important; being praised when necessary (extremely significant/ES – 4.36) ranked fifth most important, and health and safety at work (extremely significant /ES – 4.25) ranked sixth most important in influencing positive behaviour for improving productivity. The remaining six factors were found all to be very significant. This result shows that salary and money issues are extremely significant and the most important in influencing positive behaviours. The evidence of the 12 behaviour motivational behaviour factors results shown in Table 8.3 suggest that if the above factors are applied during a project implementation worker positive behaviour are more likely to be influenced. Analysis of Table 8.3 shows that in respect of worker motivational factors, basic needs are still more important and preferable than social needs as described by Maslow (1943:394-395). However, it is evident from Table 8.3 that social needs, with an average score of 4.37, are important.

8.3.2 Roles and responsibility behaviour factors

From the literature review it is apparent that motivational behaviour factors could influence positive worker behaviour only if workers have the capability to execute work. The development of worker skill and the confidence to accept roles to perform tasks well are important factors which contribute to positive worker behaviour. In the literature, the ability and willingness to accept accountability performing quality work was identified as a positive behaviour. As such it was necessary to identify factors for such a positive behaviour. In Table 8.4 the result of roles and responsibility motivating behaviour factors' significance levels are presented. Column 1 of Table 8.4 below shows the roles and responsibility motivating factors. Column 2 indicates the ranking of the motivational roles and responsibility factors, column 3 is the effect level of the factors, column 4 illustrates the minimum statistical values, column 5 shows the maximum statistical values, column 6 demonstrates the mean of statistical values and column 7 gives the standard deviation of statistical values answers by the respondents. In Table 8.4 are shown motivational roles and responsibilities factors identified in the literature review that will influence positive worker behaviour if introduced in a project development. Five of the 23 factors in Table

8.4 below are shown as extremely significant (mean index being more than 4.20), while 18 of the 23 factors are shown as very significant (mean index being more than 3.40).

Table 8.4 Roles and responsibility as motivational behaviour factors

Item: Roles and responsibility motivating behaviour factors	Rank in total	Effect level	Min	Max	Mean	SD
Skill development for staff						
Staff ability and willingness to accept responsibility	1	ES	3	5	4.49	0.612
Staff training at work	2	ES	1	5	4.36	0.753
Staff work experience	3	ES	2	5	4.33	0.66
Staff self esteem	4	ES	2	5	4.33	0.66
Tasks (roles)						
Work quality	5	ES	3	5	4.33	0.613
Work opportunity	6	VS	1	5	4.15	0.744
Skill development for staff						
Staff mentoring at work	7	VS	1	5	4.13	0.851
Staff self-efficacy	8	VS	3	5	4.13	0.672
Staff learning at work	9	VS	2	5	4.12	0.789
Staff coaching at work	10	VS	1	5	4.07	0.91
Tasks (roles)						
Independence of tasks	11	VS	2	5	4.06	0.833
Interesting work	12	VS	1	5	4.04	0.824
Task performance commitment	13	VS	2	5	4.01	0.728
Work economy	14	VS	2	5	4.00	0.921
Task specificity	15	VS	1	5	4.00	0.835
Task significance	16	VS	1	5	3.96	0.895
Skill development for staff						
Basic education level of staff	17	VS	2	5	3.96	0.824
Literacy level of staff	18	VS	2	5	3.91	0.818
Tasks (roles)						
Challenging work	19	VS	1	5	3.88	0.729
Opportunity to plan and work	20	VS	2	5	3.88	0.663
Use of own knowledge and idea at work	21	VS	2	5	3.76	0.653
Task difficulty	22	VS	1	5	3.69	0.802
Task variety	23	VS	2	5	3.61	0.758
Average		VS			4.05	

The data shown in Table 8.4 suggests that the factors in this category all ranked more than significant and are of the same group or ‘the goodness of fit’ or ‘the similarity of the sameness’, as such they all very important for the influence of worker positive behaviour and none of them may be disregarded. The most important behaviour factor was identified as staff ability and willingness to accept responsibility (extremely significant/ES – 4.49), while the least important factor was identified as task variety (very significant/ VS – 3.61). The least of the extremely significant factors was identified as work quality (extremely significant/ ES – 4.33). The most important of the very significant factors was identified as work opportunity (very significant/VS – 4.15). The fourth most important group is the roles and responsibility factors, with a very

significant average mean index (very significant/VS – 4.05). Twenty-three factors were investigated as shown in Table 8.4, and staff ability and willingness to accept responsibility (ES – 4.49) was ranked as the most effective factor for influencing the positive behaviour for improving construction productivity. The top five factors which influence positive behaviour were connected with skills development of staff and the task the construction operators perform (extremely important/ES – 4.33 to 4.49).

Five of the factors in the roles and responsibilities group, namely staff ability and willingness to accept responsibility, staff training at work, work experience, self-esteem and work quality are among the 21 extremely important factors which influence positive behaviour for improving construction productivity identified in the investigation. This result of data analysed in Table 8.4 indicates that skill development is the most important factor for influencing positive behaviour for improved productivity and all the factors are required and very important for worker positive behaviour. Examination of Table 8.4 reveals that in respect of tasks and roles associated with work execution, tasks which are designed to give meaningful experience and responsibility are still more important and preferable than tasks which require fewer skills, as described by Hackman *et al.* (1975:58). However, it is evident from Table 8.4 that the nature of work or tasks, with average score of 4.05, is regarded as important.

8.3.3 Communication behaviour factors in construction organisation

The results of motivational communication behaviour factors' significance levels in influencing positive behaviours for improved productivity are presented in Table 8.5 below. Column 1 of Table 8.5 below shows the communicating motivating factors. Column 2 illustrates the ranking of the motivational communicator's factors; column 3 shows the effect level of the factors; column 4 is for the minimum statistical values; column 5 illustrates the maximum statistical values; column 6 shows the mean of statistical values and column 7 illustrates the standard deviation of statistical values answers by the respondents.

As shown in Table 8.5 and Table 8.8 below, the most important group is the communication within construction organisation factors with an average mean index (extremely significant/ES – 4.20). Fourteen factors were investigated, as shown in Table 8.5 below and respondents ranked trustworthy relationships as the most effective factor for influencing positive behaviour for improved productivity (ES – 4.46), and the second most important factor for improving positive behaviour for improving productivity as shown in Table 8.5 below, was sharing knowledge and work information. Eight factors of communication are identified among the 21 most important

factors for influencing positive behaviour for improved productivity, namely trustworthy relationships, sharing knowledge and work information, good co-worker relationships, open communication at work, management trusting staff and staff trusting management, feedback as part of effective communication, management listening to staff and management using understandable language in their communication.

Table 8.5 Communication motivational behaviour factors in construction organisation

Item: Communication motivational behaviour factors	Rank in total	Effect level	Min	Max	Mean	SD
Interpersonal relationships						
Trustworthy relationship	1	ES	3	5	4.46	0.636
Communication						
Sharing knowledge and work information	2	ES	3	5	4.45	0.610
Interpersonal relationships						
Good co-worker relationship	3	ES	1	5	4.43	0.701
Communication						
Open communication at work	4	ES	1	5	4.37	0.756
Management style						
Management trusting staff and trusting management	5	ES	3	5	4.37	0.671
Communication						
Feedback as part of effective communication	6	ES	3	5	4.34	0.509
Management style						
Management listening to staff	7	ES	3	5	4.31	0.608
Management using understandable language in their communication	8	ES	2	5	4.22	0.670
Management using proper communication flow to staff	9	VS	1	5	4.19	0.802
Interpersonal relationships						
Being accepted and loved at work	10	VS	2	5	4.12	0.826
Communication						
Information frequency	11	VS	3	5	4.00	0.550
Information regulation	12	VS	2	5	3.96	0.727
Management style						
Management timing communication with staff	13	VS	2	5	3.90	0.721
Communication						
Information repetition	14	VS	1	5	3.61	0.852
Average		ES			4.20	

Viewed as a group, this is the most important group of factors with a mean index of extremely significant/VS – 4.20. Fourteen factors were investigated as shown in Table 8.5 below and trustworthy relationships (ES – 4.46) was ranked as the most effective factor for influencing the positive behaviour for improving construction productivity.

The top eight factors which influence positive behaviour were connected with interpersonal relationships, communication and management styles (extremely important/ES – 4.22 to 4.46). The least important factor in this group was identified as information repetition (very important/VS – 3.61).

The respondents evaluated all 14 factors as extremely significant to very significant for influencing positive behaviour for improved productivity and therefore none can be disregarded. The communication motivational behaviour factors shown in Table 8.5 are identical to those in the literature review as being factors that will influence worker behaviour positively if applied during project development. The result of the data illustrated in Table 8.5 shows that communication is very important for influencing positive behaviour and that communication in general is crucial in productivity improvement. Evaluation of Table 8.5 shows that communication factors associated with work execution are still more important and preferable for construction project success, as described by Zulch (2012:164). However, it is evident from Table 8.5 that interpersonal and good co-worker relationships are important as it has an average score of 4.20.

8.3.4 Organisational work behaviour culture factors

The results of motivational organisational work behaviour factors' significance levels in influencing worker positive behaviours are presented in Table 8.6 below. Column 1 of Table 8.6 below indicates the organisational work motivating factors. Column 2 gives the ranking of the motivational organisational work factors, column 3 illustrates the effect level of the factors, column 4 shows the minimum statistical values, column 5 gives the maximum statistical values, column 6 illustrates the mean of statistical values and column 7 shows the standard deviation of statistical values answers by the respondents.

The result of motivational organisational work cultural behaviour factors' significance levels in influencing worker positive behaviours are presented in Table 8.6 below. The study results show that the organisational work culture factors, with an average mean index of very important (VS – 4.15), are the third most important group of factors for influencing positive behaviour for improved construction productivity as shown in Table 8.6 and Table 8.8 below. Six factors were investigated as shown in Table 8.6 below and respondents ranked staff career development and growth as the most effective factor for influencing positive behaviour for improved construction productivity (ES – 4.36), while management having empathy for staff and satisfying their needs was ranked as the least important (very important/VS – 4.03).

Two factors of organisation work culture factors, namely staff career development and growth (ES – 4.36) and company policies which value, recognise and respect workers (ES – 4.33) are among the top 21 extremely significant factors for influencing positive behaviour for improved construction productivity.

Table 8.6 Organisational as motivational behaviour work culture (Culture factor)

Item: Organisational motivational work behaviour cultural factors	Rank in total	Effect level	Min	Max	Mean	SD
Staff skill development						
Staff career development and growth	1	ES	3	5	4.36	0.667
Company						
Company policies which value, recognise and respect workers	2	ES	2	5	4.33	0.587
Staff treatment						
Workers having equal opportunity at work	3	VS	3	5	4.10	0.956
Equal treatment of all workers	4	VS	1	5	4.03	0.953
Company organisation						
Informal organisation structure which allows free consultations	5	VS	1	5	4.03	0.778
Management style						
Management having empathy for staff and satisfying their needs	6	VS	2	5	4.03	0.717
Average		VS			4.15	

The organisational motivational work behaviour factors shown in Table 8.6 above were those identified in the literature review as being factors that will influence worker behaviour positively if applied during construction project implementation. The result of the data presented in Table 8.6 study demonstrates that organisational work culture is very important and definitely required for shaping positive worker behaviours. Positive worker behaviours are extremely necessary and indeed crucial for productivity improvement. Investigation of Table 8.6 shows that staff skill development factors associated with work organisation are still more important and preferable for construction project success, as described by Cox *et al.* (2005:370). However, it is evident from Table 8.6 that workers' basic needs, with average score of 4.03, are regarded as important.

8.3.5 Leadership behaviour factors

The result of motivational leadership behaviour factors' significance levels in influencing worker positive behaviours are presented in Table 8.7 below. Column 1 of Table 8.7 below shows the leadership motivating factors. Column 2 indicates the ranking of the leadership motivational

factors, column 3 illustrates the effect level of the factors, column 4 shows the minimum statistical values, column 5 gives the maximum statistical values, column 6 illustrates the mean of statistical values and column 7 demonstrates the standard deviation of statistical values answers by the respondents.

The result of leadership behaviour factors' significance levels in influencing positive worker behaviours are shown in Table 8.7 below. The study results show that leadership factors are the least important group of factors, with an average mean index of 3.80 which, according to the respondents, is still very significant (VS) as shown in Table 8.7 below.

Table 8.7 Leadership motivational behaviour factors

Item: Leadership motivating behaviour factors	Rank in total	Effect level	Min	Max	Mean	SD
Task as part of work						
Supervision by example	1	ES	3	5	4.30	0.551
Management styles and traits						
Intellectual stimulation	2	VS	2	5	4.07	0.659
Inspirational motivation	3	VS	1	5	4.03	0.696
Contingent reward	4	VS	2	5	3.93	0.785
Staff capability						
Ability to influence others	5	VS	2	5	3.85	0.803
Management styles and traits						
Individualised consideration	6	VS	1	5	3.73	0.963
Management-by-exception (passive)	7	VS	1	5	3.45	1.091
Management-by-exception (active)	8	VS	1	5	3.45	0.909
Charisma	9	VS	1	5	3.43	0.925
Average		VS			3.80	

Nine factors were investigated in this group and supervision by example (ES – 4.30) was identified as the most influential factor, while charisma (VS – 3.43) was identified as the least important for influencing positive behaviour for improving construction productivity as shown in Table 8.7 above. According to the respondents all the factors are very significant to extremely significant for influencing positive behaviour and are all absolutely necessary for worker positive behaviour. The result of the study shows that supervision by example is the most important within the leadership factor grouping for influencing positive behaviours.

Only supervision by example as leadership factor is included in the top 21 extremely significant factors for influencing positive behaviour for improved productivity. The leadership behaviour factors shown in Table 8.7 above are the same as those identified in the literature review as being factors that will influence positive worker behaviour positively if introduced in the

construction project executions. The respondents' data analysis in Table 8.7 overwhelmingly demonstrate that supervision by example is the most important within the leadership factor grouping for influencing positive behaviours and that leadership behaviour factors are absolutely important for positive work behaviours. Analysis of Table 8.7 reveals that supervision by example as a leadership style associated with work organisation is most important and preferable for construction project success as described by Akoi-Gyebi Adjei (2009:32). However, it is evident from Table 8.7 that management styles, with an average score of 3.80 are ranked as important,.

8.3.6 Main behaviour factors ranking

The result of the ranking of the main behaviour group factors are presented in Table 8.8 below. Column 1 of Table 8.8 below shows the main behaviour motivating factors. Column 2 indicates the ranking of the main motivational factors, and column 3 illustrates the mean of statistical values answers by the respondents.

The main motivational behaviour factors are identified as communication, motivation, organisation culture, roles and responsibility and leadership. Communication is identified and ranked as the most significant in influencing positive behaviours while leadership is identified as the least significant main factor for influencing positive behaviour as shown in Table 8.8 below.

Table 8.8 Main motivational behaviour factors groups ranking

Item	Rank in total	Average Mean
Communication in construction organisations	1	4.20
Motivation	2	4.19
Organisational work culture	3	4.15
Roles and responsibilities	4	4.05
Leadership	5	3.80

These results show that communication is very important for influencing positive worker behaviour. The result of this ranking suggests that the higher the significance of the motivating behaviour factors, the higher the significance levels of the worker positive behaviours. Evaluation of Table 8.8 explains that communication in an organisation, associated with work execution, is most preferable and important for construction project success, as described by Zulch (2012:164).

8.4 Positive behaviour subfactor groups for improved productivity

In the literature review it became apparent that the main motivational behaviour factors such as communication in organisation, motivation, work culture, roles and responsibility and leadership could be further divided into smaller factors such as interpersonal relationships, skill development for staff, remuneration and fringe benefits, staff work conditions and welfare, personal communications, management styles and traits and task or work performed. These further divisions were found necessary to give insight into the nature and influence of the main motivational behaviour factors influence for positive worker behaviour. It is proposed that these subdivisions be identified separately as subfactors groupings. These seven subfactors identified as part of the main motivational behaviour factors are also ranked and presented in Table 8.9. The motivational behaviour subfactors may be identified as interpersonal relationships, skill development for staff, remuneration and fringe benefits, staff work conditions and welfare, personal communication, management style, and traits and tasks (roles). The result of the ranking of the main motivational behaviour factors are shown in Table 8.9 below to show their significance levels in influencing worker positive behaviour. The most significant motivational behaviour subfactors are identified as interpersonal relationships while the least significant motivational subfactor as task (roles) in Table 8.9 below. The result suggests that interpersonal relationships are important for positive worker behaviours. The above subfactors are investigated in this section.

8.4.1 Interpersonal relationships (See Table 8.5)

The result of the ranking of the behaviour group subfactors are presented in Table 8.9 below. Column 1 of Table 8.9 below shows the behaviour motivating subfactors. Column 2 shows the ranking of the motivational subfactors, and column 3 shows the mean of statistical values answers by the respondents. The result of the ranking of the sub-behaviour factors is shown in Table 8.9 below to show their significance levels in influencing worker positive behaviour.

The interpersonal relationships subfactor group has an average mean index of 4.34 (extremely significant/ES), as can be seen in Table 8.9 below. In the literature review, interpersonal relationships were identified as consisting of factors such as trustworthy relationships, good co-worker relationships, and being accepted and loved at work. These factors were all identified as being extremely significant for the influence of positive behaviour for improved productivity.

They are ranked among the most important factors for influencing positive behaviour for improving construction productivity.

Table 8.9 Subfactors motivational behaviour groups ranking

Item	Rank in total	Average Mean
Interpersonal relationships	1	4.34
Skill development for staff	2	4.18
Remuneration and fringe benefits	3	4.11
Staff work conditions and welfare	4	4.11
Communication	5	4.06
Management styles and traits	6	3.99
Tasks (roles)	7	3.71

These results show that the interpersonal relationships subfactor group is extremely important for influencing worker positive behaviour. Examination of Table 8.9 reveals that interpersonal relationships are identified as extremely important by Alderfer (1972:658-669) as relatedness needs, followed by growth needs as the second most important and existence needs as the least important. This finding contradicts Maslow's findings which imply that existence needs need to be fulfilled first before the growth and relatedness needs are fulfilled.

8.4.2 Skill development for staff (See Table 8.4)

The skill development for staff subfactor group has an average mean index of 4.18 (very significant/VS) as can be seen in Table 8.9 above. This subfactor group is ranked second and consists of factors such as staff ability and willingness to accept responsibility, training at work, experience, self-esteem, mentoring, self-efficacy, learning, coaching basic education and literacy level of staff. In the literature review these factors were shown to be absolutely important for positive worker behaviour.

This study also suggests that where there is a lack of skills, motivation might be unsuccessful. The respondents evaluated these factors as very important for influencing positive behaviour for improved productivity.

8.4.3 Remuneration and fringe benefits (See Table 8.3)

The remuneration and fringe benefits subfactor group has an average mean index of 4.11 (very significant) as can be seen in Table 8.9 above. This subfactor group ranked third of all factors sub-groups and consists of attractive salary, money incentives, health and safety at work, staff

health care, employment contracts and terms, housing, transport and lunches. The literature review identified these factors as very important for worker positive behaviour.

Remuneration and fringe benefits are classified as basic needs which must be satisfied for motivation to influence the workers. As such these subfactor groups are very important for influencing positive behaviour for improved productivity, and they should be present in a work place to improve productivity.

8.4.4 Staff work conditions and welfare subfactors (See Table 8.3)

The staff work conditions and welfare subfactors group has an average mean index of 4.11 (very significant/VS). Although it has the same average mean index as remuneration and fringe benefits, the respondents' answer frequency percentage was lower than that of remuneration and fringe benefits and therefore it ranked fourth.

The staff work conditions and welfare subfactor group includes social needs of actualisation, praise, respect, value, love, participation, and acceptance, good treatment at work and career development and growth for staff. These factors were identified as very important for positive worker behaviour.

The study indicates that work conditions subfactors such as the nature of the work and the work environment are very important for improved productivity.

8.4.5 Communication subfactors (See Table 8.5)

The communication subfactors group has an average mean index of 4.06 (very significant/VS) and ranked fifth in terms of its relative importance (see Table 8.9 above). The communication subfactors consist of openness, feedback, information frequency and regulation. These factors were found as very important for positive worker behaviour.

The study result has demonstrated that communication is the method project managers use to influence professionals involved and to persuade them to give of their best in order to ensure successful project completion. Communication is identified in the study as very significant for positive worker behaviour, although it ranked fifth in terms of relevant importance to the subfactor groups for worker positive behaviour.

8.4.6 Management styles and traits (See Table 8.7)

The management styles and traits subfactor group has an average mean index of 3.99 (very significant/VS) and ranked sixth in relative importance, or second least important in relative terms (see Table 8.9 above).

The management styles and traits subfactor group includes factors such as trust, listening, understandable language, communication flow, training needs, intellectual stimulation, motivation, consideration and style of management. These factors were found very important for positive worker behaviour in the literature review.

The above-mentioned subfactor groups relate to the way organisations transact and operate in the businesses of construction organisation as part of their culture.

The study has shown that a management style which shares knowledge and respects workers solve problems can improve productivity.

The study results have shown that management styles and traits as subfactor groups are very important in the successful working of organisations and very important for the influence of worker positive behaviour, although ranked sixth in importance.

8.4.7 Tasks (roles)

Tasks (roles) as subfactor group has an average mean index of 3.71 (very significant) and ranked seventh or the least important in relative terms (see Table 8.9).

The tasks (roles) subfactor group consists of factors such as work quality, work opportunity, task independence, performance commitment, interesting work, work economy, task specificity, task significance, challenging work, opportunity to plan work, use of knowledge and supervision by example. These factors were reviewed in the literature as very important for worker positive behaviour.

The above-mentioned factors are about how organisations want to accomplish the desired work and improve productivity. The tasks (roles) subgroup ranked least important, but the study results show that the tasks (roles) factors are nevertheless all very significant for influencing positive behaviour for improved productivity and that none of the factors may be disregarded.

8.5 Individual behaviour factors (sub-subbehaviour factors)

As part of the literature review it was necessary to further subdivide the seven subfactors into 64 smaller factors. These further subdivisions were found necessary to give a greater insight into the nature and influence of the main motivational behaviour factors influence for positive worker behaviour. It is proposed that these subdivisions be identified separately as sub-subbehaviour factors. The seven behaviour subfactors resulted in 64 sub-subbehaviour factors. The 64 sub-subfactors are found within the seven subfactor groups all together and may be identified as: An attractive salary, money incentives, housing, lunches, health care, transport, employment contracts, and health and safety at work, and fall under the remuneration and fringe benefits subfactors. Value and respect, recognition, praise, work participation, good work relationships, love, and trustworthiness, fall under interpersonal relationships. Responsibility, training, experience, self-esteem, mentoring, self-efficacy, learning, coaching, basic education, and literacy, fall under the skill development subfactor Independence of tasks. Interesting work, performance commitment, work economy, work quality, work opportunity, task specificity, task significance, challenging work, work plan, own knowledge and ideas, task difficulty, task variety, equal opportunity and treatment, fall under staff work conditions and welfare. Sharing in knowledge and information, open communication, mutual trust, feedback, listening, understandable language, communication flow, information frequency, regulation, timing and repetition, fall under the communication subfactor. Career development, company policies, informal organisation structure, empathy for staff, supervision by example, intellectual stimulation, inspirational motivation, influence, consideration, management by exception (passive or active) and charisma, fall under management styles. It was proposed that as all the general and important aspects of these 64 motivational behaviour sub-subfactors have been investigated in Tables 8.3 to Table 8.9, the ranking and detailed investigations be limited to the 21 extremely significant sub-subfactors only.

The results of the ranking of the 21 extremely significant out of the 64 all very important motivational behaviour sub-subfactors for worker positive behaviour are presented in Table 8.10 below. Column 1 of Table 8.10 below shows the motivating behaviour sub-subfactors while column 2 indicates the ranking of the motivational sub-subfactors. The result of the ranking of the sub-sub-behaviour factors is shown in Table 8.10 below to show their significance levels in influencing worker positive behaviour.

In Table 8.10 staff ability and willingness to accept responsibility are ranked as the most important behaviour sub-subfactor, followed by trustworthy relationships, followed by the sharing of knowledge and work information, followed by good co-worker relationship, and in the fifth and sixth positions are attractive salary and money incentives. This suggests that skill development is extremely important for influencing motivational factors and behaviours.

Table 8.10 results seem to suggest that behaviours subfactors such as communication, good interpersonal relationships, worker skills development, and good remuneration and fringe benefits are extremely important in the successful project implementation.

Table 8.10 also suggests that to improve positive behaviour for improved productivity, project managers and construction managers should devote more effort and resources towards their management practices so as to include the following human behaviour factors: responsibility and accountability, trust, knowledge and information sharing, good relationships, good salaries, money incentives, transparency, respect, recognition, training, staff development, feedback, experience, self-esteem, work quality, listening, supervision by example and understandable language in the work place.

The important aspects of the 21 extremely significant sub-subfactors as ranked in Table 8.10 are reviewed below. Evaluation of Table 8.10 reveals that the willingness to accept responsibility in regard to tasks coupled with a meaningful experience as described by Hackman *et al.* (1975:58), is the most motivating factor with a score of 4.49. However, it is evident from Table 8.10 that relatedness and growth needs are more important than existence needs which does not support Maslow's (1943:394-395) needs theory.

Table 8.10 The ranking only of the extremely significant behaviour sub-subfactors

Factor groups	Rank in total
ROLES AND RESPONSIBILITIES (Skill development for staff)	
Staff ability and willingness to accept responsibility	1
COMMUNICATION IN CONSTRUCTION ORGANISATIONS (Interpersonal relationships)	
Trustworthy relationship	2
(Communication)	
Sharing knowledge and work information	3
(Interpersonal relationships)	
Good co-worker relationship	4
MOTIVATIONAL (Remuneration and fringe benefits)	
Salary (which is attractive)	5
Money incentives (as form of encouragement for good work	6
COMMUNICATION IN CONSTRUCTION ORGANISATIONS (Communication)	
Open communication at work	7
(Management style)	
Management trusting staff and staff trusting management	8
MOTIVATIONAL (Staff)	
Being given due value and respect at work	9
Being given due recognition	10
ROLES AND RESPONSIBILITIES (Skill development for staff)	
Staff training at work	11
Staff career development and growth	12
COMMUNICATION IN CONSTRUCTION ORGANISATIONS (Communication)	
Feedback as part of effective communication	13
ROLES AND RESPONSIBILITIES (Skill development for staff)	
Staff work experience	14
Staff self-esteem	15
(Tasks)	
Work quality	16
ORGANISATIONAL WORK CULTURE (Company)	
Company policies which value, recognise and respect workers	17
COMMUNICATION IN CONSTRUCTION ORGANISATIONS (Management style)	
Management listening to staff	18
LEADERSHIP (Tasks)	
Supervision by example	19
MOTIVATIONAL (Remuneration and fringe benefits)	
Health and safety at work	20
COMMUNICATION IN CONSTRUCTION ORGANISATIONS (Management style)	
Management using understandable language in their communication	21

8.5.1 Staff ability and willingness to accept responsibilities (ES – 4.49)

General aspects of the 64 behaviour sub-subfactors have been covered in Tables 8.3 to 8.9. Table 8.10 shows the 21 extremely significant behaviour sub-subfactors in order to show their rank and significance levels for influencing worker positive behaviours. The result of the ranking of the 21 extremely significant behaviours sub-subfactors is thus shown in Table 8.10 below.

Staff ability and willingness to accept responsibility has been identified as the most important sub-subfactor for influencing positive behaviour for improved productivity (ES – 4.49). The finding of the study supports and identifies responsibility as an important behaviour for good work performance. The literature review provided the first evidence of those workers who take responsibility and accountability as being able to perform tasks, resulting in a meaningful contribution to work success. Responsibility in may increase confidence in professionals to accept consequences for their actions first-hand.

Responsibility and accountability are about taking ownership of a task, project or activity with a willingness to bear the consequences whether good or bad. Willingness to take responsibility, as shown by the study results, is the most important factor for improving positive behaviour for improved construction productivity as shown in Table 8.10 below. The study result confirms that responsibility and accountability is an extremely important factor for worker positive behaviour.

8.5.2 Trustworthy relationships (ES – 4.46)

To trust is a personal belief and faith that people have in each other. It may be regarded as the inherent confidence that people have in each other, based on shared values, demonstrated behaviours and mutual experiences.

Trust is about believes in each other's ability, keeping promises, having faith, recognising others, sharing information and knowledge, giving authority to others, willingness to forgive others, seeking solutions and standing by the decisions and actions of others. The literature study revealed that trustworthy relationships were extremely significant in positive worker behaviour shaping.

The result of this study suggests that trustworthy relationships may be brought about by communication which uses respect, expression of friendliness and recognition of others as important.

The study results identify trustworthy relationships (ES – 4.46) as the second most important sub-subfactor for influencing positive behaviour for improving construction productivity as shown in Table 8.10 below. The study result also suggests that trustworthy relationships are critical for positive worker behaviour.

8.5.3 Sharing knowledge and work information (ES – 4.45)

Sharing knowledge and work information is very important for quality work, as it makes supervision of work possible. It is noted that communication is required to give instructions how to execute construction works. In order to share knowledge and information, supervisors have to convey information to construction workers for the proper execution of works. In the literature study the sharing of knowledge and work information was identified that when present in a project development worker positive behaviour could be achieved.

The study results show that the sharing of knowledge and work information is the third most important human sub-subfactors for influencing positive behaviour for improving productivity, as Table 8.10 above indicates. The study result implies that the sharing of knowledge and work information is extremely important for positive behaviour at work.

8.5.4 Good co-worker relationships (ES – 4.43)

Good co-worker relationships ranked the fourth most important sub-subfactor for influencing positive behaviour for improving construction productivity (ES – 4.43). Good co-worker relationships help in improving communication on a construction site and build a mentality of respect which motivates workers to increase construction productivity. The literature review provided the first evidence that good co-worker relationship contributes to improved work productivity through positive behaviour in extremely significant way.

A good co-worker relationship is identified as extremely important for influencing positive worker behaviour for improving construction productivity, as indicated in Table 8.10 above. The result of the study shows that a good co-worker relationship is extremely significantly required for influencing worker positive behaviours such as cooperation and collaboration at work.

8.5.5 Salary which is attractive (ES – 4.43)

The study results show that an attractive salary has an extremely significant effect as a sub-subfactor for influencing positive worker behaviour for improving productivity (ES – 4.43). This

factor is ranked fifth most important for influencing positive worker behaviour for improved productivity as shown in Table 8.10 above. Attractive salary as extremely motivational behaviour factor was identified in the literature study as being a factor that will influence worker behaviour positively if applied during project development.

The study results support the findings of previous studies which indicate that money earned is the foremost motivating and demotivating sub-subfactor in the construction industry, especially in developing countries.

Although the study results show that money is extremely significant/important it is not the only sub-subfactor which can influence positive behaviour for improving construction productivity. The result of the study, however, supports the notion that money is extremely important for worker positive behaviour.

8.5.6 Money incentives (as a form of encouragement for good work) (ES – 4.42)

The study results show that money incentives is the sixth most important sub-subfactor for influencing positive behaviour with a mean index of 4.42 extremely significant (ES – 4.2), as shown in Table 8.10 above. Money incentives as extremely an important motivational behaviour factor was identified in the literature study as being a factor for good work performance if applied during project development.

The study results also show that money related issues such as money incentives as a form of encouragement for good work seem a predominant influencing sub-subfactor for positive behaviour. The results of this study seem to confirm this. The result also show that money is crucial for positive worker behaviour

8.5.7 Open communication at work (ES – 4.37)

The research results show that open communication has a mean index of (4.37 – ES), although it is ranked seventh among the 21 extremely significant sub-subfactors. Although communication as a subfactor group was ranked fifth (VS – 4.06), it is evaluated as very significant. The literature review supported the idea that open communication at work contributes to improved work productivity through positive behaviour in extremely significant way.

Two-way communication involves managers communicating face to face with their subordinates in order for them to understand the information properly.

This study results seem to suggest that the communication main factor groups with an average mean index of (VS – 4.20) was evaluated as a very significant or very important group of human factors for influencing positive behaviour for improved productivity. The result of this study confirms that communication is extremely important for positive worker behaviour.

8.5.8 Management trusting staff and staff trusting management (ES – 4.37)

The group of management trusting staff and staff trusting management has a mean index of 4.37 (extremely significant/ES – 4.37), and ranked as eighth most important sub-subfactor for influencing work position behaviour for improved productivity, as shown in Table 8.10. The literature study revealed that management trusting staff and staff trusting management were extremely significant in positive worker behaviour shaping.

The results of the study found that mutual confidence or mutual trust between managers and their subordinates can facilitate communication.

As was identified for trustworthy relationships with a mean index of 4.46, (extremely significant sub-subfactors), mutual trust is also extremely significant (ES – 4.37) for influencing positive behaviour for improved productivity.

The research results also seem to confirm that mutual trust between management and workers may allow information to be easily accepted by both managers and subordinates and this makes it an extremely important sub-subfactor. Once more, the study result suggests that trustworthy relationships are critical for positive worker behaviour.

8.5.9 Being given due value and respect at work (ES – 4.37)

Being given due value and respect at work has a mean index of 4.37, evaluated as an extremely significant sub-subfactor, as shown in Table 8.10 above. Out of 12 sub-subfactors grouped under the main motivational factor, being given due value and respect at work. was ranked third, as shown in Table 8.3 above. Overall, being given due value and respect at work was ranked ninth of the most important sub-subfactors for influencing positive behaviour for improving productivity. Being given due value and respect at work was identified in the literature as able to influence worker behaviour positively in a construction project implementation.

Being given due value and respect at work was identified as a social or belonging need, falling under the interpersonal subfactors. This is one of the middle hierarchy needs which are important since a motivated employee may consistently strive towards an attainable goal or sets of goals. As such, being given due value and respect at work is an extremely important sub-subfactor for influencing positive behaviour for improved productivity. The study results show that being given due value and respect at work is an extremely significant factor for positive worker behaviour.

8.5.10 Being given due recognition (ES – 4.37)

Being given due recognition has a mean index of 4.37, evaluated as an extremely significant (ES) sub-subfactor, as shown in Table 8.10 above. Being given due recognition ranked fourth out of 12 sub-subfactors in the motivations factor group, as shown in Table 8.3 above. It is identified as an extremely significant factor. Being given due recognition at work was identified in the literature as able to influence worker behaviour positively in a construction project implementation.

Overall, being given due recognition ranked tenth amongst the extremely significant 21 sub-subfactors which influence positive behaviour for improved productivity, as shown in Table 8.10 above.

Being given due recognition is identified as a social or belonging need. It is one of the middle hierarchy needs which are important for motivation. Motivation may influence an employee to strive constantly to achieve goals or a set of goals. The study results show that being given due recognition is extremely important for influencing positive behaviour for improved productivity.

8.5.11 Staff training at work (ES – 4.36)

Staff training at work has a mean index of 4.36 which is an extremely significant (ES) sub-subfactor for influencing positive behaviour for improved productivity. Among the roles and responsibilities tasks, staff training at work ranked second most important sub-subfactor out of 23 sub-subfactors, as shown in Table 8.4 above. Overall, staff training at work ranked eleventh out of the top 21 extremely important sub-subfactors for influencing positive behaviour for improved productivity, as shown in Table 8.10 above. Staff training at work was identified in the literature as able to influence worker behaviour positively in a construction project implementation.

Skill is required for motivation to be effective. Acquisition of skills through training at work may enable a construction worker to plan work and to work autonomously. The study results indicate that staff training at work is an extremely important factor for influencing positive behaviour for improved productivity.

8.5.12 Staff career development and growth (ES – 4.36)

Staff career development and growth has a mean index of 4.36, evaluated as extremely significant (ES) and ranked the most important sub-subfactor among the organisational work group culture main factor, as shown in Table 8.6. Overall, this sub-subfactor ranked twelfth among the 21 extremely important sub-subfactors for influencing positive behaviour for improving construction productivity, as shown in Table 8.10 above. Staff career development and growth at work were identified in the literature as able to influence worker behaviour positively in a construction project implementation.

Staff career development and growth are part of self-actualisation needs which include creativity and ownership of ideas.

Staff career development and growth are a needs sub-subfactor required to motivate staff. The results of this study show that staff career development and growth form an extremely important sub-subfactor which is required to influence positive behaviour for improved productivity.

8.5.13 Feedback as part of effective communication (ES – 4.34)

Feedback is part of effective communication and has a mean index of 4.34, evaluated 14 sub-subfactors within the communication main factors in the construction organisation group, as indicated in Table 8.5 above. Feedback as part of the effective communication sub-subfactor ranked sixth among the 14 factors. In the literature study feedback as part of effective communication was identified as that when present in a project development, worker positive behaviour could be achieved,

Overall, feedback as part of effective communication ranked thirteenth of the extremely important factors which influence the positive behaviour for improved productivity, as shown in Table 8.10 above.

Feedback is necessary for information regarding knowledge of results of the job itself from other people and organisations. It is important for employees to know the actual results of work

activities so that they may be aware of how effective they are in the way they are converting their effort into performance.

Feedback should consist of information which encourages a worker to improve on skill and experience so that the worker may accept responsibility and accountability. The result of the study shows that feedback as part of effective communications is an extremely significant/important sub-subfactor for improving positive behaviour for improving production.

8.5.14 Staff work experience (ES – 4.33)

Staff work experience has a mean index of 4.33, and is evaluated as an extremely significant or extremely important (ES/EI) sub-subfactor among 23 sub-subfactors within the roles and responsibility main group factors. Staff work experience was ranked the third most important sub-subfactor within the roles and responsibility main factor group, as shown Table 8.4 above. Staff work experience was revealed in the literature review as important for positive worker behaviour.

Overall, staff work experience ranked fourteenth among the 21 extremely significant/important sub-subfactors which influence positive behaviours for improved construction productivity, as shown in Table 8.10 above.

Work place learning and in-service training are important, and indicate that hands-on experience could enable a worker to acquire valuable and specialised knowledge and skills by learning from experience and reflecting on that experience while becoming acquainted with work process.

Staff work experience has been identified in this study as extremely significant/important for influencing positive worker behaviour for improved construction productivity.

8.5.15 Staff self-esteem (ES – 4.33)

Staff self-esteem has a mean index of 4.33, evaluated as an extremely significant/important (ES/EI) sub-subfactor among the 23 sub-subfactors, within the roles and responsibilities main group factors, as shown in Table 8.4 above. Staff self-esteem was revealed in the literature review as important for positive worker behaviour.

Staff self-esteem ranked fourth most important factor within the roles and responsibilities main group factors as shown in Table 8.4 above.

Overall, staff self-esteem ranked fifteenth among the 21 extremely significant/important factors which influence positive behaviour for improved productivity, as can be seen in Table 8.10 above.

Self-esteem is one of the higher needs which may influence people in a work place.

Some workers may want to do well and will meet high performance expectations when appropriately motivated in a supportive manner, such that they become creative, imaginative, ambitious, self-disciplined, self-directed so as to desire and willingly accept responsibility.

The study results identify staff self-esteem as an extremely significant/important sub-subfactor which may influence positive behaviour for improved productivity.

8.5.16 Work quality (ES – 4.33)

Work quality has a mean index of 4.33, and is evaluated as an extremely significant/extremely important (ES/EI) sub-subfactor among the 23 sub-subfactors within the roles and responsibilities main group. Work quality ranked fifth most important sub-subfactor within the roles and responsibilities group, as shown Table 8.4 above. Work quality was identified in the literature as able to influence worker behaviour positively in a construction project implementation.

Overall, work quality ranked sixteenth among the 21 extremely significant/extremely important sub-subfactors which influence positive behaviour for improved construction productivity, as shown in Table 8.10.

Work quality involves elements such as waste elimination, innovating for the benefit of the client, and delivering on time and to budget, with zero defects.

The study results identify work quality as an extremely significant/extremely important sub-subfactor which may influence positive worker behaviour for improved productivity.

8.5.17 Company policies which value, recognise and respect workers (ES – 4.33)

Company policies which value recognise and respect workers have a mean index of 4.33, is evaluated as an extremely significant/extremely important (ES/EI) sub-subfactor and ranked seventh among the 21 sub-subfactors as shown in Table 8.10. Company policies which value recognise and respect workers ranked second most important factor within the organisational

work culture group, as shown in Table 8.6. Company policies which value recognise and respect workers was shown in the literature review as important for positive worker behaviour.

Overall, company policies which value recognise and respect workers ranked seventeenth most important factor out of 21 extremely significant factors which influence positive behaviour for improved productivity, as shown in Table 8.10.

A cultural shift that eschews traditional adversarial relationships and embraces relationships that are based on mutual co-operations between project participants could be a major agent for change that leads to better performance within the construction industry.

The study identifies company policies which value, recognise and respect workers as extremely important sub-subfactor for influencing positive behaviour for improved productivity.

8.5.18 Management listening to staff (ES – 4.31)

Management listening to staff has a mean index of 4.31, is evaluated as an extremely significant or extremely important (ES/EI) factor among the 14 factors of the communication main group factors and ranked seventh most important factor within the grouping, as shown in Table 8.5 above. Management listening to staff was identified in the literature that when present in a project development worker positive behaviour could be achieved.

Overall, this sub-subfactor is the eighteenth most important factor among the 21 extremely important sub-subfactors which influence positive behaviour for improved construction productivity.

One method of encouraging someone to express true feelings, desires, and emotions is to listen to them. The guideline for listening is to stop talking, put the speaker at ease, and show the speaker you want to listen, remove distractions, empathise with the speaker, be patient, hold your temper, go easy on arguments and criticism and ask questions.

Management listening to staff has been identified by the study results as an extremely important sub-subfactor for influencing positive behaviour for improved productivity.

8.5.19 Supervision by example (ES – 4.30)

Supervision by example has a mean index of 4.30, is evaluated as an extremely significant or extremely important sub-subfactor (ES/EI) and the most important sub-subfactor within the leadership main factor group, as shown in Table 8.7. Supervision by example was identified in

the literature review that when applied in a project execution could result in positive worker behaviour.

Overall, supervision by example is ranked nineteenth most important sub-subfactor for influencing positive behaviour for improved productivity, as shown in Table 8.10.

Supervision by example may be described as a coaching leadership style of transformational leadership. Coaching leader's help employees identify and pursue personal and career aspirations, agree roles and responsibilities with employees, and excel at delegating including employees challenging assignments.

The results of this study identify leadership by example as a factor necessary to support motivation of construction workers and maintain motivation in a work situation.

The research results identify leadership by example as an extremely significant sub-subfactor for influencing positive worker behaviour for improved productivity.

8.5.20 Health and safety at work (ES – 4.25)

Health and safety at work has a mean index of 4.25, is evaluated as extremely significant or extremely important (ES/EI) sub-subfactor and ranked sixth in the relative importance index of the motivational factors grouping as shown in Table 8.3. Health and safety at work was shown in the literature review as important for positive worker behaviour.

Health and safety, although evaluated as extremely significant or extremely important in terms of the relative importance, ranked twentieth of the extremely important sub-subfactors for influencing positive behaviour for improved productivity as shown in Table 8.10.

Health and safety may be identified among the lower hierarchy needs which human beings strive to satisfy in order for motivation to be influenced. Health and safety is an important basic need required to maintain at least a level of 'no dissatisfaction' in order for motivation to be influenced properly.

The study results show that although health and safety are least relatively ranked, they are nevertheless extremely important for influencing positive behaviour for improved productivity.

8.5.21 Management using understandable language in their communication (ES – 4.22)

Management using understandable language in their communication has a mean index of 4.22 which is evaluated as extremely significant or extremely important and ranked eighth of the most important factors within the communication main factors grouping as shown in Table 8.5 above. Management using understandable language in their communication was shown in the literature review as important for positive worker behaviour.

Management using understandable language in their communication, although evaluated as extremely significant or extremely important, is the least ranked of the extremely important sub-subfactors in the influencing of positive behaviour for improved productivity.

As effective communication involves transmitting understanding as well as information, it is important for managers and supervisors to encode messages in words, appeals and symbols that are meaningful to the receiver. Communication by construction site/project managers is a means of keeping construction workers informed in a language they understand.

The above-mentioned sub-subfactor, although evaluated as extremely important, is the least ranked of all the extremely important factors for influencing positive behaviour for improved productivity.

The above 21 extremely important sub-subfactors are part of the 64 sub-subfactors of which, the research results suggest that all are very to extremely important for influencing the 23 positive behaviours identified in this study as very to extremely important for influencing improved construction productivity.

The 23 positive behaviours are contributed by four main groups of behaviours; motivational, commitment, satisfaction and loyalty behaviours. The four main positive behaviour groups are presented and discussed in the next section.

8.6 Positive behaviour groups for improving construction productivity

In the questionnaire the positive behaviours were separated into four groups, namely motivational, commitment, satisfaction and loyalty, in order to investigate separately the worker motivational, commitment, satisfaction and loyalty levels. These behaviour groupings are investigated below.

8.6.1 Motivational behaviours

The result of motivational behaviour significance levels is presented in Table 8.11 below. Column 1 of Table 8.11 shows motivational behaviours; column 2 shows the ranking of the motivational behaviours; column 3 shows the effect level of the behaviours; column 4 shows the minimum statistical values; column 5 shows the maximum statistical values; column 6 shows the mean of statistical values and column 7 shows the standard deviation of statistical values answers by the respondents.

Among the four groups of positive behaviours for improving construction productivity, motivational behaviours was found the most important group with an average mean index of 4.31 (extremely significant or extremely important/ES/EI), as can be seen in Table 8.11. Eight positive behaviours were investigated in this group and completing of tasks at hand on schedule (extremely significant or extremely important – ES – 4.43), planning own work (ES/EI – 4.40), working hard to improve quality and productivity (ES – 4.37), taking action to improve skill (ES – 4.33), responding promptly to requests (ES – 4.33), correcting and solving work problems (ES – 4.28), being enthusiastic and optimistic at work (ES – 4.22) were all evaluated as extremely significant or extremely important. Only one factor, commitment to organisations' success goals, was ranked very significant (VS – 4.15) and it is the least ranked in this category. Table 8.15 below shows that the motivational behaviours group is ranked the highest with average mean index of (ES4.31).

The motivational behaviours shown in Table 8.11 were those identified in the literature study as being worker positive behaviours which if influenced during project development, could improve productivity.

Table 8.11 Motivational behaviours

Item: Motivational behaviours	Rank in total	Effect level	Min	Max	Mean	SD
Completing task at hand on schedule	1	ES	3	5	4.43	0.609
Planning own work	2	ES	3	5	4.40	0.676
Working hard to improve quality and productivity	3	ES	3	5	4.37	0.573
Taking action to improving skill through learning opportunity to advance and personally grow so as to be fully skilled	4	ES	3	5	4.33	0.637
Responding promptly to requests	5	ES	3	5	4.33	0.613
Correcting and solving work problems	6	ES	3	5	4.28	0.647
Being enthusiastic and optimistic at work	7	ES	3	5	4.22	0.647
Worker commitment to the organisation's success goals towards the client	8	VS	3	5	4.15	0.609
Average		ES			4.31	

These results show that motivational behaviours are the most important for improved productivity, and that completing task at hand on schedule is the most important motivational behaviour for improving productivity. These results also suggest that positive motivational worker behaviours represent the highest levels of worker motivation as compared to commitment, loyalty and satisfaction behaviours. This result also answers hypothesis 3: The more important or significant the positive worker behaviour, the higher the motivation, commitment, loyalty, satisfaction levels and productivity of the worker. Analysis of Table 8.11 shows that completing a task at hand and on schedule is the most important motivating behaviour for improving productivity. Table 8.11 also identifies all the motivational behaviours identified by Cox *et al.* (2005: 373). Table 8.11 points to internal motivation being more important than external motivation.

8.6.2 Commitment behaviours

The result of commitment behaviour significance levels is presented in Table 8.12 below. Column 1 of Table 8.12 shows commitment behaviours; column 2 shows the ranking of the commitment behaviours; column 3 shows the effect level of the behaviours; column 4 shows the minimum statistical values; column 5 shows the maximum statistical values; column 6 shows the mean of statistical values and column 7 shows the standard deviation of statistical values answers by the respondents.

The commitment behaviours shown in Table 8.12 were those identified in the literature review as being worker positive behaviours which, if influenced during project development, could improve productivity.

The commitment behaviour group has a mean average index of 4.20, and is evaluated as extremely significant and ranks second in importance, as indicated in Table 8.15 below.

Six behaviours were investigated as shown in Table 8.12 and willingness to take responsibility and accountability at work, with a mean index of 4.36, ranked the most effective positive commitment behaviour to influence improved construction productivity.

Table 8.12 Commitment behaviours

Item: Commitment behaviours	Rank in total	Effect level	Min	Max	Mean	SD
Willing to take responsibility and accountability at work	1	ES	2	5	4.36	0.644
Communicating effectively to share knowledge and ideas at work	2	ES	3	5	4.34	0.592
Communicating effectively to resolve work problems and conflicts	3	ES	3	5	4.28	0.647
Helping others to improve on work	4	VS	3	5	4.18	0.650
Being achievement driven	5	VS	1	5	4.10	0.761
Asking about future projects	6	VS	2	5	3.91	0.793
Average		ES			4.20	

Within this section two other behaviours, communicating effectively to share knowledge and ideas at work (ES – 4.34) and communicating effectively to resolve work problems and conflicts (ES – 4.28), are among the 12 extremely important positive behaviours for improved productivity. These results show that commitment behaviours are the second most important for improved productivity (also see Table 8.15). The result also shows that willingness to take responsibility and accountability at work is the most important behaviour for a committed worker. The result also shows that commitment behaviours follow motivational behaviours according to their level of significance and contributes to the answer to hypothesis 3. Investigation of Table 8.12 indicates willingness to take responsibility and accountability as the most important commitment behaviour for improving productivity. Table 8.12 also identifies all the commitment behaviours identified by Crosby, Grisaffe and Marra (1994:19-30). It suggests that commitment behaviours are 4.20 on average, and are less important compared to motivational behaviours at 4.31 on average.

8.6.3 Satisfaction behaviours

The result of satisfaction behaviour significance levels is presented in Table 8.13 below. Column 1 of Table 8.13 shows the satisfaction behaviours; column 2 shows the ranking of the

satisfaction behaviours; column 3 shows the effect level of the behaviours; column 4 indicates the minimum statistical values; column 5 shows the maximum statistical values; column 6 shows the mean of statistical values and column 7 shows the standard deviation of statistical values answers by the respondents.

The satisfaction behaviours shown in Table 8.13 were those found in the literature review as being worker positive behaviours which if influenced during project development, could improve productivity.

The satisfaction behaviour group has an average mean index of 4.12, as shown in Table 8.13 and Table 8.15 below and is evaluated as very significant or very important (VS/VI), as shown in Table 8.13 below. This group ranked third, as shown in Table 8.15, with average mean index of 4.12 below as very important behaviour for improved construction productivity.

Table 8.13 Satisfaction behaviours

Item: Satisfaction behaviours	Rank in total	Effect level	Min	Max	Mean	SD
Speaking of own job with positive regard	1	VS	1	5	4.13	0.713
Speaking of company with positive regard	2	VS	2	5	4.10	0.631
Average		VS			4.12	

Two factors were investigated in this group and found to have a mean index of (VS:4.10 – 4.13) and were therefore found to be very significant or very important as positive behaviour for influencing improved productivity, although none of the behaviours in this category are included in the 12 extremely important positive behaviours for improved productivity.

Although satisfaction is ranked third (Table 8.15), this result agrees with the belief that satisfaction causes better performance or that a happy worker is a productive worker, as the respondents rank satisfaction as very important for productivity. The result also shows that satisfaction behaviours follow commitment behaviours according their level of significance and contributes to the answer to hypothesis 3. Analysis of Table 8.13 shows the two satisfaction behaviours which are the most important for improving productivity. Table 8.13 also identifies the two satisfaction behaviours as similar to those shown by Borcharding and Oglesby (1974:413-431). It suggests that satisfaction behaviours are at 4.12 on average less important compared to commitment behaviours at 4.31 on average.

8.6.4 Loyalty behaviours

The result of loyalty behaviour significance levels is presented in Table 8.14 below. Column 1 of Table 8.14 shows satisfaction behaviours, column 2 indicates the ranking of the satisfaction behaviours, column 3 shows the effect level of the behaviours, column 4 shows the minimum statistical values, column 5 shows the maximum statistical values, column 6 shows the mean of statistical values and column 7 shows the standard deviation of statistical values answers by the respondents.

The loyalty behaviours shown in Table 8.14 were those found in the literature review as being worker positive behaviours which if influenced during project development, could improve productivity.

Seven behaviours were investigated in this group. The least important behaviour group was loyalty behaviours with an average mean index of 4.09, evaluated as very significant/very important (VS/VI), as shown in Tables 8.14 and 8.15 below. Two behaviours, being trustworthy (ES – 4.42) and being cooperative and collaborative (ES – 4.37) have been included and ranked second and fifth among the top 12 extremely important positive behaviours for improving construction productivity, as shown in Table 8.14. Analysis of Table 8.14 points to the three important loyalty behaviours: making sacrifices, promoting company and abiding by company policies, among other behaviours as identified by Smit and Cronjé (2002:308). It also suggests that loyalty behaviours are at 4.09 on average less important compared to satisfaction behaviours at 4.12 on average.

Table 8.14 Loyalty behaviours

Item: Loyalty behaviours	Rank in total	Effect level	Min	Max	Mean	SD
Being trustworthy	1	ES	3	5	4.42	0.607
Being cooperative and collaborative	2	ES	3	5	4.37	0.517
Abiding by company policy	3	VS	3	5	4.16	0.593
Promoting company	4	VS	2	5	4.10	0.699
Remaining with company in difficult times	5	VS	1	5	3.91	0.933
Performing more work than expected	6	VS	1	5	3.90	0.819
Making sacrifices for well-being of company	7	VS	1	5	3.78	1.012
Average		VS			4.09	

The rest of the loyalty behaviours have also been found to be very significant with a mean index ranging from 4.16 to 3.78, all being evaluated as very significant or very important (VS/VI) behaviours. These results show that loyalty behaviours are the least important for improved

productivity (also see Table 8.15), and that loyalty behaviours follow satisfaction behaviours according to their level of significance and contribute to the answer to hypothesis 3. The result also shows that being trustworthy at work is the most important behaviour for a loyal worker.

In order to give a comprehensive answer to hypothesis 3: The more important the positive worker behaviours, the higher the motivation, commitment, loyalty, satisfaction levels and productivity, it is necessary to rank the above behaviours groups.

The result of the ranking of the behaviour groups are presented in Table 8.15 below. Column 1 of Table 8.15 below shows the behaviour types. Column 2 shows the ranking of the types, and column 3 shows the average mean of statistical values answers by the respondents. The result of the ranking of behaviour types are shown in Table 8.15 below to show their significance levels in improving construction productivity.

The main behaviour groups are identified as motivation, commitment, satisfaction and loyalty.

Table 8.15 Behaviours groups ranking

Item: groups	Behaviour	Rank in total	Average mean
Motivation		1	4.31
Commitment		2	4.20
Satisfaction		3	4.12
Loyalty		4	4.09

The four main behaviour groups ranked as shown in Table 8.15. These results show that motivational behaviours represent the highest levels of worker motivation, followed by worker levels of commitment, followed by worker levels of satisfaction and lastly followed by worker levels of loyalty.. Evaluation of Table 8.15 shows that the more important the behaviour, the higher the motivational levels of the worker, as suggested by Cox *et al.* (2005: 373). It also suggests that poor commitment, satisfaction and loyalty behaviours represent lower levels of motivation.

The above four main behaviour groups result in 23 positive behaviours for improving productivity identified by the respondents as all being very significant to extremely significant behaviours for improving construction productivity, and thus none of the behaviours may be disregarded. These behaviours are: completing tasks promptly, planning work, working hard, learning to improve skills, responding promptly to requests, correcting and solving work problems, being enthusiastic and optimistic, committed to the organisation success, being

responsible and accountable, sharing knowledge and ideas, solving work problems and conflicts, helping others to improve, being achievement driven, asking about future projects, speaking well of own job and the company, being trustworthy, being cooperative and collaborative, abiding by company policy, promoting company, remaining with company in difficult times, performing your work more than expected and making sacrifices for the good of company. The study results show that the lowest mean index of the least ranked positive behaviour was (VS – 3.78) and the most important positive behaviour (ES – 4.43), giving a scale difference of 0.65.

The study results also show that 12 of the 23 behaviours have been evaluated as extremely significant positive behaviours for improving construction productivity. As the important general aspects of all 23 positive behaviours for improving construction productivity have been discussed in previous section of this chapter, it is proposed that only the 12 extremely significant behaviours for improving construction productivity be presented, ranked and reviewed in detail below.

8.7 Individual positive behaviours (extremely positive) for improving behaviour construction productivity

The result of the ranking of the 12 extremely significant out of the 23 all very important worker positive behaviours are presented in Table 8.16 below. Column 1 of Table 8.16 below shows the worker positive behaviours, while column 2 of the same table indicates the ranking of the worker positive behaviours. Their mean indices are shown in Tables 8.11, 8.12, 8.13, and 8.14.

In Table 8.16 above completing task at hand on schedule is ranked as the most important positive behaviour, being trustworthy as the second most important positive behaviour, planning own work as the third most important positive behaviour, working hard to improve quality and productivity as the fourth most important positive behaviour, and in the fifth and sixth positions of importance are being cooperative and collaborative and willing to take responsibility and accountability at work. This suggests that motivational and loyalty behaviours are the most significant behaviours in terms of gauging the motivational levels of a worker.

The results shown in Table 8.16 indicate that the 12 extremely significant positive behaviours represent workers' higher levels of motivation, commitment and loyalty.

Table 8.16 The ranking only of extremely positive 12 behaviours

Behaviour groups: Extremely positive behaviours	Rank in total
MOTIVATION	
Completing task at hand on schedule	1
LOYALTY	
Being trustworthy	2
MOTIVATION	
Planning own work	3
Working hard to improve quality and productivity	4
LOYALTY	
Being cooperative and collaborative	5
COMMITMENT	
Willing to take responsibility and accountability at work	6
Communicating effectively to share knowledge and ideas at work	7
MOTIVATION	
Taking action to improving skill through learning opportunity to advance and personally grow so as to be fully skilled	8
Responding promptly to requests	9
Correcting and solving work problems	10
COMMITMENT	
Communicating effectively to resolve work problems and conflicts	11
MOTIVATION	
Being enthusiastic and optimistic at work	12

Table 8.16 also suggests that to improve productivity, project managers and construction managers should devote more effort and resources towards their management practices which encourage the presence of these 12 extremely significant positive behaviours in a work environment.

The 12 extremely significant positive worker behaviours for improving construction productivity are presented in Table 8.16 below and reviewed as follows: Analysis of Table 8.16 shows that the more important the behaviour, the higher the motivational levels of the worker, as suggested by Crosby, Grisaffe and Marra (1994:19-30). It also shows that completing tasks on schedule as motivational behaviour is the most important, while being enthusiastic and optimistic, as less important.

8.7.1 Completing task at hand on schedule (ES – 4.43)

Completing a task at hand on schedule was found to be the most important positive behaviour with a mean index of 4.43 (extremely significant/ES) as can be seen in Table 8.16 below. Completing tasks at hand on schedule should indicate the highest levels of motivational behaviour for improved productivity.

Completing a task at hand on schedule was shown in the literature review as important positive worker behaviour which could improve productivity.

Time is one of the parameters for determining project success. Completing a project on time is important for success in the construction industry while delivering projects according to an agreed schedule contribute to clients' satisfaction towards the delivery of quality work in construction.

Completing a task at hand on schedule is therefore extremely important behaviour on the improvement of productivity.

When a worker starts to complete his tasks at hand on schedule, this behaviour may indicate that the worker is highly motivated and satisfied. The result shows that completing a task on schedule is a motivational behaviour which also shows the highest worker motivation levels for productivity improvement. Table 8.16 above presents completing task at hand on schedule as the first most important positive behaviour and shows the behaviour as a motivational behaviour factor: one which answers hypothesis 3 of this study.

8.7.2 Being trustworthy (ES – 4.42)

Being trustworthy as behaviour factor has a mean index of 4.42, is evaluated as extremely significant (ES) and ranked second most important positive behaviour for improved productivity, as shown in Tables 8.14 and 8.16 above.

Trust was identified in the literature as one of the requirements of creating an open, honest and productive work environment in order to promote motivation and trustworthy relations help to improve communication.

Being trustworthy may allow other workers to behave as such and share new information and ideas of how to improve work performance.

Being trustworthy has been identified as extremely important and could also indicate a high level of motivation and satisfaction of the worker. The result suggests that trustworthy relationships are crucially important for productivity improvement. Table 8.16 shows being trustworthy as the second most important positive behaviour. This behaviour concerns work relationships, implying that interpersonal relationships are extremely important for performance improvement.

8.7.3 Planning own work (ES – 4.43)

Planning own work had a mean index of 4.43, is evaluated as extremely significant (ES) and ranked third most important positive behaviour for improved productivity as shown in Table 8.16 above.

Planning own work has been identified as the third most important positive behaviour for improving construction productivity. The ability to plan own work requires skill, experience and knowledge of how to execute the task, and leads to work autonomy. Planning own work was identified in the literature review as important worker positive behaviour for productivity improvement.

Work autonomy is the degree to which the task provides substantial freedom, independence and discretion for the individual worker in scheduling the work and determining the procedures of carrying it out.

When a worker has the ability to plan his own work, it may mean that he has the experience, skill and knowledge of the work. It may also indicate that a worker could work with minimum supervision and thus save time, and increase work economy and quality.

The study results show that work experience, skill variety and knowledge of the result of the work are extremely important in planning own work.

When a worker starts to plan his own work, he will probably be skilled and experienced and his motivation and satisfaction levels may be regarded as high. The result also shows that this is extremely important behaviour for productivity improvement. Table 8.16 shows planning own work as the fourth most important and it is a motivational behaviour contributing to answer hypothesis 3 of this study.

8.7.4 Working hard to improve quality and productivity (ES – 4.33)

Working hard to improve quality and productivity has a mean index of 4.33, is evaluated as extremely significant (ES – 4.33) and ranked fourth most important positive behaviour for improving productivity, as shown in Table 8.16 above.

When a project is delivered in a quality manner, it would mean waste is eliminated, some innovation has been allowed for the benefit of the client, and elements of time, budget and no defects have been included in the delivery to satisfy the customer. Working hard to improve

quality and productivity was identified in the literature review as important worker positive behaviour for productivity improvement.

A behaviour which appreciates quality and productivity may ensure that the project is completed successfully since quality is one of the parameters for measuring project success.

Working hard and improving quality and productivity is a behaviour associated with a high level of motivation and commitment. The result shows that working hard to improve quality and productivity is extremely important behaviour for good work outcome. Table 8.16 identifies working hard to improve quality and productivity as a motivational behaviour contributing to answer hypothesis 3 of this study.

8.7.5 Being cooperative and collaborative (ES – 4.37)

Being cooperative and collaborative as a positive behaviour was measured to have a mean index of 4.37, is evaluated as extremely significant (ES – 4.37) and ranked second most important behaviour of loyalty behaviour groups, as shown in Table 8.14 above. Being cooperative and collaborative is ranked fifth most important positive behaviour for influencing improved productivity, as shown in Table 8.16 above.

Although being cooperative and collaborative is still evaluated as very significant, in terms of relevant importance, it tends towards the middle of the list of 12 most important behaviours.

Being cooperative and collaborative seems to be associated with good co-worker relationships. For a team to work well they should freely share information and learning, accept changes and challenges, agree to alternative solutions and trade-offs, take decision together and participate in discussions together. Being cooperative and collaborative was reviewed in the literature as important for improved productivity.

The result shows that being cooperative and collaborative is an extremely important worker positive behaviour for improving construction productivity. Table 8.16 identifies being cooperative and collaborative as interpersonal relationship behaviour which contributes to loyalty. Cooperation and collaboration behaviours imply that interpersonal relationships are extremely important for performance improvement.

8.7.6 Willing to take responsibility and accountability at work (ES – 4.36)

Willing to take responsibility and accountability has a mean index of 4.36 (extremely significant ES) and among the commitment behaviour groups for influencing positive behaviour as a behaviour it was ranked first in relative terms as in Table 8.4 above and overall ranked sixth of the most important positive behaviours for improving construction productivity as Table 8.16 above.

As pointed out in 8.5.1, responsibility and accountability is about taking ownership of a task, project or activity with a willingness to bear the consequences, either good or bad. This behaviour will most likely indicate a high level motivation, as it was also identified in 8.5.1 as most important factor which influences positive behaviour for improved productivity. Table 8.16 identifies willing to take responsibility and accountability at work as a commitment behaviour which as a group is ranked second to motivational behaviours.

8.7.7 Communicating effectively to share knowledge and ideas at work (ES – 4.34)

This positive behaviour had a mean index of 4.34, is evaluated as extremely significant and is ranked second most important behaviour of the commitment group behaviour and seventh most important positive behaviour for influencing improved productivity.

It is to be noted that communication is important in ensuring that work is supervised properly. Although this behaviour is ranked seventh overall as shown in Table 8.16, the positive behaviour of communicating effectively to share knowledge and ideas at work is identified as extremely important for improving productivity. Table 8.16 identifies communicating effectively to share knowledge and ideas at work as a commitment behaviour which as a group is ranked second to motivational behaviours.

8.7.8 Taking action to improving skill through learning and opportunity to advance and personally grow so as to be fully skilled (ES – 4.33)

This positive behaviour had a mean index of 4.33, is evaluated as extremely significant (ES) and ranked third most important in the motivational positive behaviour groups as shown in Table 8.11 above and eighth most important positive having overall as shown in Table 8.16 above.

There is a perception that construction industry workers in developing countries lack skills to improve productivity. Taking action to improve skill through learning opportunity was identified in the literature as important worker behaviour to improve productivity. This study results show that learning and training to develop skill is extremely important for improved productivity. This positive behaviour could be in the middle to high level range of motivation and satisfaction. Table 8.16 identifies taking action to improve skill through learning opportunity to advance and personally grow so as to be fully skilled as a motivational behaviour contributing to the answers of hypothesis 3 of this study.

8.7.9 Responding promptly to requests (ES – 4.33)

Responding promptly to requests had a mean index of 4.33 and is evaluated as extremely significant (ES). Using the percentage of frequencies of respondents' answers it is ranked ninth of the most important positive behaviours, as shown in Table 8.16 above. Responding promptly to requests was shown in the literature review as important worker positive behaviour for improved productivity.

As observed earlier, time is one of the project parameters for determining success. Responding promptly to requests is important for meeting deadlines. According to the respondents, this positive behaviour is extremely significant, but according to the ranking it is relatively less important, although it may still indicate a high level of motivation and satisfaction of the worker. The result of the study shows that responding promptly to requests is extremely important for productivity improvement. Table 8.16 identifies responding promptly to requests as a motivational behaviour contributing to the answers of hypothesis 3 of this study.

8.7.10 Correcting and solving work problems (ES – 4.28)

Correcting and solving work problems has a mean index of 4.28 (extremely significant/ES) and ranked sixth most important motivational behaviour as in Table 8.11 above and the tenth most important overall, as shown in Table 8.16 above. Correcting and solving work problems was shown in the literature review as important worker positive behaviour for improved productivity.

Time may be saved and work may be executed properly if information can be conveyed from supervisors to construction workers efficiently for the proper execution of works. It is important for supervisors to be able to correct and solve work problems so as to improve productivity.

The study results show that although this positive behaviour is ranked low, its evaluation indicates that it is still extremely important in terms of influencing construction productivity. This positive behaviour could show middle to high levels of motivation. The result also indicates that this is regarded as extremely important positive worker behaviour to improve productivity. Table 8.16 identifies correcting and solving work problems as a motivational behaviour contributing to the answers of hypothesis 3 of this study.

8.7.11 Communicating effectively to resolve work problem and conflicts (ES – 4.28)

Communicating effectively to solve work problems and conflicts has a mean index of 4.28, and is extremely significant (ES). Using the percentage frequencies scoring of the respondents, it was ranked eleventh, which is lower than correcting and solving work problems, as shown in Table 8.16 above, and ranked sixth within the motivational behaviour groups as shown in Table 8.11 above. Communicating effectively to solve work problems and conflicts was shown in the literature review as important worker positive behaviour for improved productivity.

The study result showed that the importance of effective communication lies in respect; recognition and friendliness towards others which helps reduce conflicts even if work problems are resolved by accurate information on how the work should be done properly.

Although the study results confirm that this is extremely significant positive behaviour for improved productivity, it ranks eleventh of the 12 most important behaviours. The result also indicate that this extremely important positive worker behaviour to improve productivity. Table 8.16 identifies communicating effectively to resolve work problems and conflicts as a commitment behaviour which as a group is ranked second to motivational behaviours.

8.7.12 Being enthusiastic and optimistic at work (ES – 4.22)

Being enthusiastic and optimistic at work has a mean index of 4.22 (extremely significant –ES) and ranks seventh of the eight motivational positive behaviours as shown in Table 8.11. Overall this positive behaviour ranks twelfth or the least in relative importance shown in Table 8.16, of the extremely important positive behaviour for improving construction productivity. Being enthusiastic and optimistic at work was shown in the literature review as important worker positive behaviour for improved productivity

The result of the study showed that full participation of the worker influences motivation so that the worker becomes enthusiastic and optimistic at work.

The result of the study also shows that being enthusiastic and optimistic at work is extremely significant positive behaviour for improving construction productivity. Although this behaviour was identified as extremely significant, it ranks as the least important of the 12 extremely important behaviours.

Apart from the discussion and analysis of the above data generated through respondents answering the questionnaires, there were general comments from the respondents which are now presented and discussed below. The result also indicates that this extremely important positive worker behaviour is crucial in improving productivity. Table 8.16 identifies being enthusiastic and optimistic at work as a motivational behaviour contributing to the answers of hypothesis 3 of this study.

8.8 Respondents general comments

The last section of the questionnaire concerned any comments the respondents wished to make regarding the research study. There were only eighteen comments received and they are summarised and presented below.

The respondents gave the perception that although the study of worker behaviour for improving construction productivity is extremely important, construction industry is not currently adequately putting success factors in construction work sites to ensure that projects are completed successfully.

The respondents identified the following factors as important for influencing positive worker behaviour for improving productivity: money, good company values and visions of companies, knowledge about proper work, work competence, good co-worker relationship, good social treatment of workers and good remuneration and fringe benefits.

According to the respondents, these behaviours are likely to improve productivity; taking prompt action at work, sharing ideas and solving work problems, following up actions at work, being well organised, filing and keeping records, positive interaction with all stakeholders, economic use of company resources, assisting management when necessary, punctuality at work and self-improvement at work. The 64 sub-subbehaviour factors and the 23 positive behaviours cover most aspects of these proposed behaviours for improving construction productivity.

The above comments all seem to suggest that the factors and behaviours identified in the literature and subjected to investigations and evaluations are all important for improving

construction productivity. The above comments further suggest that although the factors and the behaviours are important for productivity, they are not being brought into a work situation in the construction industry. The comments generally support the results of this research and are to be used to reach conclusions and make recommendations from the study.

The conclusion and recommendations arising from this research study are presented in the last part and chapter of the report (Part 4, Chapter 9).

PART 4: CONCLUSION

CHAPTER 9 CONCLUSION AND RECOMMENDATIONS

9.1 Introduction

Improving construction productivity in order to complete the project on time, within budget and to the desired quality, is a major concern of the construction industry in most of the developed countries. For this improvement to be realised, apart from research in technical management, it was necessary to do research on the influence of human behaviour factors for improving productivity with the aim of identifying the human behaviour factors which impact on positive worker behaviour for improved project performance outcomes, such as improved quality productivity.

The research study consists of four parts. Part 1 presents the general introduction to the study and consists of Chapter 1, the research proposal. Part 2 contains the literature review and consists of Chapters 2 to 6, the theoretical substructure and results. Part 3 presents the research approach and consists of Chapter 7, the research methodology and Chapter 8, which presents the empirical data, interpretation and investigations. Part 4 depicts the conclusion and recommendations, Chapter 9 being the final conclusions and recommendations of the research study.

9.2 Chapter summary

The main aim of this research is to establish empirically whether or not the human success factors when presented in a construction work situation can influence positive construction worker behaviours which will improve productivity.

In order to achieve the research objective the research study had to be done in Botswana as well as in South Africa. The resultant study report is presented in Chapters 1 to 9. In Chapter 1 the introduction, problems, hypotheses, limitations, objective, importance, knowledge contribution and study structure are presented. This was necessary to give the research proposal and an overview of the study.

Chapter 2 gives knowledge areas of motivation and motivational theories to influence positive worker behaviour for improved productivity in order to determine the factors that influence worker positive behaviour to improved performance.

In Chapter 3 the knowledge areas of skill development and training in order to acquire capacity and ability to accept responsibility and accountability to perform and deliver quality work, are reviewed. As part of the review, all the factors required for construction quality work delivery have been determined.

Chapter 4 presents all aspects for communication, such as concept, training, supervision, creation of cooperation, feedback, positive behaviour and organisational communication in order to determine communications factors which influence positive behaviour for improved productivity.

In Chapter 5 all aspects of culture and organisational culture such as the concept, dimensions of culture, meaning of organisational culture, importance of culture, organisational culture behaviours, and culture for worker positive behaviour for improved productivity are reviewed to determine the cultural dimensions for productivity improvement.

Chapter 6 offers knowledge areas of concept of leadership, differences between leadership and management, leadership styles and leadership theories in order to expose factors of leadership which influence positive worker behaviours.

Chapter 7 outlines the research methodology in which the design, population, questionnaire, questionnaire testing, bias and conclusions of the research are presented.

In Chapter 8 the empirical investigations and findings are presented to determine whether or not the human success factors, when presented in a construction work situation, can influence positive construction worker behaviours which improve productivity.

Chapter 9 presents the summary of chapters, answers to the hypotheses, summary of research findings, conclusions, knowledge contribution, limitations and recommendations of the research study.

9.3 Answers to the hypotheses

The main aim of this research is to establish empirically whether or not the human success factors, when presented in a construction work situation, can influence positive construction worker behaviour which improves productivity. To help achieve this objective, three hypotheses were presented in Chapter 1 as follows:

Hypothesis 1: Problems related to productivity in construction project implementation are substantially caused by human factors: The hypothesis is proven. This hypothesis is answered by the result of examining the 64 sub-subfactors which were identified and evaluated as all being very to extremely significant in influencing worker positive behaviour for improved productivity. Apart from motivational factors shown in Table 8.3, which included sub-subfactors such as an attractive salary, money incentives, staff housing, transport and lunches, fifty-nine out of 64 sub-subfactors are human factors. This research results show that out of the 64 sub-subfactors investigated in the study, 92.18% of the factors are human factors. The study results therefore agree with hypothesis 1.

Hypothesis 2: Introducing human success factors in project management may result in positive worker behaviours that would improve productivity: The hypothesis is proven. The study results show that the 59 human behaviours sub-subfactors out of 64 sub-subfactors when introduced in a work environment resulted into 23 positive behaviours identified as very to extremely significant for improved productivity. The research results agree with hypothesis 2.

Hypothesis 3: The more important the positive worker behaviours, the higher the motivation, commitment, loyalty, satisfaction levels and productivity of the worker: The hypothesis is proven. In order to answer hypothesis 3, Tables 8.11, 8.12, 8.13, 8.14 and 8.15 are examined in terms of the significance levels of positive behaviours. Table 8.15 shows the ranking of positive behaviour groups and motivational behaviours with average mean index of (ES-4.31) are the most important, followed by commitment behaviours with average mean index of (ES-4.20) as the second important group, followed by satisfaction behaviours with a mean average index of (VS-4.12) as the third important group and the fourth and least important is loyalty behaviour with a mean average index of (VS-4.09).. Table 8.11 also shows that 7 out of 8 positive behaviours are evaluated as extremely significant behaviour for improved productivity. Table 8.16, in which the extremely significant behaviours are ranked, shows that the highest

ranked behaviour is motivational behaviour and 7 out of 12 extremely significant positive behaviours are motivational behaviours. The study results therefore agree with hypothesis 3.

9.4 Summary of research findings

The objective of the research was to determine the influence of human behaviour factors on construction productivity in Botswana and South Africa. To achieve this, the study limited the research review to the main human factors of motivation (skills development, communication, organisational culture and leadership), because these factors are the main contributors to worker positive behaviour for improving productivity.

Motivation provides the force and desires as well as the wish and determination which activate workers' actions towards work. As such motivation is more likely to influence the desire and self-determination to improve construction productivity through worker positive behaviour, provided the workers are skilled to perform tasks.

Responsibilities and accountability, through skill development of workers, enable workers to be motivated and to have capability, willingness and confidence to accept work delegation for the proper execution of work tasks. Skill development of workers enables workers to be motivated and to have the compatibility with work, willingness and confidence to accept responsibility and accountability for the proper execution of work tasks. Such work skill development should be done through worker training, and through good communication.

Communication is the vehicle for exchanging ideas, information and knowledge regarding work, reward and relationship between parties and different stakeholders in a project. Communication is important as it may enable a worker to acquire skills, as well as good work relationships and cooperation which are necessary for improving productivity. Communication in a construction organisation is the channel for exchanging ideas, providing information and knowledge regarding work, reward and relationship between parties and different stakeholders in a project. Communication is important as it may enable a worker to acquire skills and good work relationships and cooperation which are crucial for improving productivity.

However, cultural differences may disrupt communication and make working together as a group of people difficult, where there are no common shared ideas, values, attitudes, traditions, beliefs, morals and customs. Organisational work culture is important for unifying the organisation with its environment and its work force so as to reduce uncertainty, create a sense of order and give continuity, identity and vision for the future for all employees to follow. It is also

important for creating the environment where a group of people working together may have common shared ideas, values, attitudes, traditions, beliefs, morals and customs, so as to improve their communication at work.

Leadership is necessary for employees to have a vision and a direction to follow. Leadership is linked to culture and this should be taken into account. Leaders may influence and transform workers because most organisations exist because they want work done. Effective leaders motivate followers to accomplish tasks in organisations. Leadership is thus required in the motivation of workers and development or creation of an organisational culture which can inspire and motivate workers to improve productivity.

The literature review presented in Chapters 2 to 6 focussed mainly on important human factors usually associated with supporting the implementation of motivation within an organisation so that when they are present motivation may be implemented more efficiently.

The review of literature on the main human factors included motivation, skill development, communication, organisational culture and leadership, which resulted in the identification, investigation and ranking of seven human behaviour subfactor groups, presented and discussed below.

Interpersonal relationships influence good working relationships, including respect, trustworthiness and cooperation at work. These good work relationships are necessary to minimise or avoid work conflict. Interpersonal relationships as a factor may be encountered in motivation, communication in organisations and organisational work culture.

Skills development for staff involves matching workers' skills with the required task performance levels. Skill development is important for providing career growth and development for workers, and also motivates and commits workers to the organisation. Skill development as a subfactor is found only under the roles and responsibilities skill main factors.

Remuneration and fringe benefits involve satisfying workers' basic needs and these factors are found only in motivational factors.

Staff's work conditions and welfare involve the nature of tasks and work environment, including treatment of workers. These factors are found in roles and responsibilities, communication in organisations and organisational work culture, and they are necessary for motivation to effectively influence workers towards improved productivity.

Communication is the channel for exchanging ideas, information and knowledge regarding work, reward and relationships between parties and different stakeholders in a project. Communication is important as it may enable a worker to acquire skills and good work relationship and cooperation, which are necessary for improving productivity. As a subfactor it may be found in communication within organisations and organisational work cultures.

Management style and traits concern how management in an organisation communicates and treats their workers and is important for the motivation of workers towards improving productivity. It may be found in leadership and communications in organisations main factor groups.

Tasks (roles) involve the design of work itself. If the work is designed such that it is challenging, it may motivate a worker. This subfactor is found within the roles and responsibility main factor group.

The literature review of the seven subfactors of interpersonal relationship, skill development, remuneration and fringe benefits, work conditions and staff welfare, communication, management style, and tasks (roles) resulted in the identification and investigation of 64 sub-subfactors, with the lowest ranked identified as charisma (VS – 3.43) and the highest ranked as staff ability and willingness to accept responsibility (ES – 4.49). The 64 sub-subfactors fall under the above seven subfactors and is found to be very to extremely important and necessary for influencing positive worker behaviours for improved productivity and may be classified as discussed below.

An attractive salary, money incentives, housing, lunches, health care, transport, employment contracts, and health and safety at work, fall under the remuneration and fringe benefits subfactors. These sub-subfactors; role is to satisfy workers' basic needs and to motivate workers.

Value and respect, recognition, praise, work participation, good work relationships, love, and trustworthiness, fall under interpersonal relationships. These sub-subfactors help to minimise conflict and encourage communication and motivation of workers for improving productivity.

Responsibility, training, experience, self-esteem, mentoring, self-efficacy, learning, coaching, basic education, and literacy, fall under the skill development subfactor. The role of these sub-subfactors is to raise worker skill capability and willingness to accept responsibility for proper execution of work.

Independence of tasks, interesting work, performance commitment, work economy, work quality, work opportunity, task specificity, task significance, challenging work, work plan, own knowledge and ideas, task difficulty, task variety, equal opportunity and treatment, fall under staff work conditions and welfare. The role of these sub-subfactors is to influence worker motivation and satisfaction with tasks they perform through the knowledge of the importance of their contribution to work success.

Sharing in knowledge and information, open communication, mutual trust, feedback, listening, understandable language, communication flow, information frequency, regulation, timing and repetition, fall under the communication subfactor. These sub-subfactors contribute in enabling a worker to acquire skills and good work relationships and cooperation which are necessary for improving productivity.

Career development, company policies, informal organisation structure, empathy for staff, supervision by example, intellectual stimulation, inspirational motivation, influence, consideration, management by exception (passive or active) and charisma, fall under management styles. Management style is required in an organisation to communicate and treat workers in ways that influence loyalty and ensures commitment of workers which in turn ensures an improved productivity.

The evaluation shows that all 64 sub-subfactors are very significant to extremely significant in influencing positive behaviour for improved productivity and as such none may be ignored. It was further found that 21 of them are extremely significant while 43 of them are regarded as very significant for positive worker behaviours that influence improved construction productivity.

As part of findings, these 21 out of 64 were identified as extremely significant behaviour sub-subfactors and should at all times be presented in a work environment to ensure worker positive behaviour to be influenced as they all have a mean index of more than (ES-4.20).

The results of this study show that the 64 sub-subfactors, when present in a construction work situation, can influence four behaviour groups as follows:

Motivational behaviours, which are different from motivational factors, are persisting workers' actions towards work which are likely to ensure or influence the improvement of productivity, whereas motivational factors are motivational human factors which influence positive worker behaviour to occur. As such motivation behaviour is more likely to influence the desire to take action to improve construction productivity, provided the workers are skilled to perform tasks,

while motivational factors on the other hand are success factors required to influence motivational behaviours. Motivational behaviours are influenced by the following sub-subfactors: an attractive salary, money incentives, housing, lunches, health care, transport, employment contracts, and health and safety at work. These fall under the remuneration and fringe benefits subfactors, while value and respect, recognition, praise, work participation, good work relationships, love, trustworthiness, fall under interpersonal relationships.

Commitment behaviours, which differ from commitment factors as commitment behaviours, are worker actions which compel workers to be obligated or emotionally compelled to act for a cause. In terms of this study such a cause would be the improvement of construction productivity, while commitment factors on the other hand are success factors required to influence commitment behaviours. Commitment behaviours are influenced by the following sub-subfactors: career development, company policies, informal organisation structure, empathy for staff, supervision by example, intellectual stimulation, inspirational motivation, influence, consideration, management by exception (passive or active) and charisma.

Satisfaction behaviours differ from job satisfaction factors as it concerns the attitude workers hold for taking actions towards their jobs or tasks, which may include emotions of happiness or unhappiness with the work and the organisation. When workers are happy, they may act to improve productivity. While satisfaction factors on the other hand are success factors required to influence satisfaction behaviours. Satisfaction behaviours are influenced by the following sub-subfactors: independence of tasks, interesting work, performance commitment, work economy, work quality, work opportunity, task specificity, task significance, challenging work, work plan, own knowledge and ideas, task difficulty, task variety, equal opportunity and worker treatment.

Loyalty behaviours differ from loyalty factors as they are worker motivational actions of obedience which compel workers to agree to carry out orders and submit themselves to the organisation and may effect emotional attachment to the organisation. Loyalty ensures improved productivity, while loyalty factors on the other hand are success factors required to influence loyalty behaviours. Loyalty behaviours are influenced by the following sub-subfactors: career development, company policies, informal organisation structure, empathy for staff, supervision by example, intellectual stimulation, inspirational motivation, influence, consideration, management by exception (passive or active) and charisma.

Different strategies may be applied to create the presence of 64 sub-subfactors in a construction work situation in order to influence the 23 positive worker behaviours which were

found to be very to extremely important and necessary for improved productivity, and none may be disregarded.

These 23 positive behaviours are: completing tasks promptly, planning work, working hard, learning to improve skills, responding promptly to requests, correcting and solving work problems, being enthusiastic and optimistic, committed to the organisation success, being responsible and accountable, sharing knowledge and ideas, solving work problems and conflicts, helping others to improve, being achievement driven, asking about future projects, speaking well of own job and the company, being trustworthy, being cooperative and collaborative, abiding by company policy, promoting company, remaining with company in difficult times, performing more work than expected and making sacrifices for the good of company.

As part of the findings, 12 out of 23 were identified as extremely significant positive behaviours and should be encouraged in a work environment for improving productivity as they all have a mean index of more than (ES-4.20). These 12 positive behaviours represent higher levels of motivation, commitment and loyalty.

9.5 Conclusion of the research

In the study, 64 human behaviour sub-subfactors, as indicated above, are very to extremely important in influencing construction productivity. These 64 factors were categorised in five main groups and seven sub-groups. The five main groups included motivation, roles and responsibilities, communication, organisational culture and leadership. The most effective main factor group was determined as organisational communications factors and evaluated as extremely significant (ES – 4.20), while the lowest ranked group was leadership (very significant VS – 3.80).

The conclusions which may be drawn from the five main factors groups is that since communication, motivation and work culture rank higher, construction practitioners should pay more attention to, and invest more resources in these factors to increase the likelihood of influencing positive worker behaviour for improved productivity.

The five main groups were further sub-divided into seven sub-groups, namely interpersonal relationships, skill development for staff, remuneration and fringe benefits, staff work conditions and welfare, communication, management style and traits and tasks (roles). The sub-group

factors showed interpersonal relationship (ES – 4.34) as most important and tasks (roles) (VS- 3.71) as least important.

The seven sub-group factors constituted interpersonal relationship (ES – 4.34), skills development for staff (VS – 4.18), remuneration and fringe benefits (VS – 4.11), staff work conditions and welfare (VS – 4.11), communication (VS – 4.06), management style and traits (VS – 3.99) and lastly tasks (VS – 3.71). The most effective of this subfactor group was identified as interpersonal relationship factors and was evaluated as extremely significant (ES – 4.34), while the group ranked as least effective was tasks (very significant VS – 3.71).

The conclusion which may be drawn from the seven subfactors groups is that since interpersonal relationships, skills development for staff and good remuneration and fringe benefits rank higher, construction practitioners should pay more attention and resources to these subfactors to increase the likelihood of influencing positive worker behaviour for improved productivity.

Regarding the 64 sub-subfactors, 21 sub-subfactors were found to be extremely important in influencing positive behaviour. The maximum index for the 64 behaviour sub-subfactors was 4.49 (ES) while the minimum index was 3.43 (VS). The study shows that all 64 sub-subfactors identified and investigated are very significant to extremely significant and necessary for influencing positive worker behaviour. The findings of the research also established the most important main human factor influencing groups as communications and good interpersonal relationships, while the most important sub-subfactor among the 64 sub-subfactors investigated is the staff's ability and willingness to accept responsibility and accountability.

The conclusion which may be drawn from the 64 sub-subfactors identified and investigated is that they are all required and necessary for influencing of positive behaviour for improved construction productivity. However, since the 21 sub-subfactors identified as extremely significant ranked higher, construction practitioners should give more attention and resources to these sub-subfactors to increase the likelihood of influencing positive worker behaviour for improved productivity.

Regarding the positive behaviours, motivational positive behaviour is the most effective (ES – 4.31) and loyalty (VS – 4.09) the least effective. From the 23 positive behaviours identified and investigated, completing tasks at hand on schedule was found to be the most important (ES – 4.43), while making sacrifices for the well-being of the company is least important (VS – 3.78).

The conclusion which may be drawn regarding the 23 positive behaviours identified and investigated is that whatever the strategy; they are all required and necessary for the improvement of construction productivity.

However, since the 12 positive behaviours identified as extremely significant and ranked higher, construction practitioners should pay more attention and resources to these positive behaviours to increase the likelihood of achieving improved 64 sub-subfactors to influence positive behaviours. The 23 positive behaviours, which include the 12 behaviours identified as extremely significant, remain the same for most workers and can all be regarded as key behaviour indicators for motivation, commitment, satisfaction and loyalty.

9.6 Contribution to knowledge

The following can be regarded as a very important contribution of this research project. Firstly, building on the existing knowledge of human motivation, skill development, communication, culture and leadership, this research has demonstrated that the identity and knowledge of human factors associated with motivation, skill development, communication, culture and leadership are very important in influencing positive behaviour of workers. Secondly, it is shown that these human behaviour factors, if implemented by management in a work environment, will result in positive behaviour which will increase productivity and in turn increase profitability in construction businesses. Thirdly, the research has provided greater insight into the influence of human behaviour factors on construction productivity, in particular providing empirical evidence of the influence of the important human factors that should be present in a work place on positive behaviour that will improve construction productivity. Fourthly, it has provided empirical evidence of what the most important positive behaviours are that industry practitioners should recognise in order to determine the level of motivation, commitment, satisfaction and loyalty of their workers and staff.

More importantly, this study identified the knowledge of human factors and behaviours which, when implemented, may improve productivity and profitability. Construction industry practitioners such as project and construction managers can implement these factors and identify behaviours in their employees to determine whether or not their employees are motivated, committed, satisfied and loyal. This observation may give management better insight into the effectiveness of their current management practices in fostering those kinds of behaviours which are important. Accordingly, managers can better assess the outcomes of their

human resources management decisions and improve management practices related to human factors.

Beyond the direct outcomes of the research contribution discussed above the research has also identified important behaviours which can be used in the construction industry to gauge the various levels of motivation, commitment, satisfaction and loyalty of construction workers. All the above may be regarded as a significant contribution to knowledge of the influence that human behaviour and identified factors can have on productivity in the construction industry.

9.7 Limitations

The research objective was to identify important human factors which influence positive behaviour for improved productivity, and as such the research was limited to the human factors of motivation, skills development, communication, organisation culture and leadership. Although limited to five factors, it is known that productivity could be influenced by many other human factors and as such it may be difficult to generalise the findings of the research.

Secondly, human factors are sometimes intrinsic in nature and may be difficult to measure. Accurately recording empirical evidence may also pose a problem. As such, a quantitative and descriptive method of research was applied to determine the data through the perceptions of the participants and to rank the data of the results to determine the relevant importance of factors and behaviours at integral intervals of 0.80, which is too close to clearly see any significant differences. Therefore, when measuring data from human factors, it is difficult to distinguish one group of factors from another or to assess that each group is entirely independent. Sometimes the solution may be to consider all the human factors together as one group, but then perfect measures may be difficult.

Thirdly, the study was carried out in Botswana and South Africa which are both regarded as developing countries. Developed countries and countries with different cultures and social needs such as the United States, China, Australia and Japan may not display the same factors and positive behaviours.

Despite the limitations noted above, the validity of the research undertaken and its main findings still stands. It should be remembered that scientific research is a never-ending quest at the understanding of some phenomenon which requires continuous measurement and examination of assessment and this research is just one step in this quest.

9.8 Recommendation for industry

It is to be noted that the parameters for determining project success are time, cost and quality, which has been rarely achievable. This may be because of the human influence behaviour factors for improved productivity, which were unknown and neglected. Within the limitations of this research study, there are some indication of aspects where there are potential for improvements in the industry. A number of recommendations can be put forward to provide some directions for improvement in this regard:

- To improve the likelihood of improved construction productivity, it is recommended that project managers and construction managers pay attention to communication and good interpersonal relationships, worker skills development, and good remuneration and fringe benefits in their project implementation.
- To improve positive behaviour for improved productivity, project managers and construction managers should devote more effort and resources towards their management practices so as to include the following human behaviour factors: responsibility and accountability, trust, knowledge and information sharing, good relationships, good salaries, money incentives, transparency, respect, recognition, training, staff development, feedback, experience, self-esteem, work quality, listening, supervision by example and understandable language in the work place.

In summary, human behaviour management matters. As construction organisations strive for improved performance outcomes, it is recommended that construction industry practitioners, who are the beneficiaries of improvement in performance, devote more resources and attention towards human behaviour management within their project organisations which allow all the factors identified and investigated in the study to be present within their organisation.

9.9 Recommendations for future research

The construction industry has sometimes been described as adversarial and fragmented because of the many stakeholders involved. Issues of dispute and personal conflict may sometimes threaten the improvement of construction productivity. Adversarial attitudes and behaviours between project participants can disrupt the improvement of construction productivity. This is an area of research, despite its relevance and importance, missing from the current construction management literature. This research, despite its limitations, may offer a great potential and a starting point for the study of the attitudes and behaviours of construction

workers in construction projects. As such, based on the findings of the research and the limitations that have been noted, a number of recommendations are put forward to provide some direction for future research in this domain.

- That similar research is undertaken in developed and other developing countries in order to get more understanding on these factors and positive behaviours in order to contribute to behaviour management knowledge, and possibly propose a model for such management. The findings of such a study may increase cooperation in construction project implementation and minimise disputes and human conflicts.
- That, rather than focusing on the perception of the participants, similar research to be carried out to find out to what extent construction organisations are practicing human behaviour management in order to uncover and expose the negative forces that are resisting change towards behaviour management so that 'a behaviour management change framework' can be developed to improve construction productivity.

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APPENDIX A

Questionnaire

13/11/2012

Dear respondent

You are kindly requested to take a moment of your time to complete and return the attached questionnaire, together with your recommendations, if any.

This questionnaire is necessary for the submission of a thesis as a fulfilment of the requirements for the PhD degree in Property Development Science at the University of the Free State, Department of Quantity Surveying and Construction Management, Bloemfontein, South Africa.

The research focuses on the influence of human behaviour factors on construction productivity in Botswana as in South Africa.

The result of this study may benefit the construction industry in terms of completing projects on time, budgeted cost and required quality.

It is with the above view that you have been selected to contribute your valued experience and expertise in this study so that an unbiased research conclusion may be reached.

All information given will be treated strictly as confidential and only used for purposes of this study. No reference to you as the source of information will be disclosed.

Thank you for your valuable participation.

Professor JJP (Basie) Verster
Promoter (Study leader)

Marcellus Orando
Candidate

THESIS QUESTIONNAIRE SURVEY

Please use **X** to mark the box most applicable to you.

SECTION A

Profile of the respondent

A1. Please state your entity (**tick appropriately**)

- Individual
- Firm/Company

A2. Are you registered with a professional council or board?

- Yes
- No

A3. What is your qualifications/expertise?

- Secondary school certificate
- Tertiary institution diploma
- Tertiary institution first degree
- Tertiary institution more than one degree
- Other (specify) _____

A4. Which category best describes your position as a stakeholder of the construction Industry (**tick appropriately**).

- Project/Construction Manager
- Architect

- Project coordinator
- Quantity Surveyor
- Electrical engineer
- Mechanical engineer
- Civil/Structural engineer
- Building owner/client
- Building/construction contractor
- Foreman
- Charge hand
- Driver
- Crane operator
- Other (specify) _____

A5. Numbers of years' experience in your profession?

- 1 – 5 years
- 6 – 10 years
- 11 – 20 years
- 21 – 45 years

HOW TO ANSWER SECTIONS B AND C OF THIS QUESTIONNAIRE

Please indicate by circling the most appropriate number, in your view, as explained below:

- 1. Strongly disagree, 2. Disagree, 3. Neither agree nor disagree 4. Agree,**
- 5. Strongly agree**

SECTION B: BEHAVIOUR FACTORS

Section B is about respondents' views on the behaviour factors, which when present in a workplace, may influence positive construction worker behaviour for improving or increasing productivity.

B1. MOTIVATIONAL FACTORS

To what extent would you agree with the list of motivational factors below as influential in a work place in creating positive behaviour which may improve construction productivity?

B1.1. Remuneration and fringe benefits

Salary (which is attractive)	1	2	3	4	5
Money incentives (as form of encouragement for good work)	1	2	3	4	5
Company staff housing (to ensure family and worker are accommodated)	1	2	3	4	5
Staff lunches (to ensure that workers are healthy for productive work)	1	2	3	4	5
Provision of health care to staff and their family	1	2	3	4	5
Transport for workers (to ensure they reach work sites easily)	1	2	3	4	5
Long term employment contracts (to give work security)	1	2	3	4	5
Health and safety at work	1	2	3	4	5

B1.2 Staff

Participating in decision at work (to give a sense of belonging to employees)	1	2	3	4	5
Being praised when it is necessary (after good work achievement)	1	2	3	4	5
Being given due value and respect at work	1	2	3	4	5

Being given due recognition(for the good contribution of work success)	1	2	3	4	5
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B2. ROLES AND RESPONSIBILITIES (SKILLS FACTORS)

To what extent would you agree with the list of skill factors below as influential in a work place in creating positive behaviour which may improve construction productivity?

B2.1 Task (Roles)

Use of own knowledge and ideas at work	1	2	3	4	5
Opportunity to plan and work independently (autonomously)	1	2	3	4	5
Task difficulty (doing work which requires skill to accomplish)	1	2	3	4	5
Task specificity (where a worker's task is specifically identified and clear in respect of execution)	1	2	3	4	5
Task performance commitment (where it seems clear that a worker is committed to perform a task at hand)	1	2	3	4	5
Task variety (where a worker requires a number of skills to perform)	1	2	3	4	5
Task significance (where task is important for company success)	1	2	3	4	5
Interesting work (where the work attracts attention of most people)	1	2	3	4	5
Challenging work (where work requires both good skill and knowledge to accomplish)	1	2	3	4	5
Independence of tasks (where a worker can perform a task independently without continuous supervision)	1	2	3	4	5
Work economy (where work is performed efficiently without waste of resources)	1	2	3	4	5
Work opportunity (to use or apply actual skills at work)	1	2	3	4	5

Work quality (where the result of the work is a good product)	1	2	3	4	5
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B2.2 Skill development for Staff

Staff training at work	1	2	3	4	5
Staff learning at work	1	2	3	4	5
Staff coaching at work	1	2	3	4	5
Staff mentoring at work	1	2	3	4	5
Literacy level of staff	1	2	3	4	5
Basic education level of staff	1	2	3	4	5
Staff work experience	1	2	3	4	5
Staff self-efficacy	1	2	3	4	5
Staff self-esteem	1	2	3	4	5
Staff ability and willingness to accept responsibility	1	2	3	4	5

B3. COMMUNICATION FACTORS IN CONSTRUCTION ORGANISATIONS

To what extent would you agree with the list of communication factors below as influential in a work place in creating positive behaviour which may improve construction productivity?

B3.1 Communication

Open communication at work	1	2	3	4	5
Sharing knowledge and work information	1	2	3	4	5
Feedback as part of effective communication	1	2	3	4	5
Information frequency	1	2	3	4	5

Information repetition	1	2	3	4	5
Information regulation (passing information at suitable times for it to be understood)	1	2	3	4	5

B3.2 Interpersonal Relationships

Good co-worker relationship	1	2	3	4	5
Being accepted and loved at work	1	2	3	4	5
Trustworthy relationship	1	2	3	4	5

B3.3 Management style (Management communication with workers)

Management listening to staff	1	2	3	4	5
Management timing communication with staff (where communication with staff happens at/during a specific time)	1	2	3	4	5
Management using understandable language in their communication	1	2	3	4	5
Management using proper communication flow to staff	1	2	3	4	5
Management trusting staff and staff trusting management	1	2	3	4	5

B4. ORGANISATIONAL WORK CULTURE (CULTURE FACTORS)

To what extent would you agree with the list of culture factors below as influential in a work place in creating positive behaviour which may improve construction productivity?

B4.1 Company

Company policies which value, recognise and respect workers	1	2	3	4	5
Informal organisation structure which allows free consultations	1	2	3	4	5

between workers and management					
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B4.2 Staff

Equal treatment for all workers	1	2	3	4	5
Workers having equal opportunity at work	1	2	3	4	5
Staff career development and growth	1	2	3	4	5

B4.3 Management style

Management having empathy for staff and satisfying their needs	1	2	3	4	5
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B5. LEADERSHIP FACTORS

To what extent would you agree with the list of leadership style factors below as influential in a work place in creating positive behaviour which may improve construction productivity?

B5.1 Staff

Ability to influence others	1	2	3	4	5
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B5.2 Management style and traits

Contingent reward (work given and reward received on its completion)	1	2	3	4	5
Management-by-exception (active) (continuous interference if work is not performed to required standard by the subordinate)	1	2	3	4	5
Management-by-exception (passive) (interference only if things are really going wrong)	1	2	3	4	5

Charisma (idealised influence) (use of personality to influence people)	1	2	3	4	5
Inspirational motivation (by speech and motivation)	1	2	3	4	5
Intellectual stimulation (encouragement to apply the mind and intellectual skills)	1	2	3	4	5
Individualised consideration (special relationship between leaders and followers or subordinates)	1	2	3	4	5

B5.3 Task

Supervision by example	1	2	3	4	5
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SECTION C: POSITIVE BEHAVIOURS

Section C is about respondents' views on the knowledge and identification of positive construction worker behaviours, which when present in a working place, may improve or increase construction productivity as well as determine the levels of worker motivation, commitment, satisfaction and loyalty of workers towards construction productivity.

Rate the behaviours listed in C1-C4 on a scale of 1 to 5 where 1 is low and 5 is high on the knowledge and realisation of the effect of these behaviours on motivation, commitment, satisfaction and loyalty levels of workers towards improved construction productivity.

C1. Motivation

Worker commitment to the organisation's success goals towards the client	1	2	3	4	5
Working hard to improve quality and productivity	1	2	3	4	5

Taking action to improving skill through learning opportunity to advance and personally grow so as to be fully skilled	1	2	3	4	5
Being enthusiastic and optimistic at work	1	2	3	4	5
Responding promptly to requests	1	2	3	4	5
Correcting and solving work problems	1	2	3	4	5
Completing task at hand on schedule	1	2	3	4	5
Planning own work	1	2	3	4	5

C2. Commitment

Being achievement driven	1	2	3	4	5
Willing to take responsibility and accountability at work	1	2	3	4	5
Asking about future projects	1	2	3	4	5
Communicating effectively to resolve work problems and conflicts	1	2	3	4	5
Communicating effectively to share knowledge and ideas at work	1	2	3	4	5
Helping others to improve on work	1	2	3	4	5

C3. Satisfaction

Speaking of company with positive regard	1	2	3	4	5
Speaking of own job with positive regard	1	2	3	4	5

C4. Loyalty

Being trustworthy	1	2	3	4	5
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Being cooperative and collaborative	1	2	3	4	5
Performing more work than expected	1	2	3	4	5
Remaining with company in difficult times	1	2	3	4	5
Making sacrifices for well-being of company	1	2	3	4	5
Abiding by company policy	1	2	3	4	5
Promoting company	1	2	3	4	5

SECTION D

General comment(s), if any, regarding the above study

D1. Your comment here:

THANK YOU FOR YOUR TIME!