THE GLASS CEILING IN CONSTRUCTION COMPANIES IS STILL FIRMLY IN PLACE.
WHAT IS THE SECRET: GENDER DIFFERENCES OR LACK OF ABILITIES?

CLAUDI MARAIS
2010
THE GLASS CEILING IN CONSTRUCTION COMPANIES IS STILL FIRMLY IN PLACE.
WHAT IS THE SECRET: GENDER DIFFERENCES OR LACK OF ABILITIES?

BY: CLAUDI MARAIS
26100348

Submitted in fulfillment of part of the requirements for the degree of
B.Sc (Hons) (Construction Management)

In the faculty of Engineering, Built Environment and Information Technology
University of Pretoria

Study Leader
Mr. J. H. Cruywagen

OCTOBER 2010
DECLARATION BY STUDENT

I, the undersigned, hereby confirm that the attached treatise is my own work and that any sources are adequately acknowledged in the text and listed bibliography.

Name: Claudi Marais

Signature of acceptance and confirmation by student  Date
ABSTRACT

Title of treatise : The glass ceiling is still firmly in place. What is the secret: Gender Differences or Lack of Abilities?

Name of author : Claudi Marais

Name of study leader : Mr. J. H. Cruywagen

Institution : Faculty of Engineering, Built Environment and Information Technology

Date : October 2010

Construction management requires a unique body of knowledge, skills and competencies. Women experience difficult circumstances and influences on entering the construction industry as professional managers. The origin of such difficulties has been debated at length but no real remedy seems to be eminent. This creates the uncertainty whether the differences are gender related or competency related.

Knowledge, skills and competency differences and its practical application is researched to determine its possible contribution to the under – representation of women. The methodology is restricted to literature study due to the lack of women managers in construction companies.

No evidence exists in the literature to substantiate claims of gender related differences in knowledge, skills and competencies of construction managers.
ACKNOWLEDGEMENTS

I would like to thank Mr. Felix le Roux for the great deal of effort he put into the final product and the insightful discussions I had with him were invaluable.

Sincere thanks to my mother for her generous input and support.
# TABLE OF CONTENTS

Declaration by student .................................................. i

Abstract .............................................................................. ii

Acknowledgements ............................................................. iii

Chapter 1 INTRODUCTION .................................................. 2

1.1. Background ................................................................... 2
1.2. Main problem ............................................................... 10
1.3. Sub – problems ............................................................... 11
   1.3.1. What knowledge, skills and competencies are required from professional construction managers? 11
   1.3.2. Differences in knowledge, skill and competency application, are they gender related? 11
   1.3.3. Is there a gender related difference in management and leadership? 12
   1.3.4. How does the construction industry of South Africa compare internationally? 13
1.4. Limitations ................................................................. 13
1.5. Definitions of Terms .................................................... 14
1.6. Abbreviations ............................................................. 16
1.7. Assumptions ............................................................... 16
1.8. Importance of Study ................................................... 17
1.9. Research Methodology ................................................ 18

Chapter 2 THE REQUIREMENTS OF A CONSTRUCTION MANAGER 19

2.1. General management and its origin ............................. 19
2.2. Construction and Project Management ......................... 23
2.3. Summary ..................................................................... 42
2.4. Conclusion .................................................................... 43
2.5. Hypothesis .................................................................... 44

Chapter 3 DIFFERENCES, ARE THEY GENDER RELATED? 46

3.1. Introduction ............................................................... 46
LIST OF FIGURES AND TABLES

FIGURE 1 WOMEN IN CONSTRUCTION 1
FIGURE 2 INDICATION OF THE HISTORY OF GEN MANAGEMENT 19
FIGURE 3 PRINCIPLES OF MANAGEMENT 22
FIGURE 4 THE MANAGER'S ROLE 23
FIGURE 5 THE EVOLVING ROLE OF THE PROJECT MANAGER 27
FIGURE 6 COMPONENTS OF EMOTIONAL INTELLIGENCE 78

TABLE 1 EXECUTIVES IN SELECTED CONSTRUCTION ENTITIES IN SOUTH AFRICA AND PRETORIA 3
TABLE 2 CAREER CHOICE BETWEEN MEN AND WOMEN 5
TABLE 3 INFLUENCES BEHIND CAREER CHOICES 6
TABLE 4 INFLUENCE BEHIND NOT SELECTING CAREERS IN CONSTRUCTION 7
TABLE 5 SOME NEGATIVE WORK CONDITIONS TO CONSIDER ON ENTERING THE CONSTRUCTION INDUSTRY 8
TABLE 6 GENDER RELATED DIFFERENCES 61
TABLE 7 THE DIFFERENCE BETWEEN MANAGERS AND LEADERS 73
TABLE 8 EMPLOYMENT BY INDUSTRY AND SEX 1997 89
Imagine a woman who believes it is right and good she is a woman
A woman who honours her experience and tells her stories
Who refuses to carry the sins of others within her body and within her life!

Imagine a woman who believes she is good.
A woman who trusts and respects herself, who listens to her needs
And desires, and meets them with tenderness and grace.

Imagine a woman who has acknowledged the past’s influences on the present.
A woman who has walked through her past
Who has healed her present.

Imagine a woman who authors her own life.
A woman who exerts, initiates and moves on her own behalf
Who refuses to surrender except to her truest self and to her wisest voice.

Imagine a woman who names her own gods.
A woman who believes her body is enough, just as it is.
Who celebrates her body and its rhythms and cycles as an exquisite resource.

Imagine a woman who values the woman in her life
A woman who sits in circles of women, who is reminded
Of the truth about herself when she forgets.

IMAGINE YOURSELF AS THIS WOMAN!
CHAPTER 1

INTRODUCTION

1.1. BACKGROUND

The topic of “PROFESSIONAL WOMEN IN CONSTRUCTION” becomes increasingly important to women construction managers nearing graduation.

It is only then that aspiring construction managers are confronted with the concept of an age old “invisible barrier” that is keeping women from advancing in their careers in the construction industry. According to folklore it is effectively excluding women from rising to top management positions. The barrier is referred to as “The Glass Ceiling”. It was first used by Hymowitz and Shellhardt in a 1986 Wall Street Journal special report on the corporate world where access to the top for women was blocked by corporate tradition and prejudice (Jackson, 2001).

During the initial investigation on whether this phenomenon actually exist the following were determined:

- No formal official body is taking care of gender equality related matters for construction professionals in the construction industry. This appears to be the case across the globe.
- The glass ceiling does exist and shows not even as much as a crack.
- Not only is the glass ceiling firmly in place but it seems to have acquired added assistance through camouflage tactics employed for survival. The tactic is an age old means to conceal true motives by
elaborately feigning good intentions so as to gain an end, namely: by
“Pulling the wool over someone’s eyes”. Are top management filled
with BEE appointments that appear to solve the “professional women
in construction’s” problem.

One way of determining the situation is to go “window shopping” on the
websites of the top management positions for the most well known
construction companies in Pretoria and South Africa. The following table
represents a summary of the current top management employment in
selected construction companies.

<table>
<thead>
<tr>
<th>NUMBER OF CONSTRUCTION MANAGERS, EXECUTIVES IN CONSTRUCTION COMPANIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>WHITE MEN</td>
</tr>
<tr>
<td>WHITE WOMEN</td>
</tr>
<tr>
<td>BLACK MEN</td>
</tr>
<tr>
<td>BLACK WOMEN</td>
</tr>
<tr>
<td>TOTAL NUMBERS</td>
</tr>
<tr>
<td>MEN</td>
</tr>
<tr>
<td>WOMEN</td>
</tr>
<tr>
<td>WOMEN CONSTRUCTION PROFESSIONALS</td>
</tr>
</tbody>
</table>

Table 1 Executives in selected construction entities in South Africa and Pretoria

It was rumored that professional women construction managers are
underrepresented in the construction industry’s top management. That is not
a true statement. Women construction managers and professionals are non-
eXistent in the top management of the construction companies selected in
table 1 on page 3. It shows the number of white men, white women, black men and black women who are construction managers, chief executives, executive and non-executive directors and senior managers, as available on their websites. The women managers make up roughly 20% of the total and comprise mainly black woman which might give rise to the notion that they are due to race related affirmative action. In other words: The percentage of women in top management was improved by employing multidisciplinary and black women and due to no government pressure no women was promoted to top management with the necessary construction professional training in construction management knowledge, skills and competencies.
The following Employment characteristics exist:

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WOMEN</strong></td>
<td></td>
</tr>
<tr>
<td>Financial activities</td>
<td>Social workers</td>
</tr>
<tr>
<td>Education services</td>
<td>Paralegals and legal assistants</td>
</tr>
<tr>
<td>Healthcare</td>
<td>Teachers</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>Nurses</td>
</tr>
<tr>
<td>Office and administrative support</td>
<td>Speech Pathologists</td>
</tr>
<tr>
<td></td>
<td>Dental hygienist</td>
</tr>
<tr>
<td></td>
<td>Mails, housekeeping cleaners</td>
</tr>
<tr>
<td></td>
<td>Childcare workers</td>
</tr>
<tr>
<td><strong>MEN</strong></td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>Chief Executives</td>
</tr>
<tr>
<td>Construction</td>
<td>Politicians</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Fire Fighters</td>
</tr>
<tr>
<td>Forestry</td>
<td>Police and patrol officers</td>
</tr>
<tr>
<td>Transportation and utilities</td>
<td>Electricians</td>
</tr>
<tr>
<td>Farming</td>
<td>Dentists</td>
</tr>
<tr>
<td>Computer and Mathematical</td>
<td>Surgeons</td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Career choice between men and women (Source: Wikipedia, 2010)

Table 2 summarizes the sectors in which women are likely to pursue their careers. It also lists the positions women are found to be in higher numbers. Men have an eleven times higher death rate in the mining, construction, agriculture and forestry sector which also have the result that life insurance are higher for men. (Wikipedia website at http://en.wikipedia.org/wiki/Gender_differences)

Gender differences include some traits that are obvious like physical composition, physical health, neurology and empathy. Where sex differences
exist, there is often considerable overlap between the sexes, it is unclear how many of these hold true across different cultures.

When young people are coming closer to the end of their school years it is time to start considering career choices. With the older generation stereotyping, young women will find it difficult in choosing a nontraditional field, such as construction. Stereotyping should start to be demolished and it should start at school levels. Proper education and preparation should be given / available for young girls to consider male dominated industries and young men to realize that inequality in the work place is long forgotten.

Influences behind Career Choices

<table>
<thead>
<tr>
<th>Students statements</th>
<th>Males (%)</th>
<th>Females (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities in the industry</td>
<td>27.2</td>
<td>11.5</td>
</tr>
<tr>
<td>Looking at something I constructed makes me feel good – passion</td>
<td>8.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Fascinated by beauty of buildings</td>
<td>13.6</td>
<td>8.6</td>
</tr>
<tr>
<td>My background and family members</td>
<td>15.3</td>
<td>11.5</td>
</tr>
<tr>
<td>The fact that there were few women</td>
<td>0.0</td>
<td>20.0</td>
</tr>
<tr>
<td>To challenge the perception that construction is for males</td>
<td>0.0</td>
<td>22.9</td>
</tr>
<tr>
<td>Successful women in construction</td>
<td>1.7</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Table 3 Influences behind career choices (Madikizela, 2010)

Table 3 illustrates why this research cannot be done by a questionnaire. The negative image that the construction industry has can be due to the negative image perceived over numerous years, the lack of education or lack of interest.

To persuade women to consider construction as an alternative career they will require role models. The worst kind of role model is an unhappy and
disillusioned role model. Table 3 on page 6 indicates why women do not select construction as a career.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing</td>
<td>30.8</td>
<td>26.7</td>
</tr>
<tr>
<td>Poor working conditions</td>
<td>15.3</td>
<td>10.0</td>
</tr>
<tr>
<td>Poor safety and risk</td>
<td>11.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Money</td>
<td>7.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Discrimination against women</td>
<td>0.0</td>
<td>13.3</td>
</tr>
<tr>
<td>Lack of understanding of career...</td>
<td>7.7</td>
<td>6.7</td>
</tr>
<tr>
<td>Negative image of the construction...</td>
<td>5.7</td>
<td>26.7</td>
</tr>
<tr>
<td>Lack of employment in construction</td>
<td>3.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Sexual harassment done by men</td>
<td>0.0</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Table 4 Influence behind not selecting careers in construction (Madikizele, 2010)

According to Madikzela (2010) “Women, therefore, have three choices, namely:

1) to be successful by behaving like men,
2) fail to adapt to the culture and leave, or
3) by not acting like men to remain in unimportant positions”
Aspiring entrants to construction find the scale loaded against women as the table here under indicates, such as:

<table>
<thead>
<tr>
<th>Negative work environmental related aspects to consider on entering a professional career in construction</th>
<th>WO</th>
<th>MW</th>
<th>M&amp;W</th>
<th>MM</th>
<th>MO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Protective clothing that fit persons with a smaller physique not being available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Management inequality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Different promotion standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Sex discrimination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Sexual harassment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Attitudes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Family life balance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Long / inflexible hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Poor working conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Culture issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 health &amp; safety factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Weather conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Allegations of reverse discrimination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Some negative work conditions to consider on entering the construction industry

Key to Table 5:
WO = Women only
MW = Mostly women
M&W = Men and women
MM = Mostly men
MO = Men only

The negative work conditions are a summative combination of various authors’ opinions.
The glass ceiling in construction companies is still firmly in place. This is an unfortunate fact that is not commonly known to young aspiring women entering a construction career as a professional, or is it? Do they know about the existence of the “ceiling”? Do they know that it refers to a limitation, or even a discrimination, that prevents them from upward advancement? Are they aware that the limitation is an unwritten and unofficial policy in construction companies? Is this factual or just another conspiracy theory? If glass ceilings do exist it would affect women from obtaining and securing a prestigious job in their organizations of employment. They would reach a point where progressing in their careers seems almost impossible.

The glass ceiling barrier is generally thought to be due to gender differences. Is it about biological and/or physiological characteristics, or is there more to it?

Is it possible that the barrier exist due to the lack of required abilities expected from construction professionals? Do women lack the education and expertise required? Are they hampered by other directly women related issues and drawbacks that they simply cannot compete on equal terms?

Momsen (1991) determined that “Women account for half the world’s population, perform two-thirds of the hours worked, receive one-tenth of the world’s income, and have less than one hundredth of the world’s property registered in their names.” He said the above 20 years ago!
1.2. MAIN PROBLEM

The main objective of this research is to determine the knowledge, skills and competencies which are needed to become a professional construction manager. Once this prescribed knowledge, skills and competencies are known, the differences between men and women in terms of their respective prescribed knowledge, skills and competencies are looked at. Whether or not it is concluded that there is no difference in the prescribed knowledge, skills and competencies, the issue of why there is still equality issues in the managerial positions will be addressed.

The focus will be on the construction industry but this is by no means the only industry that experiences inequality in managerial positions. Other industries are also branded with the male dominated image and women face the same barriers when working to achieve a higher managerial position.

All the people involved in a construction managerial position have the prescribed knowledge to be effective, how this knowledge is applied to effectively manage a construction project will differ from person to person. However the gender of the manager should not be the determinant of the outcome when applying the knowledge, skills and competencies.

With this study it can be clearly seen that South Africa is not the only continent that has inequality in management positions. The United Kingdom, the United States of America and down-under Australia also experience equality issues in their construction industries. Similar to South Africa, other world countries faces the same inequality issues in many of their large industry, which are branded as male dominated as well.
1.3. SUB-PROBLEMS

1.3.1. What knowledge, skills and competencies are required from professional construction managers?

HYPOTHESIS:
The basic skills of a construction manager are to be able to plan, organize, lead and control all activities included on a construction site. In addition to these basic skills, a manager should have efficient knowledge of construction, the economics and business law. Computer literacy is a skill required in the field together with good communication – and literacy skills. An effective construction manager must have the ability to lead, manage and motivate a team to ensure efficient production throughout the construction project.

1.3.2. Differences in knowledge, skill and competency application, are they gender related?

HYPOTHESIS:
It is obvious that men and women will differ in the styles, approaches and the way in which they apply their respective knowledge, skills and competencies in managing a construction project.

The knowledge, skills and competencies required by both male and female do not differ; women however must possess superior skills to effectively execute their responsibilities as construction managers. Not only are superior skills essential, but women have to work twice as hard as men who possess the same knowledge, skills and competencies.
As mentioned before, with the construction industry being male-dominated, women have to be more set in their way of applying this prescribed knowledge, skills and competencies.

It is important to keep abreast of new and innovative technology and developments to further improve the way of applying the management style and to be one step ahead of male managers in the same position.

1.3.3. Is there a gender related difference in management and leadership?

HYPOTHESIS:
It can clearly be seen that there is a difference in the number of men in managerial positions than women. But is this due to the difference between them or the difference in their knowledge, skills and competencies or is it purely an equality issue?

The managerial position is again male-dominated and the image of the construction industry creates the illusion that only men will be effective in the position. The styles and approaches may differ, yes, but that doesn't make men more superior to women.

The number of years experience will be to a greater advantage than the background, culture or gender of the person. With experience come knowledge, skills and competence – this per definition is what an effective construction manager requires.
1.3.4. How does the construction industry of South Africa compare internationally?

HYPOTHESIS:
Although all industries worldwide will experience inequality in the workplace, South Africa might be more focused on implementing policies and systems to address these issues.

Not only is inequality experienced in the construction industry, but in all the other industries. Other countries also face the issues of certain industries being male dominated with the narrow-minded thinking that women don’t belong in management positions.

1.4. LIMITATIONS

There are a vast amount of information regarding women in construction, the barriers, the pitfalls and all the background related issues preventing them entry and progression in the construction industry. However of all these issues only a few will be discussed and not in a lot of detail as the research is only to determine what the prescribed knowledge, skills and competencies are and why there are so few women in senior management positions.

A subject that will allow for extensive reading is harassment and discrimination — both of which is only mentioned, but not discussed. Harassment is a very real issue on construction sites and also in various other male-dominated industries.
Harassment, discrimination and the male dominated environment should not be the reason why women avoid entering these industries and working towards a career in a higher managerial position.

OTHER MINOR LIMITATIONS

- Personalities of women differ from men.
- Articles talk about women in construction, how do men experience the industry? Homosexuals, weaker personalities etc.
- The older generation still holds the stereotype toward women as construction managers.
- Aids
- Companies receive info of the challenges THEY will face when employing a woman.

1.5. DEFINITION OF TERMS

Construction manager: The research discusses construction managers in the industry. This includes construction managers, construction project managers, site managers and any senior manager in a construction company, unless specified otherwise. A construction manager is responsible for the basic planning, controlling, leading and managing of all activities included on a construction site.

Project manager: A project manager has a responsibility of planning, executing and closing the construction project. A project manager is a professional in the field.
Skills: “ability and capacity through deliberate, systematic and sustained effort to smoothly and adaptively carry out complex activities or job functions involving ideas, things and/or people.” (Business dictionary website at http://www.businessdictionary.com/definition/skill.html)

Knowledge: Knowledge is defined by the Oxford English Dictionary as expertise and skills acquired by a person through experience and/or education. (Wikipedia website at http://en.wikipedia.org/wiki/Construction_management)

Professionalism: “The thorough adherence to courtesy, honesty and responsibility in one’s dealings with customers and associates, plus a level of excellence that goes over and above the commercial considerations and legal requirements.” (Business Dictionary website at http://www.businessdictionary.com/definition/professionalism.html)

Professionalism is using state of the art expertise with the highest possible standards.

Expert: A professional with the acquired knowledge and skills in a particular field of study whose opinion is considered in fact finding, problem solving or understanding a situation. (Business Dictionary website at: http://www.businessdictionary.com/definition/expert.html)

Affirmative Action: This is a policy which takes race, colour, religion, sex and/or national origin into consideration to eliminate the discrimination in education, employment, public contracting and health problems. It focus is merely on women and minorities and is to promote equal opportunity. (Wikipedia website at: http://en.wikipedia.org/wiki/Affirmative_action)
**Competency:** To effectively execute tasks and meet objectives, skills and knowledge must be combined and used in harmony with each other.

**Built Environment:** The built environment is a system, including the physical components and the managing and operational management of the system.

### 1.6. ABBREVIATIONS

- PMBOK: Project Management Book of Knowledge
- SAWiC: The South African Women in Construction
- UNICEF: Unite for Children
- E.I.: Emotional Intelligence
- C. M.: Construction Manager

### 1.7. ASSUMPTIONS

The term construction manager is used throughout which means the person responsible for the project. The duties include those for the constructing of the project and functions of project management associated with the project.

It is assumed that the women in the construction management position experience challenges in the construction industry and that the reason inequality is addressed is because women tend not to enter the industry mainly due to this reason.
1.8. IMPORTANCE OF STUDY

When considering a career, women should be confronted with the same considerations as men. Gender should not be the issue.

Organizations and associations are constantly busy implementing policies and procedures to address all the issues in the construction industry together with supporting women in advancing in their careers as construction managers.

Clarity on the origin of difficulties experienced by women in construction could assist entrants in their decisions. Knowledge, skill and competency difference could be addressed through education of women entering the construction industry. Gender issues are a lot more complicated and might require education of males in the management teams of construction companies.

If women are made aware of the difficulties associated with the construction industry, it will mean they will react differently because they will not experience it as a personal threat. Through preventative action they might alleviate most of the expected problems which are directly gender related and could lead to some sort of harassment.

Gender related difficulties might originate from uneducated workers and affect women in trades as opposed to management positions. The South African government achieved success though Black Economic Empowerment (BEE) type requirements and this recipe could be adjusted to address and rectify gender issues in construction.
1.9. RESEARCH METHODOLOGY

Research will be focused on a literature review. For many years there have been numerous articles on this topic without the expected changes to the work environment. Preliminary investigation into the structures of top management in construction, it was determined that professional women construction managers are non-existent and it would be futile to consider a questionnaire.

As it is not possible to test the knowledge, skills and competencies of women construction managers not employed in professional management positions, it could only be expected that vague reasons and allegations for non-employment would be produced irrespective of position and office within the company.
## 2.1. General Management and Its Origin

<table>
<thead>
<tr>
<th>Time</th>
<th>Individual or Group</th>
<th>Making Things Happen</th>
<th>Meeting the Competition</th>
<th>Organizing People, Projects, and Processes</th>
<th>Leading</th>
<th>Contributions to Management Thought and Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 B.C.</td>
<td>Sumerians</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Record keeping.</td>
</tr>
<tr>
<td>4000 B.C.</td>
<td>Egyptians</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Recognized the need for planning, organizing, and controlling.</td>
</tr>
<tr>
<td>1800 B.C.</td>
<td>Hammurabi</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>Established controls by using writing to document transactions and by using witnesses to vouch for what was said or done.</td>
</tr>
<tr>
<td>600 B.C.</td>
<td>Nebuchadnezzar</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Production control and wage incentives.</td>
</tr>
<tr>
<td>500 B.C.</td>
<td>Sun Tzu</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Strategy; identifying and attacking opponent's weaknesses.</td>
</tr>
<tr>
<td>400 B.C.</td>
<td>Xenophon</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Management recognized as a separate art.</td>
</tr>
<tr>
<td>400 B.C.</td>
<td>Cyrus</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Human relations and motion study.</td>
</tr>
<tr>
<td>175</td>
<td>Cato</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Job descriptions.</td>
</tr>
<tr>
<td>284</td>
<td>Diocletian</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Delegation of Authority.</td>
</tr>
<tr>
<td>900</td>
<td>Alfred the Great</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Listed leadership traits.</td>
</tr>
<tr>
<td>1100</td>
<td>Ghazzali</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Listed managerial traits.</td>
</tr>
<tr>
<td>1418</td>
<td>Barbarossa</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Different organizational forms/structures.</td>
</tr>
<tr>
<td>1426</td>
<td>Veneziens</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Numbering, standardization, and interchangeability of parts.</td>
</tr>
<tr>
<td>1500</td>
<td>Sir Thomas More</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Critical of poor management and leadership.</td>
</tr>
<tr>
<td>1525</td>
<td>Machiavelli</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Cohesiveness, power, and leadership in organizations.</td>
</tr>
</tbody>
</table>


Figure 2 Indication of the history of general management
ADVENT OF MANAGEMENT AS A SCIENCE

Before 1880 management was taught as basic bookkeeping and secretarial skills and no management books and articles published. The next 25 years see rapid changes and in 1881, Joseph Wharton gave the University of Pennsylvania funds to establish a department to educate students for careers in management.

Frederick W. Taylor (1856–1915) began his career as a worker and he is considered to be the father of modern management. Previous to scientific management, organizational decision making are described as “seat-of-the-pants” decision. Decisions were made without any systematic study, thought, or collection of information. Customer orders were transmitted verbally between employees.

“If the “managers” hired by the company founder or owner decided that workers should work twice as fast, little or no thought was given to worker motivation. If workers resisted, “managers” often resorted to physical beatings to get workers to work faster, harder, or longer. In general, with no incentives for “managers” to cooperate with workers and vice versa, managers and workers gamed the system trying to systematically take advantage of each other. Likewise, nothing was standardized. Each worker did the same job in his or her own way with different methods and different tools. In short, there were no procedures to standardize operations, no standards to judge whether performance was good or bad, and never any follow-up to determine if productivity or quality actually improved when changes were made.” (Unknown) Taylor described scientific management as “seventy-five percent science and twenty-five percent common sense.”
TAYLOR’S FOUR PRINCIPLES OF SCIENTIFIC MANAGEMENT

First: Develop a science for each element of a man’s work, which replaces the old rule-of-thumb method.

Second: Scientifically select and then train, teach, and develop the workman, whereas in the past he chose his own work and trained himself as best he could.

Third: Heartily cooperate with the men so as to insure all of the work being done in accordance with the principles of the science which has been developed.

Fourth: There is an almost equal division of the work and the responsibility between the management and the workmen. The management take over all the work for which they are better fitted than the workmen, while in the past almost all of the work and the greater part of the responsibility were thrown upon the men.


Henri Fayol (1841–1925) is by all accounts as important a contributor to the field of management as Frederick Taylor. Like Taylor, Frank, Lillian and Gilbreth, Fayol’s work experience significantly shaped his thoughts and ideas about management. Taylor’s ideas changed companies from the shop floor up, Fayol’s ideas, which were shaped by his experience as a managing director (CEO), generally changed companies from the board of directors down.

Fayol is known for developing the five functions of managers and fourteen principles of management, as well as for his belief that management could
and should be taught to others. Based on his experience as a CEO, Fayol argued that “the success of an enterprise generally depends much more on the administrative ability of its leaders than on their technical ability.” According to Fayol, for managers to be successful, they need to perform five managerial functions or elements: planning, organizing, coordinating, commanding, and controlling.

<table>
<thead>
<tr>
<th>1. Division of work:</th>
<th>Increase production by dividing work so that each worker completes smaller tasks or job elements.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Authority and responsibility:</td>
<td>A manager’s authority, which is the “right to give orders,” should be commensurate with the manager’s responsibility. However, organizations should erect controls to prevent managers from abusing their authority.</td>
</tr>
<tr>
<td>3. Discipline:</td>
<td>Clearly defined rules and procedures are needed at all organizational levels to ensure order and proper behavior.</td>
</tr>
<tr>
<td>4. Unity of command:</td>
<td>To avoid confusion and conflict, each employee should report to and receive orders from just one boss.</td>
</tr>
<tr>
<td>5. Unity of direction:</td>
<td>One person and one plan should be used in deciding the activities used to accomplish each organizational objective.</td>
</tr>
<tr>
<td>6. Subordination of individual interests to the general interest:</td>
<td>Employees must put the organization's interests and goals before their own.</td>
</tr>
<tr>
<td>7. Remuneration:</td>
<td>Compensation should be fair and satisfactory to employees and the organization; that is, don’t overpay or underpay employees.</td>
</tr>
<tr>
<td>8. Centralization:</td>
<td>Avoid too much centralization or decentralization. Strive a balance depending on the circumstances and employees involved.</td>
</tr>
<tr>
<td>9. Scalar chain:</td>
<td>From the top to the bottom of an organization, each position is part of a vertical chain of authority where each worker reports to just one boss. For the sake of simplicity, communication outside normal work groups or departments should follow the vertical chain of authority.</td>
</tr>
<tr>
<td>10. Order:</td>
<td>To avoid conflicts and confusion, order can be obtained by having a place for everyone and everyone in their place, in other words, no overlapping responsibilities.</td>
</tr>
<tr>
<td>11. Equity:</td>
<td>Kind, fair, and just treatment for all will develop devotion and loyalty. This does not exclude discipline, if warranted, and consideration of the broader general interest of the organization.</td>
</tr>
<tr>
<td>12. Stability of tenure of personnel:</td>
<td>Low turnover, meaning a stable workforce with high tenure, benefits an organization by improving performance, lowering costs, and giving employees, especially managers, time to learn their jobs.</td>
</tr>
<tr>
<td>13. Initiative:</td>
<td>Because it is a “great source of strength for business,” managers should encourage the development of initiative, the ability to develop and implement a plan, in others.</td>
</tr>
<tr>
<td>14. Esprit de corps:</td>
<td>Develop a strong sense of morale and unity among workers that encourages coordination of efforts.</td>
</tr>
</tbody>
</table>

General accepted management principles
The elements of management are widely accepted as:

- Planning
- Organizing
- Motivating / leading
- Controlling

The elements are backed up by functions of management such as:

- Human Resource Management
- Financial Management etc

Both the elements and functions vary with application, method, discipline and opinion of various authors, teachers, managers in practice, etc. but normally represent an exact copy with variances in emphasis. It is clear that the jury is still not out on management principles, theory and methods of practical application. Therefore it is by no way surprising that many new theories evolve that are tested in practice to be either adopted or abandoned.

The Manager’s Roles

![Diagram of the manager's role](Mintzberg, 1990)

Figure 4 The manager's role (Mintzberg, 1990)
2.2. CONSTRUCTION AND PROJECT MANAGEMENT

AUSTRALIA

In *Project Management Competencies: A survey of perspective from project managers in South East Queensland*, Lei and Skitmore (2004) found that communication, meeting objectives and making decisions are some of the most important skills required by construction managers.

Negotiating within a project will be regarding scope, terms and the availability of resources – all of which is dealt with by the construction manager. The last general skill relevant to the construction manager is problem solving. This mostly includes decision making about problems incurred in situations.

Lei and Skitmore (2004) reckons the order of importance of knowledge and skills are as follows:

- Communication
- Meet project objectives
- Decision making
- Legal issues
- Computer and project management software

IT skills are regarded as secondary knowledge and skill needed by a construction manager. Lei and Skitmore (2004) confirms this with a study they conducted, which showed that computer/project management software were some of the skills rated least important. The use of computers is a debatable subject. Some projects require a vast knowledge of construction software programmes to create presentations and spreadsheets whereas certain projects are simple enough to do without.
Lei and Skitmore (2004) further states that in future the skills needed by construction managers in Australia would consist of:

- Industrial relations
- Workplace health and safety
- Environmental issues
- Adaptability / innovative / flexibility
- Stakeholders management skill
- Coaching / transfer of knowledge skill
- Client related skill
- Networking skill and
- Business skill
- Technical skills
  - Re-design and construction matters
  - Site conditions and constructability
  - Knowledge of latest building methods and materials
- People skills

In the same article the authors states that construction managers acquire various knowledge and skills through the experience they attain. The relevance of this experience depends on the way in which they adapt this to their changing environment.

Lei and Skitmore (2004) continues by saying that “the biggest gap between skills needed and skills possessed is in communication.”
UNITED KINGDOM

“To maintain their professional competency, practicing construction managers adapt to this changing industry environment by relying on knowledge and skills acquired through training and experience.” (Edum-Fotwe and McCaffer, 2000) They identified the main skills in the areas of:

A project is regarded as successful when the objectives of the client are met. These objectives are to finish the project on time, within approved budget and within the quality standards. Edum-Fotwe and McCaffer (2000) includes safety requirements as an objective as well.

According to Edum-Fotwe and McCaffer (2000) the following general skills will become relevant to construction (project) managers:

- **Leading**
- **Communicating**
- **Negotiating**
- **Problem solving**

“Problem solving skills involve a combination of problem definition and decision making which is concerned with problems that have already occurred. The problem definition aspect requires distinguishing between causes and symptoms. Equally the problems may be technical (differences of opinion about the best way to design a product), managerial (a functional group is not producing according to plan), or interpersonal (personality or style clashes). The project manager's decision regarding the defined problems may call for quick response.”
“Professional competency in construction management is attained by the combination of knowledge acquired during training and skills developed through experience and the application of the acquired knowledge.” (Edum-Fotwe and McCaffer, 2000) This statement confirms what was said before that to be an effective construction manager, one must be literate in the prescribed knowledge, develop the skills and competencies for dealing with the managing of construction projects.

Edum-Fotwe and McCaffer (2000) states that modern construction management practice demands for general and management knowledge as well as technical aspects that moves away from what is classified as traditional.
General functions of a construction manager include:

- Finance and accounting
- Sales and marketing
- Strategic planning
- Tactical planning
- Operational planning
- Organizational behaviour
- Personnel administration
- Conflict management
- Personal time management
- Stress management

The above mentioned knowledge areas are just broadly defined. The list can be written much more extensively, but to show what is prescribed to be an effective construction manager, only these are required due to the skills being most often used on construction projects.

It is important to remember that these knowledge areas are defined according to the industry in which it is required, this list however applies to the construction industry and construction projects.

General knowledge areas needed for a construction manager:

- Economic analysis
- Social trends
- Political developments
- Legal framework
- Statistics, probability theory and risk
• Integration, such as: plan development, plan execution and change control.
• Time, such as: activity definition, activity sequencing, activity duration estimating, schedule development and schedule control.
• Cost, such as: resource planning, cost estimating, cost budgeting and cost control.
• Procurement, such as: procurement planning, solicitation planning, solicitation, source selection, contact administration and contract close out.
• Quality, such as: quality planning, quality assurance and quality control.
• Communication, such as: communication planning, information distribution, performance reporting and administrative closure.
• Risk, such as: identification, quantification, response development and response control.
• Human Resource, such as: organizational planning, staff acquisition and team development.
• Scope, such as: initiation, definition, verification and change control. (Edum-Fotwe and McCaffer, 2000)

Edum-Fotwe and McCaffer (2000) found that most of the participants in the study that are construction managers are in the age group of 41-50 years. This is the result of long time of experience needed in order to progress to a senior construction management position.

A construction manager must provide leadership to his team member by giving them direction, aligning the resources and motivating the team to achieve the objectives. The following tables illustrate the primary and secondary knowledge, skills and competency.
Table 1

Primary knowledge and skill elements for developing PM competency

<table>
<thead>
<tr>
<th>Generic PM function</th>
<th>Knowledge and skill (k-s)</th>
<th>k-s factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical skill</td>
<td>Planning and scheduling</td>
<td>97.3</td>
</tr>
<tr>
<td></td>
<td>Construction management activities</td>
<td>89.1</td>
</tr>
<tr>
<td></td>
<td>Basic technical knowledge in own field</td>
<td>94.5</td>
</tr>
<tr>
<td></td>
<td>Productivity and cost control</td>
<td>82.7</td>
</tr>
<tr>
<td>Managerial skill</td>
<td>Leadership</td>
<td>98.2</td>
</tr>
<tr>
<td></td>
<td>Delegation</td>
<td>96.4</td>
</tr>
<tr>
<td></td>
<td>Negotiation</td>
<td>95.5</td>
</tr>
<tr>
<td></td>
<td>Decision making</td>
<td>91.8</td>
</tr>
<tr>
<td></td>
<td>Motivation and promotion</td>
<td>90.0</td>
</tr>
<tr>
<td></td>
<td>Team working</td>
<td>90.0</td>
</tr>
<tr>
<td></td>
<td>Time management</td>
<td>82.7</td>
</tr>
<tr>
<td></td>
<td>Top management relations</td>
<td>81.8</td>
</tr>
<tr>
<td>Financial skills</td>
<td>Establishing budgets</td>
<td>94.3</td>
</tr>
<tr>
<td></td>
<td>Reporting systems</td>
<td>90.6</td>
</tr>
<tr>
<td>Legal skills</td>
<td>Drafting contracts</td>
<td>92.4</td>
</tr>
<tr>
<td>Communication skills</td>
<td>Presentation</td>
<td>95.3</td>
</tr>
<tr>
<td></td>
<td>General and business correspondence</td>
<td>90.6</td>
</tr>
<tr>
<td></td>
<td>Report writing</td>
<td>88.7</td>
</tr>
<tr>
<td>General skills</td>
<td>Chairing meetings</td>
<td>96.1</td>
</tr>
<tr>
<td></td>
<td>Understanding of organization</td>
<td>84.5</td>
</tr>
</tbody>
</table>
Table 2
Secondary knowledge and skill elements for developing PM competency

<table>
<thead>
<tr>
<th>Generic PM function</th>
<th>Knowledge and skill (k-s)</th>
<th>k-s factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical skill</td>
<td>Forecasting techniques</td>
<td>74.5</td>
</tr>
<tr>
<td></td>
<td>Quality control</td>
<td>72.7</td>
</tr>
<tr>
<td></td>
<td>Estimating and tendering</td>
<td>70.9</td>
</tr>
<tr>
<td></td>
<td>Material procurement</td>
<td>65.5</td>
</tr>
<tr>
<td></td>
<td>Reading and understanding drawings</td>
<td>62.7</td>
</tr>
<tr>
<td></td>
<td>Design activities and background</td>
<td>59.1</td>
</tr>
<tr>
<td></td>
<td>Site layout and mobilization</td>
<td>54.5</td>
</tr>
<tr>
<td></td>
<td>Managerial skill Human behaviour</td>
<td>76.4</td>
</tr>
<tr>
<td></td>
<td>Strategic planning</td>
<td>60.0</td>
</tr>
<tr>
<td>Financial skills</td>
<td>Project finance arrangement</td>
<td>74.5</td>
</tr>
<tr>
<td></td>
<td>Establishing cash flows</td>
<td>65.1</td>
</tr>
<tr>
<td>IT skills</td>
<td>Project management software</td>
<td>75.6</td>
</tr>
<tr>
<td></td>
<td>Spreadsheet</td>
<td>59.3</td>
</tr>
<tr>
<td></td>
<td>CAD</td>
<td>55.8</td>
</tr>
<tr>
<td>Legal skills</td>
<td>Health and safety issues</td>
<td>76.2</td>
</tr>
<tr>
<td></td>
<td>Industrial relations</td>
<td>57.1</td>
</tr>
<tr>
<td></td>
<td>Preparation of claims and litigation</td>
<td>55.2</td>
</tr>
<tr>
<td>Communication skills</td>
<td>Public speaking</td>
<td>74.5</td>
</tr>
<tr>
<td>General skills</td>
<td>Marketing and sales</td>
<td>50.5</td>
</tr>
<tr>
<td></td>
<td>Public relations</td>
<td>50.1</td>
</tr>
</tbody>
</table>
FEMALE VOICES IN CONSTRUCTION MANAGEMENT LITERATURE

The success of any construction project depends on the competence of the construction manager. To be even more successful [s]he must have competence in those areas that have the most impact on the outcome of the project. (Crawford, 2000)

As early as 1970 there has been studies done to determine the skills and performance levels of project managers. (Crawford, 2000)

Crawford (2000) suggests that with some studies done it can be said that there isn’t a direct relationship between performance and the level of knowledge and experience reported by a construction manager.

Crawford (2000) discusses several studies done by various researches and came to several conclusions. She noted that Leadership is a personality characteristic that is highly ranked with the required competence factor of a construction manager. Together with the Leadership factor is:

- Team development
- Communication
- Technical performance
- Planning
- Monitor and
- Controlling.

With the demand for top quality, high productivity and performance, the traditional approach to construction management is under question of whether the prescribed knowledge, skills and competencies are efficient to
develop a product of satisfied standards. Managers in the construction industry find that their responsibility grows more and more with each day.

A change in the way a construction project is managed is a requirement to complete the project within the set objectives. These objectives are within the time, quality and cost constraints as mentioned before. To ensure that construction managers remain relevant to the construction industry, continuous training courses are proposed.

“Studying will mean the person is able to learn new information quickly, analyze and critically examine these sources and be able to use it in decision-making or solving a problem in future.” (Armstrong, 1994)

Managers have a great responsibility to bring order, logic and consistency to the activities to achieve the set objectives of the appropriate project. With the construction industry being an ever-changing environment, this responsibility of managers becomes extremely difficult. Armstrong (1994) states the following: “Management involves a mixture of rational, logical, problem-solving, decision-making activities. Managers also need to be specialists in ambiguity and coping with conflict.”

Attention is given to required knowledge and skills to be an effective construction manager, as opposed to personality traits and behaviours. (Crawford, 2000)
THE SOUTH AFRICAN COUNCIL FOR THE PROJECT AND CONSTRUCTION MANAGEMENT PROFESSIONS (SACPCMP, 2010)

REQUIREMENTS:

CM - TECHNICAL COMPETENCIES

1) Knowledge of construction science
   a) understanding structures
   b) understanding construction and building sciences
   c) understanding construction and building finishes
   d) knowledge of building materials

2) Project Management competences
   a) site, plant and equipment
   b) formwork systems
   c) quality management
   d) health and safety management
   e) environmental management
   f) organizational / management structures
   g) general building sequences
   h) general output and production factors
   i) basic knowledge of building trades

3) Knowledge of the design processes
   a) sequence of design processes
   b) time required for design processes

4) Knowledge of financial and cost factors
   a) financial processes
   b) cost of construction
CM: PROJECT MANAGEMENT COMPETENCES

1) Knowledge and understanding: Basic Principles of Law of Contracts
2) Knowledge and understanding of Construction Contracts
3) The ability to build good relationships (Partnering) between the consulting team and construction teams.
4) The ability to establish and implement Time Management Processes on contracts with respect to and not limited to the following;
   - Agree and monitor contract programme and working programmes
   - Monitor and review construction progress and programme updates.
5) Ability to establish and implement Quality Management Processes on contracts including quality control by contracting teams.
6) The ability to establish and implement Cost Management Processes on contracts including the costing and implementation of site instructions and variations.
7) The ability to co-ordinate and monitor interface between all contractors and subcontractors.
8) The ability to facilitate and monitor implementation of Health and Safety plan
9) The ability to facilitate and co-ordinate the production of the Health and Safety File
10) The ability to manage the preparation and submission of progress and contractual claims

The ability to co-ordinate and monitor completion and handover processes including and not limited to;
   - Monitor implementation of remedial work by contractors and subcontractors
   - Facilitate the agreement of final accounts
   - Expedite and co-ordinate contract close out
The SACPCMP (2010) also identifies the following minimum competencies required for the registered professional construction project manager:

**CPM - TECHNICAL COMPETENCIES**

The requirements are in all respects identical / similar to those applicable to Construction Managers. Required Project Management Competencies differ.

**CPM: PROJECT MANAGEMENT COMPETENCIES**

1) As Principal Consultants the CPM should have the Knowledge and Ability to:
   a) Facilitate the development of a Clear Brief
   b) Clearly Define the Roles and Responsibilities of the Consulting Team
   c) Prepare Letters of Appointment for the procurement of the Consulting Team
   d) Establish and implement Time Management Processes on Project with respect to and not limited to the following:
      - Prepare, Co-ordinate and Monitor a Project Initiation Programme
      - Prepare Indicative Construction Programme
      - Prepare Documentation Programme / Schedule
      - Prepare Procurement Programme / Schedule
      - Agreed Contract Programme
      - Co-ordinate Documentation Programme with Contract Programme
   e) Establish and recommend Professional Indemnity requirements
   f) Monitor and co-ordinate quality management of the design processes
   g) Establish and implement Communication Management Processes
including the preparation of agenda, chairing and preparing minutes of all necessary meetings on the project

h) Co-ordinate and monitor cost control by the Cost Consultant

i) Co-ordinate and monitor the preparation of the Health and Safety specifications

j) Facilitate the preparation of all conditions of contracts

k) Manage the pre-qualification, tendering, adjudication, recommendation and appointment processes

As Principal Agent the CPM should have:

a) The ability to take responsibility for and perform the role of Principal Agent on construction contracts.

b) Knowledge and understanding of the Basic Principles of Law of Contracts

c) Knowledge and understanding of Construction Contracts

d) The ability to build good relationships (Partnering) between client, consulting and construction teams

e) The ability to establish and implement Time Management Processes on contracts with respect to and not limited to the following:
   - Agree and monitor contract programme and working programmes
   - Monitor and review construction progress and programme updates

f) The ability to establish and implement Quality Management Processes on contracts including quality control by the consulting and contracting teams

g) The ability to establish and implement Cost Management Processes on contracts including the issuing, costing and
implementation of site instructions and variations.

h) The ability to co-ordinate and monitor interface between all contractors.

i) The ability to facilitate and monitor implementation of Health and Safety Plan.

j) The ability to facilitate and co-ordinate the production of the Health and Safety File

k) The ability to manage, resolve and certify progress and contractual claims.

l) The ability to co-ordinate and monitor completion and handover processes including and not limited to;
   - Oversee and co-ordinate preparation and issue of defects lists
   - Monitor implementation of remedial work by contractors
   - Oversee and facilitate the agreement of final accounts
   - Expedite and co-ordinate project close out.

GENERAL GUIDES ON PROJECT MANAGEMENT KNOWLEDGE

There are standard guides, which are the accepted Project Management Knowledge Standards which describes the prescribed knowledge. These guides include the following:

- Project Management Book of Knowledge (PMBOK) Guide – Project Management Institute
- ICB: IPMA Competence Baseline – International Project Management Association
- APMBoK / CRMP BoK – Association of Project Management Association
Research done (various websites, 2010 unreferenced) revealed the requirements and prescribed knowledge, skills and competency to fill vacant construction management positions in construction companies:

Construction Manager Requirements:

- Four-year **degree** in an accredited construction related curriculum, (BSCE, BSCM, BSAE, etc.) or experience equivalent to a four-year degree.
- Between three to five years of construction management **experience** on complex projects
- Excellent verbal and written **communication** skills on a professional level.
- Proven contract management skills and ability to develop and apply new **technologies**
- A good team player with an imaginative, proactive approach with strong **interpersonal** skills will be required.
- Must be able to **communicate** effectively with construction contractors and their employees at all levels.
- Good understanding of **commercial** issues affecting project performance and experience in assessing value / evaluating variations of construction works undertaken.
- Sound understanding and experience in the application of **safety** legislation and corporate safety procedures.
CONSTRUCTION PROJECT MANAGER REQUIREMENTS:

- Four-year degree in an accredited construction related curriculum, (BSCE, BSCM, BSAE, etc.) or experience equivalent to a four-year degree.
- Charting out the project objectives, setting performance requirements, and selecting project participants.
- Bringing about optimum utilization of resources (labor, materials and equipment), and ensuring their procurement at most cost-effective terms.
- Development of effective communications and mechanisms for resolving conflicts among the various participants.
- Oversee the construction project from start to finish, analyze complex problems and suggest appropriate solutions.
- Project accounting functions including managing the budget, tracking of expenses and minimizing exposure and risk in the project.
- Coordinate the efforts of all parties involved in the project, which include the architects, consultants, contractors, sub-contractors and laborers.
- Demonstrated competency in the areas of field supervision, client relationship, interpersonal skills, computer skills, safety/insurance, ability to communicate, both written and oral.
- Maintain strict adherence to the budgetary guidelines, quality and safety standards.
- Daily inspection of construction sites.
- Ensure project documents are complete.
- Identify the elements of project design and construction likely to give rise to disputes and claims.
- Strong organizational and time management skills.
• Excellent interpersonal skills
• Strong knowledge of project management techniques and tools
• Demonstrated ability to work independently, with minimal supervision
• Demonstrated experience in people management, strategic planning, risk and change management
• Establish and maintain effective work relationships with employees, contracting officers and subcontractors

A COMPARISON BETWEEN MALE AND FEMALE MANAGERIAL COMPETENCIES

Arditi and Balci (2009) refer to the Managerial competencies of female and male Construction Managers. They did a study to determine if women are excluded from project management positions because they are less competent than their male counterparts.

The following was revealed: Although men scored higher in risk taking, there is no statistical difference observed, the same for analytical thinking, decision making, planning and quality focus in which women ranked higher. Interpersonal skills between the genders have no significant difference but Lawless (as cited by Arditi and Balci, 2009) determined that women have better verbal abilities but in the same sense Penley (as cited by Arditi and Balci, 2009) states that women have poorer communication skills. The authors concluded that “both genders have the same level of strength in managerial competencies.” With their study they have no doubt that women are equally competent to be in a project management position. In their opinion the way to increase the number of women in project management positions are to improve the image, culture and working conditions rather than exploring women’s management competence.
2.3. SUMMARY

Management has been an integral part of history similar to religion and languages. In the beginning management was closely related to position and status. Construction management authority was delegated by Kings to supervisors. The story of Moses in The Bible is probably the best known example.

Management and its application followed more or less the same route until the late 1800’s. Pioneers such as Taylor and Fayol adopted the position of manager by necessity. They were both Engineers by education and quickly saw the need for systematic methods in management applications.

Towards the end of the 1900’s, management found its application theorized for the various discipline such as construction. Authors such as Skitmore and McCaffer contributed hugely in disciplinary specific applications.

Management is still evolving as a science and educators such as Mintzberg and other likeminded academics are now looking at practice in establishing new management theories.

In South Africa the guidelines prescribed by SACPCMP for professional construction managers and professional construction project managers is well established.
2.4. CONCLUSION

Management seems to exist ever since man needed thousands of others to obey his commands in war up to the everyday task that need to be performed by individuals. As a science management is still in its infancy although scholars such as Plato and Socrates extensively mentioned the benefits of effective and reflective management techniques and its practical applications.

At first glance it appears as if management changed drastically over the last century but closer scrutiny indicate that emphasis shifted first from managing the people to managing the task and the current change is towards managing information, or as some would like it to be, managing knowledge.

None of the serious scholars or contributors to management mentioned differing traits in men and women that should give rise to a “glass ceiling” preventing woman to be promoted to the top in any management position, whether it is government or business companies.

In fact it would appear that current changes in management styles and evolving theory predict a growing suitability to women in management requirements.

The elements and functions of management fit women just as easily as it fits men. The difference in physical appearances seems to be the only hindrance still standing to deny women to progress to the top in management, in general, and to the top in construction management and construction project management, in particular.
With the prescribed knowledge for a construction manager, practical experience is just as important to gain. With a vast amount of experience and training, a construction manager will be able to effectively deal with the situations found on construction projects. Skills and competencies develop with years of applying knowledge and determining the effects of certain decisions on circumstances.

With the prescribed knowledge, skills and competencies to be a construction manager it is important to remember that a construction project needs to increase profits, increase productivity, establishing a good reputation with the clients and maintain outstanding client relations. Professional construction managers are therefore crucial in ensuring that the construction project is sustainable throughout the lifespan of the structure.

2.5. HYPOTHESIS

The basic skills of a construction manager are to be able to plan, control, lead and manage all activities included on a construction site. In addition to these basic skills, a manager should have efficient knowledge of construction, the economics and business law. Computer literacy is a skill required in the field together with good communication skills. An effective construction manager must have the ability to lead, manage and motivate a team to ensure efficient production.

TESTING OF HYPOTHESIS:

The hypothesis is correct and the knowledge, skills and competencies are well documented, thoroughly assessed, extensively accredited and constantly upgraded. Grey areas do exist in theory and application; mainly
due to the fact management is not an exact science. The differences can be ascribed to personalities, individuals and intelligence to a larger degree than gender.
DIFFERENCES, ARE THEY GENDER RELATED?

3.1. INTRODUCTION

“For centuries women in Africa built their huts, houses and homes, clayed floors, thatched roofs, cultivated the land, made money and raised their kids, while men were busy with more important things elsewhere.” (Mthembi-Mahanyele as cited in Verwey, 2005)

CONSTRUCTION INDUSTRY ENVIRONMENT

Effective construction managers must be flexible and able to adapt to an ever changing environment. It is a fast-paced environment with around the clock pressure to meet deadlines and constant decision making under severe conditions. No amount of knowledge can prepare a construction manager for this, however, the skills, competencies and experience will ensure projects being completed on time, within budget, within quality standards and with the least amount of confrontation.

RECRUITMENT OBJECTIVES

Proper knowledge and education is obtained through various methods of training schools, universities and through years of experience. “If an industry
Aims to become more productive or more competitive it must maximize the quality of management and technical skills utilized.” (Sommerville, Kennedy and Orr, 1992) Construction managers are taught the basic required knowledge, skills and abilities as mentioned in Chapter 2 and organizations must utilize each individual’s skills and abilities. “As projects tend to be short term, geographically diverse, and subject to dynamic changes. This means that staffing decisions have to be made quickly and employees have to be adaptable to meet the changing needs of the organization and its individual projects.” (Dainty, Neale and Bagilhole, 2000) Human resource departments should be aware that recruitment means searching for the most suitable person for the position regardless of gender and / or management style.

The barriers faced by women in construction not only include the issues of discrimination and educational competencies issues but extend to the point of how acquired knowledge, skills and competencies are applied. It should not be expected of women construction managers to change their normal ways to adapt to their working conditions except those aspects that is reasonably expected from the job. Changes include dress codes.

**EDUCATION**

“In 2004, women were found to account for 40.7% of bachelor and masters graduates and 33.9% of doctoral graduates in construction-related fields.” WOMEN – CORE CONSORTIUM (2008). This proportion of women graduating in construction is said to still be increasing.

WOMEN – CORE CONSORTIUM (2008) also found that there are high percentages of women studying construction in higher education but the percentages drop for women in more senior positions. Why you ask? This is
still unknown. In WOMEN – CORE CONSORTIUM (2008) it also states that there are a high number of women in junior positions, but with time these women will develop their career and gain the prescribed knowledge, skills and competencies to be seen in a more senior level.

Combining three university courses, (UCT, UP and UJ) the following will be a good indication of the already attained knowledge, skills and competencies attained by graduates completing a degree in construction management in South Africa.

The reason for examining each course is to determine if a difference will be noticed and why there exist such a difference.

- **Building Science**

- **Economics**
  A basic introduction to economic theories and concepts as well as the tools of micro- and macro-economics.

- **Costing**
  Costing knowledge is necessary to manage and prepare tender documents and exercise financial management.

- **Quantity Surveying**
  Necessary to prepare Bills of Quantities to prepare tender documents and taking off quantities in accordance with the Standard Method of Measurement.
• **Human resource management**
  As mentioned previously, people are the most valuable resource and managing them effectively is needed to achieve objectives. Human resource management is necessary to develop people’s capacities, maintaining their services.
  “The goal of every manager should be to hire, develop and maintain the most cohesive and productive staff possible.” Crisp (1991)

• **Commercial and contract law**
  Important when dealing with issues including contract law, bonds, guarantees, sureties, liens and other security interests, tendering and construction claims.

• **Statistics, Civil Engineering, Physics and Mathematics**
  A basic knowledge of these fields are taught to give a construction manager the background when dealing with this in the construction industry.

• **Surveying**
  Surveying or setting-out is reference points or markers used that will guide construction. A construction manager needs to know the basis in surveying to determine the boundaries of the site and verifying position of new structure.

• **Computer based applications**
  This is a standard skill that people in any industry must consist of. In the construction industry it is necessary to be literate in standard Microsoft Office, Microsoft Projects and portraying scheduling and progress information to the consulting team in a professional manner using computer skills.

• **Professional communication**
  Probably the most important skill and ability that make an effective construction manager. A construction manager must not only
communicate but also be available to listen. He/she must also be receptive to the non-verbal communication like emotions, body language and even attitude.

- **Perform basic construction skills**
  Universities teach students the necessary skills that are relevant to the industry. This includes building materials, components of a building, design elements and trades associated with construction.

- **Case presentation**
  Construction managers must be able to convince other people to consider his/hers views and accept the recommendations. (Armstrong, 1994)

- **Time management**
  A construction manager must learn the basic in time management. He/she must determine how time is spent, get organized, organize other people and determine the importance of specific tasks.

- **Conflict management**
  A construction manager must learn how to deal with conflict. A construction project without conflict is not all that healthy but a project that does not solve conflict will become unproductive.

- **Crisis management**
  Construction managers will have to make urgent decisions and learn how to manage a crisis. Decision-making is developed and not taught to managers but they can learn how to management effectively.

- **Team management**
  "Important tasks of the construction manager are to make the best use of the capacity of the team so that all its members will work well together to deliver superior levels of performance." (Armstrong, 1994)
• **Construction Planning and Design**
  This should include the planning, cost estimating and geometric drawing used in the industry.

Important for the construction manager to remember with team management is that the people must be committed, communication is key, trust and mutual support is a must and a reward system must be established. (Crisp, 1991)

**SKILLS AND COMPETENCIES OF CM’S**

The skills and competencies that a manager needs to effectively manage a construction project aren’t learned in one day but developed over time. There are however a few qualities that can be learned or developed and others that are naturally found in managers and leaders.

Armstrong (1994) lists a few of these qualities:

- Social skills
- Analytical skill, Clear thinking
- Problem-solving
- Decision-making abilities
- Delegation ability
  "Delegation is giving individuals and groups of people activities to complete. A manager who is not delegating in not managing." (Crisp, 1991)
- Emotional resilience
- Creativity
- Balanced learning habits and skills
- Mental agility
• Self-knowledge
• Leadership

"Management is a leadership effort to integrate and effectively use a variety of resources to accomplish an objective.” (Crisp, 1991)

Armstrong (1994) also puts experience of managers in unique terms: “Managers learn to manage by managing under the guidance of a good manager.”

Armstrong (1994) quotes the historian Froude: “Experience teaches slowly and at the cost of mistakes.” What is really meant is that experience is an essential way of learning. Learning to improve our abilities, but it is an imperfect instrument. Armstrong (1994) also says: “Guidance is also needed, guidance from a good manager and from various sources.”

CHARACTERISTICS OF A CM

The personality of the construction manager plays a role in the manner in which knowledge, skills and abilities are used to manage effectively. Armstrong (1994) and Crisp (1991) lists some characteristics of an effective construction manager:

• A willingness to work hard
• Perseverance and determination
• A willingness to take risks
• An ability to inspire enthusiasm
• Toughness
• Appraising results
“Developing the requisite competency to ensure efficient performance on the part of the managers who run projects is therefore essential to its success.” (Armstrong, 1994) It can clearly be seen that for the knowledge and skills to be relevant a construction manager must have experience. With this, the construction manager can aspire for even more senior positions in management.

There are numerous literatures and studies that deal with the required knowledge, skills and competence / personal attributes that any construction manager needs to ensure a successful completion of the project.

The term construction manager in the construction industry is multi-faceted, requires a broad range of roles and levels of responsibility and leadership styles. It might involve managing your team members, managing co-workers or managing your responsibilities.

Tewari (1980) suggested that: “women in management require special training programs. This is because women possess different skills and attitudes towards the managerial role than men.”

To be an effective manager one must properly understand what is meant with management. As discussed in Chapter 2, management is making a decision about what has to be done and getting it done through the use of people. People are the most important resource to managers and that is why managing them are so important to managers. When managing people, all the other resources including; knowledge, finance, materials, plant and equipment will automatically be managed. (Armstrong, 1994)
TRANSFORMATIONAL BUILT ENVIRONMENT HIGHER EDUCATION

“A crisis appears to be developing around competency-based training in the higher education context. In very broad terms: industry is not satisfied with the levels of competency that universities are perceived to be producing … there has been a strong growth in demand from employers for educational outcomes that demonstrate those graduate attributes associated with dealing professionally with disruptive challenges: problem solving, team work, ethics, creativity, resilience, leadership, etc. These have a very different focus to the bulk of competencies listed by professional associations, and are exceptionally difficult to contain in a competency-based approach to learning. Perhaps another approach is called for.” (Newton, 2009)

Capability to work equals competency equals the development and assessment of the capacity for a person to perform certain tasks in given situation in particular way (Cowan as cited by Newton, 2009). Competency places emphasis on the combination of theoretical knowledge with practical experience. (Newton, 2009)

Planning is focused around the necessary actions and steps to be taken to achieve objectives. Crisp (1991) says: “Successful managers are always planning; it is a conceptual process that goes with being a manager.” To be able to plan there should be organizing that involves setting up and maintaining the planned steps. The next step is motivation. Leadership and motivating people to work together is another key function which the manager needs to run the project smoothly. The last main function is control. This means that the manager measures and monitors the progress to make decisions about future events or to correct errors that might arise.
3.2. APPLYING KNOWLEDGE – DOES IT DIFFER?

Many studies have shown that regardless of the management styles, men and women do not use power differently. (Watts, 2009[2]) The different management styles fall outside the scope of the research but Carli (as cited by Watts, 2009[2]) found that the style used by women tend to be more democratic or participative.

At times, an effective construction manager must be cheerleader, a motivator and resource manager to all on a construction site. Sometimes it may even be necessary to help resolve employees' personal problems in order to ensure productivity throughout the project.

No amount of knowledge can create an effective construction manager. Knowledge ensures good understanding of situations and severe conditions, however only a construction manager with the prescribed skills to work under pressure and with the ability to make quick decisions will be effective and successful in the end.

Certain primary knowledge, skills and competencies are required by both men and women to be an effective construction manager. These include:

- Technical skills (construction management activities, technical construction knowledge, productivity)
- Managerial skills (leadership, negotiating, decision making, team working, time management and motivation)
- Financial skills (budgets and reporting)
- Legal skills (contracts)
- Communication (correspondence, public speaking)
- General skills (marketing and public relations)
• IT skills (CAD, spreadsheets)

Although there is no evidence of the difference in knowledge, skills and competencies required, in order to succeed, women must recognize other's achievement and success and learn from that.

There are additional aspects that women must consider in being an effective construction manager and simultaneously compete with her male co-workers.

These include:
• Keep networking
• Join organization bodies supporting women in construction
• Be vulnerable to HIV/AIDS and other diseases and promote awareness programmes
• Ensure you are aware of the support provided by the Government
• Attend any and all skill training courses

Women will be more capable of gaining skills and learning the tricks of the trade if proper mentoring and coaching is available to them from their fellow male colleagues.

Women are very often excluded from the mentoring sessions and progressing in their careers as construction managers become difficult when dealing with different situations than they are used to.

There are numerous factors, which are not proven, but which the Jack and Jill average would agree would be a difference. Yet it must be mentioned that they are not all gender related but also depends on the setting, background and age etc. It is of importance to mention these possible differences but it is
of such minority that it should not be seen as the reason for gender distinction. The factors are as follow:

Time

The demand of projects to be completed on time has a great influence on the normal working day of nine to five. Although the traditional role of women as housewife and caregiver has changed it is still an issue that can keep women from entering the top management positions. (Lyon, 2004)

Culture

Greed (2000) describes the industry as “Planet Construction” with its own culture, traits, beliefs and lifestyles peculiar to the industry. The industry does not always have the space to cater for all cultural backgrounds.

Tokenism

Women are seen as tokens whereas men are seen as dominants. Distinction is still being made on differences in roles, behaviour, abilities and needs. The issue exists in the implementations of new concepts such as lean construction. (Whittock, 2002)

Diversity

“Value is found in any person’s unique characteristics.” (James, 2008)

Diversity includes:

- age
- culture
- disability
- educational background
- employee status
- family status
○ gender
○ organizational role
○ physical appearance
○ race
○ religion
○ sexual orientation and
○ thinking style.

Success of a firm largely depends on its diversity. (James, 2008)

**Discursive construction of gender**

According to Kelan (2007) discursive means the ways in how gender is perceived and discussed. Below the ways are briefly mentioned.

a) Awareness discourse – inclusive of gender
b) Individualization discourse – gender dimension of ‘Brand you’ appears
c) New idea discourse – women are ideal workers of futures.

**Life Balance**

This is the dual roles of corporate workers and private non – work person who are changing to fit into the world of the construction industry. (Watts, 2009[1])

**Humour as Resistance**

Watts (2007) states that humour is seen as one of the tool used by managers for conflict management and tension reduction between team members. Humour is perceived as follows:

a) *Resistance* to dominant power structures
b) *Refuge* to build safe relationships
c) *Exclusion* is classifying groups
**Perspective**

The perspective is changing and the pool of potential recruits, considered for the organization is widened. Organizations are seeking to utilize the range of skills and educated candidates regardless of gender. (Dainty, Bagilhole and Neale, 2001)

**Stereotypes**

“The most notable barrier to women's progressing beyond the glass ceiling is gender stereotyping. The belief is that if women want to succeed in a management position they must have the male characteristics associated with management.” (Ginige, Amaratunga and Haigh, 2007)

### 3.3. SUMMARY

It can be said that there is no difference in the required knowledge, skills and abilities needed by men and women respectively to be an effective construction manager. Women construction managers should not be expected to adjust these ways to ensure efficiency in managing people. The knowledge, skills and competencies will be applied differently to each situation depending on the nature and history of the project. Regardless if the manager is male or female, knowledge, skills and competencies must be used to its best advantage with the problem at hand.

The aim of this chapter is to determine whether the education received by students is gender related or is the difference associated with the individual and his/her personality and aptitude. The subjects taught at Universities are aimed at teaching students at becoming construction managers. These subjects include Building Science, Economics, Costing, HR Management etc. Besides the required knowledge from education and training, aspiring
Construction Managers need certain abilities to be effective, which are either learned or developed. Other factors which can be regarded as a gender related difference include time, culture, tokenism, diversity and life balance.

The best way to eliminate the masculine approach to management is to recognize and learn from the approach. Inequality can only be changed if the problem is properly understood; starting with the managing approaches on site. Women who aspire to be even more effective construction managers must ensure they are networking within their team, the organization and the industry. Keep abreast of new skill training courses and learn by observing fellow male companions and those who will be useful in enhancing her career.

### 3.4. CONCLUSION

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEMORIZING</th>
<th>APTITUDE</th>
<th>GENDER RELATED</th>
<th>INDIVIDUAL RELATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Science</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Economics</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Costing</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Quantity Surveying</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Commercial and contract law</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Statistics, Civil</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Eng., Physics and Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surveying</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer based app.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional communication</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform basic construction skills</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case presentation</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time management</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conflict management</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crisis management</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team management</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Planning and Design</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6 Gender related differences

The education received from universities is summarized in Table 6 above. The table indicates that almost 90% of the subjects are based on memory and is dependant on the individual. The natural instinct of women is to experience human resource management differently – but this should not be
the case and will be one of the first differences to be overcome. It is a well known fact that men and women differ in communication skills at the beginning and have the effect that men regard women differently, but over time a certain construction language is learned and the difference will dissipate.

To be effective in your determined field, you must have people skills! If you manage the resources on your site efficiently – the rest falls into place.

Construction Planning and Design refers more to the interpretation of planning and design but is not really applicable for a construction manager to be able to plan and design on a project. Many articles show that men have an aptitude to perform better in mathematical abilities which can have the result that the construction planning and design subject is gender related. Men are inclined to use their left – brain functions but it is something that can be developed in females.

Mentoring is the biggest issue faced by women in the construction industry. The lack of role models for women have made it difficult for women to progress in their careers or learn the management styles that ensures productivity. Women do not have the necessary interest in various male topics to be a part of the conversations on site. It is usually during these social events that mentoring and coaching is offered.

The management approach must be able to adapt to the different circumstances dealt with on site. With the prescribed knowledge, skills and competencies, men and women should be able to apply these skills in such a way that will effectively and efficiently deal with the situations.
It can be concluded that many factors, which are perceived by men as gender differences, are in fact dependent on the individual and not gender related.

3.5. HYPOTHESIS

It is obvious that men and women will differ in the styles, approaches and the way in which they acquire and apply their respective knowledge in managing a construction project.

The knowledge, skills and competencies required by both male and female do not differ; women however must possess superior skills to effectively execute their responsibilities as construction managers. Not only are superior skills essential, but women have to work twice as hard as men who possess the same knowledge, skills and competencies.

As mentioned before, with the construction industry being male – dominated, women have to be more set in their way of applying this prescribed knowledge, skills and competencies.

It is important to keep abreast of new and innovative technology and developments to further improve the way of applying the management style and to be one step ahead of male managers in the same position but receive equal recognition.

TESTING OF HYPOTHESIS:
The hypothesis was shown to be incorrect and the education received by both male and female are similar and is not gender related. The application
of this acquired education must be adapted by both genders to deal with the given situation.

Regarding the statement that women has to work twice as hard as their male counterpart is not possible to evaluate as there aren't professional women construction managers in companies to compare it to.
CHAPTER 4

IS THERE A GENDER RELATED DIFFERENCE IN MANAGEMENT AND LEADERSHIP?

4.1. INTRODUCTION

Men and women are different, everyone knows that but as Tewari (1980) states that there are certain obstacles that prevent women from climbing the corporate ladder, there are evidence that these differences are of little importance. What are important are the similarities between them.

Look beyond the obvious difference in anatomy and sexual orientation and spot the acute way in which men and women process information, emotion and language. (UNICEF, 2004)

Men and women have important roles to fulfill for their family, but women’s roles disappear and become less important because they are more informal in nature.

The term manager within the wider construction sector is versatile in representing a broad range of roles and levels of responsibility together with categorization of leadership styles. Management may mean the management of others involving line management responsibility or it may mean the supervision of a team as part of a project, or it may be a
descriptive term for a hierarchical position denoting a level of responsibility rather than a direct supervisory role.

“Men hold the majority of positions of power and decision-making in the public sphere, with the result that decisions and policies tend to reflect the needs and preferences of men, not women.” (UNICEF, 2004)

In a young women’s career, the most important aspect that must be involved are role models. Role models are almost non-existent and training happens on an informal basis. (WOMEN - CORE, 2008)

“Women are poorly represented in the construction industry, particularly at senior levels and currently comprise only 5% of the total. Industry salary survey also reveals that women earn 32% less than their male colleagues. The men of construction are starkly divided along the social lines of class, skill, age and race with these inequalities largely unrecognized in the literature.” (Watts, 2009[2])

4.2. MANAGEMENT AND LEADERSHIP – IS THERE A GENDER RELATED DIFFERENCE?

The article, *Gender equality, The Big Picture*, (UNICEF, 2004), talks about the differences in how men and women estimate time, judge speed, carry out mathematics, orient in space and visualize objects in three dimensions. This means that men and women are noticeably different in the way that each process language. The article further mentions that women are far superior in human relations, language, expressiveness, appreciations and carrying out detailed and planned duties and responsibilities.
With women being more superior in these skills and competencies, advancing to a more senior construction management position should be done with ease. This is however not the case. Men in the management position and the human resource department have no difficulty in enhancing women’s careers but it is unlikely that senior male managers will be replaced by women.

Women in general have far better verbal- and social skills and are always seeking the assurance of others. Assurance comes from role models and supportive companions, both of which is absent in a woman’s career. Men on the other hand are independent, dominant and have more aggressive characteristics. (Wilson, 1999)

When women construction managers experience a failure they tend to blame it on their lack of knowledge, skills and competencies. When women have success, it is linked to teamwork, resources and other external factors. Tewari (1980) says: “Psychologically women managers are not significantly different from their male counterparts, and they may possess even superior attributes and skills in some areas related to managerial effectiveness.”

A study done by Tewari, (1980) shows that there are many differences in ways which women function as construction managers and being effective in doing so. Similarities were seen in the performance between male and female construction managers as well as similarities in physiological structure.

With this being said it can be predicted that there is no difference in the need for achievement, affiliation and power. However women construction
managers differ in the need for achievement, affiliation and power compared to other industries.

Men are conditioned to aspire because of the social acceptability attached to success in the construction industry. On the other hand, women may be rewarded simply for trying to succeed. Women construction managers may even be criticized for setting too high standard for themselves.

One of the most important areas for female construction managers' achievement is social skill. Achievement striving and social activity is more closely linked for females than for males in construction.

Dever (2009) wrote that women's participation, performance and advancement are not a simple function of their individual characteristics, such as prestige of doctoral origins, training or skills. Rather their participation and attainments also reflect and are affected by features of organizational contexts in which they work, including work climates and culture, work structures, evaluative practices and reward patterns, among other factors.

Both male and female construction managers use their power differently in managing resources effectively on site. (Watts, 2009[2]) Gender stereotypes highlight the question of whether women construction managers manage differently. Individuals are leaders and women construction managers are likely to adopt a democratic or participative style.

“Many women’s subordinate positions within the companies were attributable to them being allocated to office based support positions, as opposed to front-line management positions on site.” (Dainty, Neale and Bagilhole, 2000)
This narrow minded thinking will have the outcome that women will not be recognized and gain experience from site – which is the place where the most acknowledgement and experience is gained. Woman should be adamant to enhance to their desired position of management and constantly demonstrate their competencies for the position to fellow male companions.

“However, despite women’s preferences, in many cases the organizations had prescribed gender roles by allocating female staff to office based support positions and men to operational site based roles.” (Dainty, Neale and Bagilhole, 2000)

Dainty, Neale and Bigilhole (2000) also wrote that there is a tendency to show low appraisal to women in construction management positions. This is a sign of resistance to change from the male managers’ side for the fear of losing control and power of the organizational and management structure. This means that women in construction remain the subordinates in the company.

As discussed in the limitation the study does not include a discussion of discrimination and sexual harassment, but in the article by Dainty, Neale and Bagilhole (2000) is was noted that male managers would demand women to comply with the long working hours, demanding work schedules and combine family life. Apart from the above mentioned factors, the writers also stated how women are excluded from the social circles – which are necessary for her to progress in her career.

“Obstacles encountered during women’s early career, and in the transition to senior managerial positions, need to be addressed if women are to remain in
the industry long enough to reach senior levels." (Dainty, Neale and Bagilhole, 2000)

“Although equal opportunity and affirmative action are now embedded within corporate recruitment strategy, women are still unable to rise to top management positions in significant number”. (Watts, 2009[2])

“Women officially employed in the construction industry are principally engaged in clerical, secretarial, personal and protective services, with 43% being employed part-time.” (Fielden et al. 1999) This is evidence again that the men in the position of Human Resource Management are still set in their ways of not changing too much of the system by employing women in the construction trades as will be discussed in Chapter 5.

Fielden et al. (1999) shows vertical occupational segregation by sex. From this table of percentages (1991) the following can clearly be deduced:

- The percentages of women employed in an administrative position are 6% more than men.
- In a professional and technical position, men are far more represented.
- Crafts occupation has a total of 61.2% male employees, where women are a mere 5% which shows what has been said before that women are primarily engaged in clerical and secretarial positions in the construction industry.

Watts (2009[2]) sees the construction industry as one where women won’t survive in a management position unless they adapt to the environment known as the “male-world”. When looking at the construction manager the seasonal and ever-changing nature of the industry makes work in the sector
unpredictable and competitive. Watts (2009[2]) describes the power relations on construction sites that create the male dominated image on the industry. In many situations, team members will challenge the decisions made by construction managers, but in the event of the manager being a women, not only is her credibility undermined but the pressure to perform successfully is added. (Watts, 2009[2])

Chapter 5 discusses the barriers that women face when entering the construction industry, these include harassment, long working hours and inflexible working structures. (Watts, 2009[2]) For many construction managers the demand to choose between working life and family life is too intense. With women the choice to be single and/or without children is to a better advantage when they aspire to be effective construction managers. Women’s larger share of reproductive work is undervalued as well as statistically invisible. In other words, women throughout the world work longer hours for less rewards than men.

Women in a construction management position are highly visible and in an industry that is resistant to change it remains the issue that management is controlled by men. Refer to Chapter 3, the management style is discussed and the issues that arises when women show the need to apply skills in a different way.

Women’s roles have changed considerably over the last few years. Various studies aimed at learning the attitudes of women managers indicate that more women are acquiring college education, the enrollment of women in professional schools has been increasing steadily, executive recruiters are constantly searching for women executives, women are trying to adjust in the
traditionally male dominated world and finally women managers have more similarities than dissimilarities when compared with male managers.

**LEADERSHIP**

Leadership is not a replacement of management but a system of action aimed at increasing the success of the organization and dealing with the complex environment of the construction industry. (Kotter, 2001) When talking about leadership, the following traits are mentioned: intelligence, toughness, determination and vision. (Goleman, 2000)

<table>
<thead>
<tr>
<th>ATTITUDES TOWARD GOALS</th>
<th>MANAGERS</th>
<th>LEADERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Take an impersonal, passive outlook</td>
<td>Take a personal, active outlook. Shape rather than respond to ideas.</td>
</tr>
<tr>
<td></td>
<td>Goals arise out of necessities, not desire</td>
<td>Alter moods; evoke images, expectations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Change how people think about what's desirable and possible. Set company direction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONCEPTIONS OF WORK</th>
<th>MANAGERS</th>
<th>LEADERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negotiate and coerce. Balance opposing views.</td>
<td>Develop fresh approaches to problems.</td>
</tr>
<tr>
<td></td>
<td>Design compromises.</td>
<td>Increase options. Turn ideas into exciting images.</td>
</tr>
<tr>
<td></td>
<td>Limit choices.</td>
<td>Seek risk when opportunities appear promising.</td>
</tr>
<tr>
<td></td>
<td>Avoid risk.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELATIONS WITH OTHERS</th>
<th>MANAGERS</th>
<th>LEADERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prefer working with people, but maintain minimal emotional involvement.</td>
<td>Attracted to ideas. Relate to other directly intuitively, empathetically.</td>
</tr>
<tr>
<td></td>
<td>Lack empathy.</td>
<td>Focus on substance of events and decisions, including their</td>
</tr>
<tr>
<td></td>
<td>Focus on process.</td>
<td></td>
</tr>
</tbody>
</table>
Communicate by sending ambiguous signals. Subordinates perceive them as inscrutable, detached, and manipulative. Organization accumulates bureaucracy and political intrigue. meaning for participants. Subordinates describe them with emotionally rich adjectives. Relations appear turbulent, intense, disorganized. Yet motivation intensifies, and unanticipated outcomes proliferate.

| SENSE OF SELF | Comes from perpetuating and strengthening existing institutions. Feel part of the organization. | Comes from struggles to profoundly alter human and economic relationships. Feel separate from the organization. |

Table 7 The difference between managers and leaders (Zaleznik, 1992)

Figure 7 shows the difference between managers and leaders in the area of attitudes toward goals, conceptions of work, relations with others and sense of self.

**MANAGER VS LEADER PERSONALITY**

According to Zalensnik (1992) management is a way of directing resources towards common goals and objectives under rationality and control. Leadership influences “thoughts and actions” to fulfill objectives. “It takes neither genius nor heroism to be a manager, but rather persistence, tough-mindedness, hard work, intelligence, analytical ability and tolerance and goodwill.”
“There is a great need for competent managers but a longing for great leaders.” But the true need is for a construction manager to be both. Managers and leaders differ in
- motivation
- personal history
- thinking and acting

**MANAGERIAL TRAITS**
- Regular duties
- Negotiation
- Interpersonal roles
- Informational roles
- Decisional roles
- Sequence of events / Routine
- Monitor and control

“The danger in managerial work is that they will respond to every issue equally and that they will never work the tangible bits and pieces of information into a comprehensive picture of their world” (Mintzberg, 1990).

**LEADERSHIP TRAITS**
- Innovate / Ideas
- Intuitive
- Effective
- Proactive to change
- Initiate
- Motivate / Inspire
“The overlap between management and leadership is the fact that leadership is a role of management.” (Mintzberg, as cited by Amos et al. 2008) Managers must be aware of the leadership styles but to be an effective leader, the style must be adapted to the most suitable for the given situation. (Amos et al. 2008)

EMOTIONAL INTELLIGENCE

According to Goleman (2000) emotional intelligence is what makes an effective manager with the required knowledge, skills and competencies an even greater leader. Emotional intelligence (E.I) is not the technical skills or the IQ of a manager but the personal capabilities which put one leader above the rest. The five components of E.I are:

1. Self – awareness – determine your weaknesses
2. Self – regulation – control impulses and channel for good purposes
3. Motivation – passion for achievement
4. Empathy – taking into account others’ feelings
5. Social Skill – build cooperation and move into direction

E.I. does not replace the required knowledge, skills and competencies needed by construction managers to be effective, but will only enhance their abilities as leaders.

E.I. can be learned and the guidelines when doing so involves: (Goleman, 1998)

1. assess the job
2. assess the individual
3. deliver assessments with care
4. gauge readiness
5. motivate
6. make change self-directed
7. Focus on clear, manageable goals
8. Prevent relapse
9. Give performance feedback
10. Encourage practice
11. Arrange support
12. Provide models
13. Encourage
14. Reinforce change
15. Evaluate

**LEADERSHIP’S CAPABILITIES OF CHANGING PERCEPTIONS OF WOMEN CM’S**

According to Jogulu and Wood (2006) research from 1990 began to report that female managers are seen in more positive terms as leaders. In the 18th century a leadership theory was develop describing the qualities of an effective leader. This theory was known as the “The Great Man” Theory and the qualities possessed by this type of leader was said to be intrinsic. The theory was male orientated and did not apply to women in management.

In the 1990’s, a new perspective was adopted which recognized women as managers and leaders and beneficial to organizations. The leadership styles were different but nonetheless, women had the qualities required to be a leader.
LEADERSHIP STYLES
Male orientated – authority, high control, analytical problem solving
Female orientated – cooperation, collaboration, lower control and problem solving, high rationality and intuition. (The characteristics of a Transformational leader)

TRANSFORMATIONAL LEADERSHIP
Transformational leadership is the style which is linked to effectiveness through intuition and rationality. This is closely aligned to the characteristics seen in women and include characteristics of relational orientated, nurturing and caring.
<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
<th>Hallmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-Awareness</strong></td>
<td>the ability to recognize and understand your moods, emotions, and drives,</td>
<td>self-confidence</td>
</tr>
<tr>
<td></td>
<td>as well as their effect on others</td>
<td>realistic self-assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>self-deprecating sense of humor</td>
</tr>
<tr>
<td><strong>Self-Regulation</strong></td>
<td>the ability to control or redirect disruptive impulses and moods</td>
<td>trustworthiness and integrity</td>
</tr>
<tr>
<td></td>
<td>the propensity to suspend judgment – to think before acting</td>
<td>comfort with ambiguity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>openness to change</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td>a passion to work for reasons that go beyond money or status</td>
<td>strong drive to achieve</td>
</tr>
<tr>
<td></td>
<td>a propensity to pursue goals with energy and persistence</td>
<td>optimism, even in the face of failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>organizational commitment</td>
</tr>
<tr>
<td><strong>Empathy</strong></td>
<td>the ability to understand the emotional makeup of other people</td>
<td>expertise in building and retaining talent</td>
</tr>
<tr>
<td></td>
<td>skill in treating people according to their emotional reactions</td>
<td>cross-cultural sensitivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>service to clients and customers</td>
</tr>
<tr>
<td><strong>Social Skill</strong></td>
<td>proficiency in managing relationships and building networks</td>
<td>effectiveness in leading change</td>
</tr>
<tr>
<td></td>
<td>an ability to find common ground and build rapport</td>
<td>persuasiveness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>expertise in building and leading teams</td>
</tr>
</tbody>
</table>

*Figure 6 Components of Emotional Intelligence (Goleman, 1998)*
4.3. SUMMARY

Management is the main aim of the game for construction managers, yet leadership plays just as important role. The difference between the two systems in Table 7 and the prominent difference is that managers focuses on the duties, tasks and objectives whereas leaders inspire people and motivate them to move in a certain direction. Leadership is said to be a role of management (Amos, 2008) and similar to management, the leadership style must be adapted to the given situation. The difference is perceived in women who are more inclined to use the transformational style – which is characterized by nurturing and caring. For a manager to be an effective leader it is advised that he/she develops their emotional intelligence. E.I. is the personal capabilities of a leader to enhance in areas such as self – awareness, self – regulation, motivation, empathy and social skill. Leadership styles advanced past the Great Man theory to include traits and behaviour more applicable to females and also to men – not satisfying the distinctive leadership characteristics.

Men and women are very different in the way they learn, in how they interpret and how they perceive tasks on site. The similarities between them are of more importance when looking at a senior managerial position.

Women are mostly employed in office based positions which diminishes their opportunity to advance in their career to top manager roles. A management position on site ensures the appraisal sought after by all construction managers.

Women must adapt the language and approach accepted by men to be able to effectively manage her team on site. Success for women is due to
teamwork, resources and proper communication but with failure, women blame it on lack of knowledge, skills and competencies.

Women are more advanced in human relations, language, expressiveness, appreciations and carrying out detailed and planned duties and responsibilities. The biggest challenge women face in the construction industry is the lack of role models and supportive companions.

Appraisal to effective women construction (project) mangers will ensure effective change in increasing women representatives in top managerial positions.

Women employed in the construction industry are largely based in office positions, which include clerk, secretary and personal assistant positions.

The roles of women have changed drastically over the years. More and more educated women are entering the workforce with women having more similarities to men in top management positions than they get credit for.

4.4. CONCLUSION

It would appear that differences in management and leadership styles do exist but the extent and effect is still not certain so that conclusions are not possible without doubt.

It has been determined that management and leadership are closely related to emotional intelligence but again research is ongoing. It is an accepted and proven fact that management, leadership and emotional intelligence can be
taught, therefore differences can be eliminated through education and training.

4.5. HYPOTHESIS

It can clearly be seen that there is a difference in the number of men in managerial positions than women. But is this due to the difference between them or the difference in their knowledge, skills and competencies or is it purely an equality issue?

The managerial position is again male-dominated and the image of the construction industry creates the illusion that only men will be effective in the position. The styles and approaches may differ, yes, but that doesn't make men more superior to women.

The number of years of experience will be to a greater advantage than the background, culture or gender of the person. With experience come knowledge, skills and competence – this per definition is what an effective construction manager requires.

TESTING OF HYPOTHESIS:

The hypothesis did not exactly answer the question of why there is a difference in the total amount of women in construction management positions when compared to men in management positions. The hypothesis is therefore incomplete but correct when stating that experience is valuable to a construction manager and if denied will hinder progress to a top management position.
CHAPTER 5

HOW DOES THE CONSTRUCTION INDUSTRY OF SOUTH AFRICA COMPARE INTERNATIONALLY?

5.1. INTRODUCTION

The construction industry is one of the most booming industries in the whole world. South Africa's building and construction industry is one of the most promising industries to the country's economy. The industry adds value by employing large amounts of people and has shown an overall trend improvement since 2000.

Several empowerment opportunities have been provided, especially for women-owned construction companies. Currently there are 45% investments that go towards residential; the remaining is invested in large projects.

Skill shortages are still one of the biggest problems the construction industry faces. With the necessary in-house training and role models these employees can quickly be promoted to higher positions within the organization.

The construction industry is the most valued industry to any country's economy, yet it fosters a male only image and little credit is given to women who are of equal value to a construction company.
The construction industry is definitely not the only industry where women experience the difficulties of being in a management position. In many industries women are faced with the male dominant culture that ranks male managers above women managers. (Watts, 2009[2])

Stats SA shows that in 2004 there were 403 000 people employed in the construction industry, civil engineering industry and building installation sectors. The construction industry accounted for R100 442 000 of the total income in 2004.

5.2. HOW DOES THE CONSTRUCTION INDUSTRY OF SOUTH AFRICA COMPARE INTERNATIONALLY?

CONSTRUCTION INDUSTRY

Fielden et al. (1999) determined that the most male dominated industry is the mining and quarrying industry. Following close by is the construction industry with 84% male workers.

In a survey of the Chartered Institute of Banking it showed that the number of women in Housing Associations is in greater numbers than any other sector. It also showed that women are under-represented in the private sector as opposed to the public sector and in self-employment. (Fielden et al. 1999)

Fielden et al. (1999) defines the construction industry as two main categories:

1) Managers and professionals
2) Construction trades
The managers and professionals are those who plan, organize, motivate and control around the activities on site to ensure successful completion of the construction project. In the construction trades are those who “construct, install, finish, maintain and repair internal and external structures.” (Fielden et al. 1999)

There are numerous barriers known that are preventing women from entering the construction industry and progressing in their careers. These are listed by Fielden et al. (1999) as follows:

- Construction Industry Image
- Career Knowledge
- Selection Criteria
- Male dominated cultures
- Recruitment Practices and Procedures
- Sexist Attitudes
- Working Environment
- Education process
- Organizational culture

Some of the above barriers will be explained in more detailed to realize just exactly why there is inequality experience in the construction industry.

The construction industry image is the main problem why women are hesitant to enter the industry. Many people believe that the trades in the industry are limited to bricklaying, plastering and painting. Harris (cited in Fielden et al. 1999) commented that the industry is not a favourable career choice when compared to the other industries.
Together with the image of the construction industry is the knowledge of the industry. Many people are uneducated when the construction industry is mentioned. The narrow-minded thinking has a major impact on the representation of the industry compared to other.

The Selection criterion is the process to determine whether the person has the required knowledge, skills and competencies to be appointed in the construction industry. This required knowledge, skills and competencies were discussed in Chapter 2. Fielden et al. (1999) describes the construction industry as “being characterized by argument, conflict and crisis.” Romans, (as cited in Fielden et al. 1999) describes the industry as “overtly fostered through language and behaviour.”

This means is that harassment can be verbal, physical or visual and this is the culture and tradition of the construction industry. This is similar to the selection criteria where it is considered a necessity to have physical strength in order to apply for a position in the construction industry.

In the UK the Health and Safety Executives changed the need for physical strength which means the barrier of physical strength is removed but this didn’t improve the image. (Fielden et al. 1999) Women may still be more preferred for their reliability and high quality of production. (Boiko, as cited in Fielden et al. 1999) Women face these barriers at every position in the construction industry, which has the effect that many hesitate to enter the industry.

It is important to remember that although the list naming the barriers to the construction industry, it is not limited to the construction industry.

MINING INDUSTRY
The mining industry has prohibited women from entering the industry until 1990. The industry has the industry image of being male dominated employees in the labour positions and was not seen as a wise choice as a professional career.

Companies like Anglo Gold Ashanti has manifested policies and systems to include women in the industry and that discrimination is prevented as far possible. Not only is this implemented in South Africa, but in all countries in which Anglo Gold Ashanti operates.

Barriers that prevent women from entering the mining industry include:
Lack of knowledge
- Career position
- Physical constraints
- Lack of role models and mentors
- Site infrastructure

Insufficient knowledge seems to be the biggest barrier faced by women who enter the industry for a position of manager. Physical constraints are aimed at pregnancy and physical capacity of the women. The main problem is that care isn’t taken when considering women for a position and her physical capability.

Role models, such as the problem in the construction industry, are of little numbers in the mining industry and again raise the problem of the lack of knowledge by female role models.
The last barrier raising concern is site infrastructure. This includes nursing facilities, changing rooms, medical facilities and providing proper protective clothing.

HOTEL AND CATERING INDUSTRY

When looking at the Hotel and Catering industry, numerous reports state that this industry is the largest employers in the United Kingdom. (Wood, 1992) The industry is seen to have low barriers, making it appropriate for even small entrepreneurs to enter the market.

In the same breath it must be said that the hotel and catering industry is also known for the following issues:

- Low wages
- Poor working conditions
- Minimum job security
- Low status occupation (Wood, 1992)

There lies a need in creating an environment that is both safe and free from harassment and in turn will acknowledge the women as an individual with as much right to progress in her career in the construction industry and other industries around the world.

EMPLOYMENT BY INDUSTRY

Problems related to the construction industry are rooted from the women’s initial career choice. With the lack of knowledge about the industry and the image associated, the negative attitudes experienced by women have made
them believe that the construction industry is an intimidating and overwhelming environment.

Segregation in the construction industry is still a huge issue, and early education is the root of this problem. This is where men have the advantage of networking and developing their construction management career way before entering the industry.
From Table 6 it can clearly be seen that the construction industry is the most dominated of the major industries.

<table>
<thead>
<tr>
<th>INDUSTRY</th>
<th>WOMEN (1000)</th>
<th>MEN (1000)</th>
<th>TOTAL (1000)</th>
<th>% WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, fishing</td>
<td>62</td>
<td>198</td>
<td>260</td>
<td>23.85</td>
</tr>
<tr>
<td>Energy, Water supply</td>
<td>48</td>
<td>196</td>
<td>244</td>
<td>19.67</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>1121</td>
<td>2880</td>
<td>4001</td>
<td>28.02</td>
</tr>
<tr>
<td>Construction</td>
<td>112</td>
<td>748</td>
<td>860</td>
<td>13.02</td>
</tr>
<tr>
<td>Hotel, Catering</td>
<td>2837</td>
<td>2279</td>
<td>5116</td>
<td>55.45</td>
</tr>
<tr>
<td>Transport &amp; Communication</td>
<td>341</td>
<td>964</td>
<td>1305</td>
<td>26.13</td>
</tr>
<tr>
<td>Banking, Finance, Insurance</td>
<td>2084</td>
<td>1828</td>
<td>3912</td>
<td>53.27</td>
</tr>
<tr>
<td>Public admin, Education, Health</td>
<td>3883</td>
<td>1684</td>
<td>5567</td>
<td>69.75</td>
</tr>
<tr>
<td>Other Services</td>
<td>526</td>
<td>439</td>
<td>965</td>
<td>54.51</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11014</td>
<td>11216</td>
<td>22230</td>
<td>38.19</td>
</tr>
</tbody>
</table>

Table 8 Employment by industry and sex 1997 (Fielden et al. 1999)

The main contributors to first quarter growth were finance, real estate and business services (1.1%); manufacturing (0.8%); wholesale and retail trade, hotels and restaurants, and construction (each contributing 0.7%); transport and communication (0.6%); and the general government sector (0.5%).

One of South Africa’s priorities is to invest more in low cost housing. With this, the opportunity for women to enter the construction industry increases.

Muzio (as cited by Watts 2009[2]) concluded that professionalism is still a male occupational project. He also stated that women are more likely to be managers in traditional “female-roles” such as Hotel and Catering (as Table 8 also suggests)
Although the equity issue related to the construction industry is being addressed, opportunities available to women still remain limited and they are extremely under-represented. (Fielden et al. 1999)

He continues by saying that not only is separation a problem within the position that a woman is employed but also within the organization type in which she finds herself.

Issues that are also related to the construction industry are the fact that work and family life cannot be combined. It must be kept separate, which most women finds difficult when considering a life in a management position. (Fielden et al. 1999)

Not only are the number of women in the construction industry continuing to grow, the number of women in other industries are also rising. Fielden et al. (1999) deduced that this will mean women will have to be considered for numerous positions in various industries.

Principles to promote equity in companies must be kept in place to force construction companies and companies in other industries all around the world to consider women for a managerial position. This will reduce poor business relationships and keep up the reputation of the company.

“But although affirmative action is embedded within corporate recruitment strategy, women are still unable to raise to top management posts in significant numbers.” (Watts, 2009[2])

These principles are known to all, but little companies are in full support of this. It is beyond the limit of this research to determine why the number of
women representatives is still low but authorities must have a closer look in the equity numbers of construction companies.

“The different type of embodiedness also presented difficulties, with women feeling the need to cloak their femininity to promote only appropriate visibility and the manual workforce using their size, strength and general physicality as a way of asserting their identity and obstructing white-collar authority.” (Watts 2009[2])

Watts (2009[2]) did a study with various participants in the construction industry and although few spoke negatively about their management positions but they agreed that with the numerous barriers present it will lead to the decision of exiting the profession.

“There is talk about embracing in employment practices but this has limited application at senior levels.” This is seen in several industries where actions are taken to address the equality issues although the same cannot be said for women in managerial positions.

Women in the construction industry are bombarded with the issue that management remains a male controlled position. Refer to Chapter 4 on management positions.

“The pressures placed on female managers are complex and derive in part from the relation between stereotypes about managers and stereotypes about men and women.” (Watts, 2009[2])

This is common in all industries and women are at a disadvantage with the common mistake and stereotype thinking made that managers must be men.
Women must constantly show their credentials for a management position and will remain a visible target for crude remarks and harassment.

The accounted women contractors in South Africa are currently standing on 2000 members. (Verwey, 2005) in the Gauteng province there are 7 companies dealing with million-rand deals, 13 who deals with medium sized projects and 43 smaller companies.

Sigcau (1999) stated that the Emerging Contactor Development Programme has 1200 members and 7% of this is women. Of this 7% women part of the programme are dealing with cleaning, horticulture and catering services. Less than 10 companies are dealing with construction work.

“The drive for productivity, profit, speed and lower costs shapes economic competitiveness in much the same way it does in other industries while competitive displays of loyalty and commitment to the job are common worker behaviours that contribute to being a ‘preferred worker’ in respect of the next contract”. (Watts, 2009[2])

Time, cost and quality are the triangle to the built environment and not only does this apply to the project, but it applies to the employees executing the project. Like Watts says it is the manner in which work is done that will determine the progression in the construction manager’s career. When stating it in this manner – why is there such an inequality in the number of women construction managers when it clearly states progression is irrespective of gender?
Watts (2009[2]) further states that the way in which women negotiate roles as construction managers together with the background that determine the positions of authority.

UK’S CIVIL ENGINEERING INDUSTRY

In the UK’s civil engineering industry, ICE (as cited by Watts, 2009[2]) describes the picture as a competitive and highly male dominated male environment. Again, women are not presented in high management positions and currently accounts for 5% of the total.

“The United Kingdom construction industry has traditionally been dominated by white men, and there remains a demonstrable under representation of women and minorities.” (Dainty, Neale and Bagilhole, 2000)

Currently in the UK, women present 4% of the professional bodies in the construction industry. Construction companies in the UK started addressing this inequality and more than 18% of the undergraduates in construction related degree courses are women. Almost 50% of the workforce in the UK consists of women. However only 13% of the sum total amounts for women in the construction industry. (Fielden et al. 1999)

Apart from this increase, the United Kingdom still has concerns regarding the career progression of women. Discrimination, sexist behaviour, harassment and work/family conflicts are not the only reasons why the turnover in women in construction is so high.
In an article written by Dainty, Neale and Bagilhole (2000) they claim that women are ambitious in their studies and get quickly dissatisfied when climbing the corporate ladders happens too slowly.

In a study done by Fielden et al. (1999) it was discovered that 92% of the men are employed full-time where only 55% are women. The 1996 Labour Market Survey done in the UK showed that 84% of part-time employees are women. They state that in no other industry is this more apparent than in the construction industry. They continued by saying not only is occupational isolation a problem but also differentiation in the workforce.

As discussed in Chapter 5 with reference to Table 1 it is not just the United Kingdom that has the same problem with the construction industry being the most male dominated industry.

Fielden et al. (1999) comments on an evaluation done by Briscoe (1998) that the issues faced by the UK’s construction industry is indeed very similar to those in other countries and that the initiatives to address skill shortages have been ineffective. Women in the UK Civil Engineering only account for 5% of the total.

**MINNESOTA – USA**

Just to consider a different fact quickly. In Minnesota, USA, there is a worry about the amount of contracts that went to women and minority-owned firms that is far too little to comply with the systems. The goal is 8.5% and it only went up to 6.59% but the officials state that there is now more commitment to hire these women and minority-owned construction companies. (Olson, 2010)
Everybody knows that affirmative action and equity policies are created to address the issues associated with under-representation, nowadays business climates call for greater entrants of both women and men to address the shortage in skilled workers.

**NURSING AND LEGAL INDUSTRIES**

“A comparison of women in the construction industry with women in male dominated legal and female dominated nursing industries reveals little variation in how women deal with the barriers faced with the relevant industry.” (Chandra and Loosemore, 2004)

**QUANTITY SURVEYING PROFESSION**

According to Ellison (2001) there exist a shortage of skilled labour in the quantity surveying profession and similar to the Scottish Construction Industry (Agapiou, 2002) the focus must be shifted towards diversity to widen the pool of candidates for the positions. Equal opportunity policies are being redressed to harmonize the balance of women in the top management positions in the quantity surveying profession.

**5.3. SUMMARY**

Many women will continue to contribute to their environment regardless of their background. This was noted by Verwey (2005) who started an organization that will help the previously disadvantaged women in South Africa. Because many organizations do not know how to help these women, SAWiC (South African Women in Construction) aims at addressing these needs.
There are numerous barriers faced by women regardless of the industry or the country. When there are low barriers to enter a specific industry like the hotel and catering industry, there are other negative factors that also prevent women and even men from entering such industries. These include: construction industry image; career knowledge; selection criteria; male dominated cultures; recruitment practices and procedures; sexist attitudes; working environment; education process and organizational culture.

These are listed as barriers to the construction industry, but it is clear that industries like the mining, agriculture and transport sectors experience these barriers as well. And not only do these listed barriers apply to South Africa, they apply to the United Kingdom, Australia and the United States. The study only looked at a few countries, but if it is experienced in these three (3) countries, it wouldn’t be far fetched to say it will be seen in other countries as well.

5.4. CONCLUSION

South Africa has a building and construction industry that is of great importance to the economy of the country and important to the employment sector as it employed more than 400 000 people in 2004.

It is clear from the study that other countries experience must the same problems as South Africa and that not only is the construction industry bombarded with barriers towards women but the mining, agricultural and transport sectors as well.

Governments implements strategies and policies to promote the number of women entering the construction industry and yet numerous construction
companies are still not employing women in construction management positions. This is due to the industry being male dominated and senior male managers ‘protecting’ their position within the organization and the industry.

The number of women entering the construction industry and progressing in their careers to construction managers is increasing each year and as women gain more knowledge of what the construction industry is, they will motivate numerous other women to start a career in construction as well.

5.5. HYPOTHESIS

South Africa has a much larger problem employing women in the construction industry as countries like Australia, the United States and the UK. With affirmative action and employment equity acts in South Africa, the number of women in construction has increased, but not to such an extent as to say the tables have been turned.

The construction industry will also be the most male dominated industry in relation to industries like mining, transport, hotel and catering sectors. Women are employed in more administrative positions and office based careers which also has a negative effect on women wanting to enter the construction industry and become construction managers.

TESTING OF HYPOTHESIS:

It is difficult to say whether the hypothesis is correct or not. Yes the construction industry is the most male dominated industry, but so was the mining industry until 1990. Regardless of the industry, there will be barriers. This was proven through the research into other industries world wide. All the
industries will have barriers; some more than others and each industry is unique.

How South Africa compare to other world countries can be looked at a more positive aspect. Yes, South Africa experiences inequality and numerous policies are created to address this and still it remains an issue but the number of women in construction management positions continues to increase with each year, however the industry aim to improve equality of gender and race evenly and not to confuse the one with the other. From the statistics obtained in the preliminary investigation of South African construction companies, it would appear to be the case that the government driven initiative receives privilege.
6.1. BACKGROUND

“There has been a stream of literature discussing gender difference in managerial style. The newer literature about managerial competence, however, remains largely silent about gender, regardless of whether managerial competence is contextualised in an organisational or human resource perspective.” (McGregor and Tweed, 2001)

Numerous companies have implemented strategies and policies to deal with the inequality in management positions; however the numbers remain the same. When there are new female entrants to a construction company, discrimination, harassment, crude language and sexual jokes are just some of the barriers that these women face.

The construction manager requires a broad range of knowledge, skills and competencies to effectively manage the team members, manage co-workers and manage their own responsibilities. Differences between men and women have become the main issue for the difficulties women face when striving to progress in their careers.

It is argued that the imbalance in the industry is due to the fact that women are not given a fair opportunity and numerous companies adopt new principles to promote the position of women construction managers in organizations.
A timeline of academic publications illustrating women's suffrage of managerial inequalities and gender discrimination on construction sites is depicted on the following three pages:

A TIMELINE OF WOMEN IN CONSTRUCTION DIFFICULTIES

1975

Gender role stereotyping which is the belief that a set of traits and abilities is more likely to be found among one sex than the other

Schein 1975

1999

The results revealed that professional women had higher expectations and were more committed to remaining in the construction industry than female students. Professional men were responsible for supervising significantly more people than professional women

Bennet Davidson & Gale 1999

1999

... evidence, however, of a gender by level interaction effect indicating that, relative to men, women in higher level positions received fewer promotions than women in lower levels.

Lyness & Judiesh 1999

2000

Project managers in today's construction industry are faced with a situation whereby the fundamental roles and functions they perform are witnessing a gradual shift in focus

Edum-Fotwe & McCaffer 2000

It is widely accepted that every industry must attract the best available management talent to remain globally competitive and to provide acceptable levels of customer service.

Women’s experiences of non-traditional employment: is gender equality in this area a possibility?

WOMEN PROJECT MANAGERS’ WORKPLACE PROBLEMS: A SURVEY

A comparative analysis between SA and USA women entrepreneurs in construction.

The percentage of all women employed in the construction industry in South Africa is in the region of 10% of employees. The percentages of women professionally qualified or being leaders in the construction industry are even less.

Nkado’s (1999) previous study on skills and competency development reveals that acute shortage of skilled and competent professionals in the South African construction industry has resulted in the inequitable delivery of infrastructure.
Research suggests that women in academia face problematic career paths as a result of masculine cultures and horizontal segregation.

Despite high profile attention and many initiatives aimed at increasing gender diversity on corporate boards, women remain a minority in the vast majority of board rooms across the world.

Managerial Competencies of Female and Male Construction Managers.

Relationship between the unique gender skill sets and the placement of women in construction firms.

Influences on Women’s Choices of Careers in Construction: A South African study.

Before I came in, I knew nothing. Well, I thought I knew nothing, but actually by learning, I realised that what I’d been doing all of my career is project management, but ( . . . ) I didn’t realise I was doing it.
6.2. SUMMARY

THE REQUIREMENTS OF A CONSTRUCTION MANAGER

Management has been an integral part of history and construction management authority was delegated by kings to supervisors. The story of Moses in The Bible is probably the best known example. Pioneers such as Taylor and Fayol adopted the position of manager by necessity. Towards the end of the 1900’s, management found its application theorized for the various discipline such as construction. Management is still evolving as a science and educators such as Mintzberg and other likeminded academics are now looking at practice in establishing new management theories.

In South Africa the guidelines prescribed by SACPCMP for professional construction managers and professional construction project managers is well established.

Differences, are they gender related?

There is no difference in the required knowledge, skills and abilities needed by men and women respectively to be an effective construction manager. The knowledge, skills and competencies will be applied differently to each situation depending on the nature and history of the project, regardless of gender.

Education received by students is not gender related. The subjects taught at Universities are aimed at teaching students at becoming construction managers. These subjects include Building Science, Economics, Costing, HR Management etc. Other factors which can be regarded as a gender related difference include time, culture, tokenism, diversity and life balance.
Women who aspire to be even more effective construction managers must ensure they are networking within their team, the organization and the industry. Keep abreast of new skill training courses and learn by observing fellow male companions and those who will be useful in enhancing her career.

**IS THERE A GENDER RELATED DIFFERENCE IN MANAGEMENT AND LEADERSHIP?**

Management is the main aim of the game for construction managers, yet leadership plays just as important role. The difference between the two systems in Table 7, page 73, and the prominent difference is that managers focuses on the duties, tasks and objectives whereas leaders inspire people and motivate them to move in a certain direction. Leadership is said to be a role of management (Amos et al. 2008) and similar to management, the leadership style must be adapted to the given situation. The difference is perceived in women who are more inclined to use the transformational style – which is characterized by nurturing and caring. For a manager to be an effective leader it is advised that he/she develops their emotional intelligence. E.I. is the personal capabilities of a leader to enhance in areas such as self – awareness, self – regulation, motivation, empathy and social skill. Leadership styles advanced past the Great Man theory to include traits and behaviour more applicable to females and also to men – not satisfying the distinctive leadership characteristics.

Men and women are very different in the way they learn, in how they interpret and how they perceive tasks on site. The similarities between them are of more importance when looking at a senior managerial position.
Women are mostly employed in office based positions which diminishes their opportunity to advance in their career to top manager roles. A management position on site ensures the appraisal sought after by all construction managers.

Women are more advanced in human relations, language, expressiveness, appreciations and carrying out detailed and planned duties and responsibilities. The biggest challenge women face in the construction industry is the lack of role models and supportive companions.

HOW DOES THE CONSTRUCTION INDUSTRY OF SOUTH AFRICA COMPARE INTERNATIONALLY?

Numerous barriers face women regardless of the industry or the country. Negative factors that prevent women and even men from entering an industry are industry image; career knowledge; selection criteria; male dominated cultures; recruitment practices and procedures; sexist attitudes; working environment; education process and organizational culture.

These are listed as barriers to the construction industry, but it is clear that industries like the mining, agriculture and transport sectors experience these barriers as well. And not only do these listed barriers apply to South Africa, they apply to the United Kingdom, Australia and the United States.

Regardless of the management styles, men and women do not use power differently. (Watts, 2009[2])

“The pressures placed on female managers are complex and derive in part form the relation between stereotypes about managers and stereotypes about men and women.” (Watts, 2009[2])
6.3. CONCLUSION

Gender and management is a topic often discussed, debated and researched, but with astonishing little conclusive results translated in actual real changes. It would appear as if authors frequently opt to conclude in vague terms with nothing more than acknowledgment of the situation.

The difficulties addressed are of complex nature involving diverse disciplines and historic cultural and political characteristics of peoples and nations. As an example the voting rights of women can mentioned where Arabian countries only awarded equality in the 21st century.

The literature consists mainly of masters and doctoral theses by women students and articles authored by women directly related to construction, and might be considered biased. As expected the articles authored by men differ in emphasis and viewpoints. The knowledge, skills and competencies required has no gender difference attached to it.

Gender differences that are perceived to exist is not due to education or any innate traits in the form of permanent differences in style and manner of management. Management, leadership and emotional intelligence can be taught to a non-gender audience with the same expected outcomes. Differences between male and female managers should dissipate over time as knowledge, skills and competencies are exercised as intended.

It would appear that apart from education by all parties involved in a construction company in discipline such as ethics, sexism, racism, etc large amount of tolerance is required by all concerned. Communication and flow of
information is integral to success and in certain cases even basics such as literacy skills

It is evident that male and female managers achieve success in construction projects performance. It is however unfortunate that some women in construction can only claim success after starting women owned / managed companies. One of the unnoticed results of gender discrimination refers to experience being denied women that they would need to be able to register as professionals.

Australia, the United Kingdom and the United States of America all face similar situations as in South Africa, with the majority of women employed in office base secretarial service positions.

**FURTHER STUDIES**

Research that would benefit women and their co-workers in construction includes, but is not limited to, the following:

- A list of discriminatory attitudes and decisions by management that can be opposed by them. It should be clear to what extent they can revert to assistance from authorities.
- A list of discriminatory offenses by management that could be addressed by formal action.
- Distinctions between actions of male co-workers that can be identified as sexual harassment and actions that is more innocent of nature.
- Clear guidelines that distinguish between gender and race discrimination and similar situations where ambiguity is created.
REFERENCES


Arditi, D and Balci, G 2009. Managerial Competencies of Female and Male Construction Managers. Journal of Construction Engineering and Management. ASCE.


Crawford, L 2000. Profiling the Competent Project Manager. University of Technology, Sydney NC.
Crisp, M 1991. Rate your skills as a manager, A crisp assessment profile. Crisp Publications. California


Ellison, L 2001. Senior Management in chartered Surveying: Where are the women?. MCB University Press. UK.


Jackson, JC 2001. Women middle managers’ perception of the glass ceiling, MCB University Press, USA.


Madikizela, K 2010. Influences on Women’s Choices of Careers in Construction: A South African study. Cape Peninsula University of Technology, South Africa


Unknown. The History of Management, Chapter in USA Management textbook.


Whittock, M 2002. Women’s experiences of non-traditional employment: is gender equality in this area a possibility?. Taylor & Francis Ltd. UK.


INTERNET SOURCES


Construction management, Quantity surveying and Real estate undergraduate degrees, Department of Construction Economics, University of Pretoria, 2010. BSc (Construction Management), Internet: http://web.up.ac.za/default.asp?ipkCategoryID=3294&subid=3294 Access: 19 April 2010


Define: Professionalism.
Internet: http://www.businessdictionary.com/definition/professionalism.html
Access: 23 October 2010

Define: Expert.
Internet: http://www.businessdictionary.com/definition/expert.html
Access: 23 October 2010

Define: Affirmative Action.
Internet: http://en.wikipedia.org/wiki/Affirmative_action
Access: 23 October 2010

Guide for applicants 2011 for built environment, University of Johannesburg,

UNICEF, 2004, Gender Equality, The Big Picture. Internet:
