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Employers' and graduates perception survey on employability and graduateness: products of the School of Construction Economics and Management at the University of the Witwatersrand

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Employers' and Graduates Perception Survey on Employability and Graduateness: Products of the School of Construction Economics and Management at the University of the Witwatersrand

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of:

Master of Science in Building (Project Management in Construction)



School of Construction Economics and Management

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DECLARATION

I declare that this research report for the degree of Masters in Building at the School of Construction Economics and Management, Faculty of Built Environment and Engineering, University of the Witwatersrand hereby submitted, has not been submitted by me or anyone else for a degree at this or any other university. That this research is my own work and the contents herein have been properly referenced and acknowledged.

…….

Celiwe Tati Mtebula

…….day of ……..year……

ABSTRACT

In 2009 an article titled “Crisis hits another WITS department” appeared in the Business Day newspaper. The article was based on the results that came from an internal quality review performed by the university on the School of Construction Economics and Management. The issues pertaining to the article were that the school was experiencing a shortage in staff that led to the deterioration of standards and the quality of graduates in the year 2008 and 2009. The School of Construction Economics and Management is a major source of young professionals into the built environment, which is important for the country’s ability to deliver infrastructure projects. This research examines the graduateness and employability of graduates that were produced from the school in the period between 2008 and 2011. Questionnaires were sent out to graduates and employers in order to find out what the perceptions were of both the concept of graduateness and employability. The key findings were that whilst the graduates said that they were ready for employment after completion of their respective degrees, the employers said that graduates did not have sufficient experience to enter the working world. Thus it is clear a gap certainly exists between the perceptions of graduates and employers. It was concluded that an effort must be made between the different stakeholders to breach this gap.

DEDICATION

To my beloved mother, I thank you for giving me the courage and support to further my studies. Thank you for the inspiration. Unahina Risima Mathye, I hope one day you will be inspired by this.

ACKNOWLEDGEMENTS

I would like to thank God for this vision that He gave me, for without Him this would have been just a dream. To Mr KQ Mathye, thank you for the motivation throughout this research. I would have missed many deadlines if it weren't for your support. My mother and family, you consistently encouraged me to dream big and to work hard. Thank you for believing in me and making me believe. My friends Ntokozo Cemane and Tinyiko Motloung, you two are "the wind beneath my wings". Dreams come true through you, and I'm inspired by what you have both achieved. Prof D Root for all the guidance through this research report, none of this would have been possible if it weren't for the guidance and supervision. Mantiseng Sithole for being a second mother to me, and bearing with my never ending requests. To all that took part in the survey, I am eternally grateful for your participation.

God bless.

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LIST OF ABBREVIATIONS

CEM Construction Economics and Management

CM Construction Management

CHE Council of Higher Education

EBE Engineering Built Environment

HESA Higher Education South Africa

HEI Higher Education Institutions

HEQC Higher Education Qualification Council

NQF National Qualification Framework

PS Property Studies

QS Quantity Surveying

RICS Royal Institute of Chartered Surveyors

SAQA South African Qualification Authority

SSA Statistics South Africa

WITS University of the Witwatersrand

Chapter 1: Introduction

1.1 Background

Graduate unemployment is considered a problem in most developing countries and it has been reported that many of these countries have been failing to alleviate unemployment problems (Wickramasinghe & Perera, 2010). In South Africa, similar concerns have been raised about the numbers of graduates who do not find employment (Van der Berg & Van Broekhuizen, 2012). In this modern world, where education and skills are increasingly a pre-requisite for entering the world of work, the private sector is the dominant player in the economy. However it has been widely observed that the current education and training systems do not necessarily produce graduates that meet the needs of the private sector. For example, a Sri Lankan study identified University graduates' job expectations, factors affecting their job expectations and identifying employers' needs from University graduates (Wickramasinghe & Perera, 2010). Some of the findings from this study were that Universities did not produce the required labour skills for the economy and that undergraduates lack knowledge about the realities of the labour market. Similar studies have been observed in South Africa (Griesel & Parker, 2009). This mismatch in skills may lead to a larger number of unemployable graduates in society.

Both Marock (2008) & Pool (2007) state that young adults entering the world of work in the 21st century are required not only to be employable but also to sustain their employability during their careers by constant acquisition and updating of skills. Other research (e.g. Fallows & Steven, 2000; Savickas *et al.,* 2009) argue that in today's challenging world of work, technical skills and academic knowledge are no longer sufficient for a person to find work. In South Africa, studies by the South African Qualifications Authority (SAQA) and Higher Education South Africa (HESA) looked at employer's perceptions of South African (Griesel & Parker, 2009). Done as a baseline study to assess the type of attributes that the graduates in the country possess, a study by Griesel & Parker (2009) found that higher education and employers had a common

misunderstanding when it came to the quality of graduates that universities were producing. “The role of higher education in human capital development and economic growth is not a new phenomenon, there is little doubt that the Joint Initiative for Priority Skills (JIPSA)-embedded within the framework and goals of accelerated and shared growth-provided additional impetus for the study on “graduate attributes” and employability reported on the study” (Griesel & Parker, 2009:2).

The highlights from Griesel & Parker’s (2009) study illustrated that employers value the conceptual foundation, knowledge and intellectual approach to tasks produced by higher education, and that there may be more of a common language between higher education and employees than is generally perceived. But it is also clear that there is a real need to address gaps between employer expectations and higher education outcomes. In 2010 the minister of Higher Education stated at a conference in Cape Town that universities are not producing the kinds of graduates the country needs to fight poverty and unemployment (Kizito, 2010).

In a survey done by the Royal Institution of Chartered Surveyors (Perera, Pearson & Ekundayo, 2011) it was discussed how a balance would need be struck between the level and type of competence that comes from universities and the exposure from the workplace that should be expected by employers and what can be practically achieved by the graduates. The two; university competences and workplace exposure need to be complementary and it has emerged over the past years that both academia and industry have certain expectations of one another (ibid.). Higher education and the workplace have traditionally shared a common misunderstanding about what their respective roles are.

Employers at times voice concern over the quality of graduates coming out from universities while higher education feels that employers are not fully appreciative of the qualities and skills that these graduates possess. It is common for employers to express concern about the gap that exists between employers and higher education on the outcomes of graduates (Harvey, 2001). The existence of this gap in terms of the

quality, type and quantity of graduates versus the needs of the economy was validated by (Yorke, 2006) and also highlighted in the South African construction literature by Haupt & Chilese (2007) in discussing the growing concerns about the perceived mismatch between industry's needs and demands compared to the graduates produced by Higher Education institutions (HEIs).

Massyn (2009) & (Poon 2012) both separately investigated whether construction management graduates in South Africa have the competencies needed by their industry. The study conducted by Poon *et al* (1999) found that graduates from professional courses, according to employers, were lacking useful and instant fee-earning skills. The study also showed the extent of the differences in expectations and achievement of skills by graduates and their employers. Employers further suggested that their graduates were apparently not as ill–prepared for the workplace as is commonly thought. One of the important objectives of many degree programmes is to prepare students for the workplace. Students of professional studies programmes have what can be regarded as an additional benefit or hurdle, they expect to join a particular profession and have a clearly identified career path in return.

At the level of the School of Construction Economics and Management at the University of the Witwatersrand, this graduateness problem became explicit during the internal Quniquennal Review (QQR) process in 2008/2009 (Business Day, 2010). Following the review, the programmes have been revised and recurriculated, yet this was done in the absence of a systematic evaluation of employers' and students' experiences, despite this being recommended as good practice by the professional councils such as the SACQSP (2013) and SACPCMP (2012).

Degrees in the built environment address the social, spatial and infrastructural needs of a transforming South Africa (www.wits.ac.za). Built Environment Schools such as the School of Construction Economics and Management at the University of the Witwatersrand are responsible for providing the construction sector with graduates suited for the working world. The programmes they offer are known traditionally as

professional degrees and so, perhaps more so that other academic programmes such as in the humanities have a need to ensure that their graduates are ready for industry careers.

1.2 Problem Statement

From the above argument, it can be seen how employers voice concern over the quality of graduates exiting from universities while higher education feels that employers are not fully appreciative of what qualities and skills these graduates do possess.

It has become common cause for employers to express concern about the gap between outcomes of higher education (in terms of quality, type and quantity of graduates), and the needs of both the economy and the employers. Within the more professionally-oriented qualifications, such as those offered by the School of CEM, understanding the extent that graduates from the school of CEM have the necessary skills or attributes that the employers require, is critical to attempts to redesign and recurriculate programmes to meet the needs of the economy and wider society.

1.3 Research Questions

Primary Research Question:

- To what extent do the construction graduates of the School of Construction Economics and Management have the necessary skills and attributes that employers require?

Secondary Research Questions:

- What are the expectations that employers have from graduates?
- What skills are graduates supposed to acquire from their degree?
- What do graduates think about the quality of education that they have and can they apply it to industry?
- Which graduate skills are important to employers?

1.4 Hypothesis

Hypothesis

Graduates from the School of Construction Economics and Management have achieved the level of graduateness to transit into the workplace.

Null Hypothesis

Graduates from the School of Construction Economics and Management have not attained 'graduateness', hence do not have employability skills and are not ready for the workplace.

1.5 Research Objectives

- The objectives of this study is to find out what the views and expectations of employers of the WITS CEM graduates are
- To find out from the graduates what their views are on the Graduateness of the program offered by WITS CEM.
- To find out which employability skills do employers seek from CEM graduates
- To find out what skills should graduates from CEM should have after completion of degree
- To find out what the literature says about the problem of lack of graduateness and employability skills

1.6 Assumptions

- Graduates generally have gained limited work experience before they transit in to the workplace.
- On completion of their respective degrees graduates should have gained theoretical knowledge sufficient for them to enter the workplace
- Employers are not fully appreciative of the skills that new graduates bring to the workplace.

- If both institutions and employers work together the gap of graduate readiness and employability can be filled.

1.7 Limitations

The key limitation to this research is that it focuses on the WITS Built Environment graduates within the School of Construction Economics and Management. It will not say anything about graduates from other universities. The population of these graduates will be that that met the requirements for the award of their degrees between 2008-2011.

It will also be only focused on undergraduate degrees (professional bachelors, bachelors and honours degrees) as those that are doing postgraduate degrees generally have industry experience, and the focus of this study is on graduateness, not the reskilling and upskilling of industry practitioners.

1.8 Methodology

The study will be conducted through a form of questionnaires, and peer reviewed journals will be analysed; also a series of other published literature will be read. Additional interviews will be conducted if needed. The sample will be drawn from the population of employers that employ WITS University CEM graduates who graduated between the years 2008-2011.

1.9 Justification for the research

Over the last two decades, many countries have conducted research investigating employer expectations of built environment graduates. Previous research has focused on the expectations of surveying graduates in Hong Kong (Davies et al., 1999), South Africa (Massyn & Mosime, 2009) and the USA (Galuppo & Worzala, 2004 and Weinstein & Worzala, 2008), but there has been little research in employers and graduate perceptions on employability and graduateness. This research undertakes to atleast cover the gap that exists within that field of employability and graduateness perceptions by graduates and employers.

1.10 Structure of the Thesis:

The structure of the research is presented in the following manner:

Chapter 1: Introduction

This chapter will introduce the research topic by means of definition, scope, problem statement, hypothesis tested, assumptions and research limitations. A comprehensive background of the study was given.

Chapter 2: Literature Review

This chapter reviewed all the literature that is relevant to the concept of graduateness and employability of graduateness. This literature substantiates the need for this research.

Chapter 3: Research Design & Methodology

This chapter presents the type of methodology employed in the research to solve the problem stated, to prove or disprove the hypothesis and objectives. It included different types of research methodologies that exist and the reasoning behind the choice of methodology to be used for this research. It also highlights the ethical issues considered for data collection.

Chapter 4: Presentation of Results & Data Analysis

This chapter presented the evaluation of the data collected during the research as well as the subsequent significance of the results obtained from data collection.

Chapter 5: Conclusion & Recommendations

The concluding chapter presented the data findings and literature review to the original process of scope, hypothesis, objectives and problem statement. Recommendations were given along with identified areas for future research.

Chapter 2: Literature Review

The Literature Review comprises prior research conducted as it relates to the concept of graduateness and employability. This review will present what other studies found in relation to the problem statement of this research.

2.1 Graduateness

2.1.1 Definition of a Graduate and Graduateness

What is a Graduate?

A graduate is described as someone who applies a fourfold skills based system of managing tasks and solving problems, also someone who has the ability to work with others, communicates well, and has self- awareness (Knight & Yorke, 2003). A graduate can also be defined as a person who has successfully completed a course of study or training; it can also be defined as person who has been awarded an academic degree. A graduate is also further defined to be a cultivated person with the ability to deal with practical issues (Glover & Youngman, 2002).

2.1.2 Defining Graduateness

Graduateness is a concept that has been evolving over the years. The discourse surrounding ' graduateness' in the United Kingdom over the past two decades has been shaped by two inter-related forces: the expansion of higher education and demand by bodies outside the university (such as government and employers) that universities produce 'employable' graduates(Walsh & Kotzee, 2010). The authors of the 1996 Higher Education Quality Council (HEQC) report *What are graduates? Clarifying the attributes of Graduateness* put an attempt on defining 'graduateness' in order to establish a baseline for the quality of the graduates of UK universities (HEQC, 1996:3).

The 'graduateness' discourse has in the last decade moved on from being a conversation between academics and funders regarding the quality of graduates to

being a wider conversation centring on the needs of the business world (Walsh & Kotzee, 2010). It has increasingly come to be seen as the quality that graduates have that prepares them for graduate-level work, or even for work as such (Walsh & Kotzee, 2010). Graduateness has been closely linked with another concept that dominates talk of the quality of graduates today: 'employability' (see, for instance, Su & Feng, 2008; Hager & Holland, 2006; Glover et al., 2002)

Graduateness is further defined as a set of transferrable skills that includes but is not limited to the following (Glover, Law & Youngman, 2006):

- Planning
- Gathering
- Selecting
- Appraising
- Organizing and recording information
- Communication
- Realising results, and evaluating achievements.

It is important to understand what a higher graduate is and also to understand the concept of graduateness in the South African context. Knight & Yorke (2003) defined 'graduateness' as a set of qualities that usually mark a person who has undertaken a degree course developed under the occasion of nationally monitored quality systems. It can also be described as the level of preparedness of a student after completing a course/degree (Glover, 2002). Graduateness is in the process of changing in relation to an increasingly knowledge-driven world.

There is a close relationship between graduateness and employability, and it is more practical and objective in both descriptions and content and appears to be developed through vocational training, especially in a package of skills, rather than through education. This is currently the framework adopted by the School of Construction and Economics and Management. Graduateness alone is not seen as a sufficient basis for

continued personal and institutional success in a highly competitive, flexible and globally responsive, environment. Whatever the content of the course at university and whatever their general employability on graduation those in employment recognise they need to develop and refine both their competences and competencies in order to adapt to the changing work situation. The possible tension between Graduateness and employability has led to considerable discussion of the purposes of education in the post-modem age which will be discussed below.

2.2 Employability

2.2.1 Definition of Employability

Employability is a concept that has been discussed widely, even though many authors have different definitions to what it may be, a common ground can be found as to what it is and what it isn't. Poropat (2011) describes employability as a major educational goal, even though employability programmes emphasized skill development when employers were said to value the performance instead. There is no doubt that employability has been a major topic among advanced economies for decades.

The topic of employability was discussed very much in detail by Baker & Henson (2010). They posit that employability skills have been explicitly addressed in university curricula within a form of regular classes or standalone courses; effectively an 'add-on' or 'bolt-on' component of educational programmes. However, for McQuaid & Lindsay (2005) employability is much more complex phenomenon that reflects individual characteristics, personal circumstances and external factors, each of which may affect access to jobs. In 2002 Glover described employability as an enhanced capacity to secure employment, to be familiar with theories on development. Later on as more research was conducted Kruss (2004) argued that employers expected that graduates be prepared for not only employment but employability. A shift was seen to be moving away from employment to employability (Harvey, 2001).

According to Yorke & Knight (2006) employability is influenced by four broad inter-related components. These components collectively form part of the skilful practices which are communication, management of time, resources and self, problem solving and lifelong learning and deep understandings grounded in a disciplinary base, which is the specialized expertise in a field of knowledge. Metacognition (self-awareness and the capability to reflect on, in and for action) and efficacious beliefs about one's personal identity and self-worth also form part of the components described by Yorke & Knight (2006).

Graduateness is thus a statement of a level of knowledge, skills and understanding whilst employability is more concerned with the way in which those who completed university course can be recruited into national and international employment. The skills that make a person employable are outlined in the research conducted by Lankard (1990). The literature shows that much effort has been spent on developing statements of the desiderata of employability; the skills related to the employability are (Glover & Youngman, 2002):

- problem-solving,
- communication,
- teamwork
- information technology,
- and self-management

A dynamic view of employability was offered by Bagshow (1997) which is not constrained by the match between the emergent graduate and the employment market and the possession of skills and competences to survive in a work situation (Hedley, 2003). King (1995) viewed that the concepts of graduateness and employability had to be seen against the strategic dilemmas of the 21st century of graduates finding work and sustaining those jobs. He contended that higher education is still very much in demand throughout the world because of what it can do for productivity and higher long-term

economic growth, but that is required to be set against a background of constantly squeezed financial provision (Glover & Youngman, 2002).

The new economic order of globalisation is placing an increasing premium on knowledge which, in turn, makes national economies more dependent on higher education's development of people with high level skills, knowledge and understanding, and on its contribution to research. The changing context has also prompted thinking about education to meet the needs of the industrial and commercial world of the future (Glover & Youngman, 2002). This phenomenon is one that's highly discussed in South Africa.It is generally recognized that South Africa does not have sufficient numbers of highly skilled people in most professions, hence the priority given to a host of state department's initiatives (CHE, 2009). A greater shortage of graduates at postgraduate level and recent initiatives, such as those by the Department of Science and Technology and NRF to accelerate the production of PhDs in the system, target this reality explained this study conducted by the Council of Higher Education.

The high international demand for South African graduates, together with the continuing brain drain, provides an urgent imperative to increase the production of postgraduate students in order for the country to remain competitive and to be able to generate knowledge that is responsive to a wide range of societal needs (CHE, 2009). The results presented in the report reaffirmed the pressing need to prioritise the support and funding of greater numbers of PG students and to ensure that there is a clear, easily-accessible and sought-after transition from undergraduate to postgraduate studies at our higher education institutions.

Employability has been questioned in this increasing complex society and knowledge-driven economy which requires individuals who can meet challenges of global economy characterised by rapid change (Brown, Hesketh & Williams, 2002). There is already pressure from the labour market for universities to produce students that are ready for the workplace (Lowden, Hall, Elliot & Lewin, 2011). Employability is further described as a set of achievements which constitutes a necessary but not sufficient condition for

the gaining of employment (Yorke, 2006). Employability is often aligned with the academic valuing of good learning (Yorke, 2006).

In all, if not most, of the literature surveyed in this research the close relationship between higher education and the economy has been stated in providing a context for the debate about what is expected from graduates by employers. Employers worldwide might ask for multi-competent graduates but some aspects of employment-related capabilities can only be developed in the employment context. When doing research on what employers view as important for graduates to have, soft skills were generally ranked high and considered to be very important in recruiting of graduates (Razak, 2008).

2.2.2 Employability Skills

There are many definitions of employability, and although it may be seen or described as a graduates potential to obtain graduate jobs, it isn't merely an attribute of a new graduate. It is an attribute that needs to be continuously refreshed throughout a person's working life (Nagarajan, 2011). According to Buck & Barrick (1987) employability skill is described as a non-technical skill. This skill consists of the characteristics required by employers. Technical ability is another criteria required by employers. Bhanugopan & Fish (2009) stated that "No amount of government investment in the enhancement of "skills" and "personal attributes" will correct "employability" problems if institutions and business organisations fail to communicate with each other with respect to the "skills" and "personal attributes" required at graduation". The section below highlights the employability skills reported in the literature that most employers worldwide view as important for a graduate to possess.

'Employability' is a set of important skills instilled in each individual in order to produce workforce that is productive (Overtoom, 2000). This goes hand in hand with individuals who possess strong characteristics such as high sense of self, who are innovative, skilful, competitive, have a strong sense of determination, and are creative in facing the challenges of the nation as well as globalization in the 21st century (Griffin & Annulis,

2013). However, it was found in the study conducted by Griesel & Parker (2009) reported earlier, that the employability skills among South African students of different degrees were of average level of competency.

Haupt (2007) stated that the collaborative approach to education involves three stakeholders which are the institution, industry and students. “Co-operative education includes periods of academic study alternating with a period of work related experience and prepares students for the class-to –work transition” (*ibid*.).The table below shows a comparison in views of what employability is:

Table 2.1 Comparison of the definition of Employability by Pierce and ESECT (Knight & Yorke, 2004)

Pierce 2002	Enhancing Student Employability Co-ordination Team (ESECT)
• Graduates obtaining jobs • Students being prepared for employment • Students gaining work experience (formal or informal, structured or not) • Vocational (relevance) • Students becoming equipped with a defined range of skills	• Getting a graduate job • Possession of vocational degree • Formal work experience • Good use of non-formal work experience and voluntary work • Possession of key skills or such like skilful career planning and interview technique. A mix of cognitive and non-cognitive achievements and representations

It is important not to confuse employability as a graduate’s ability to find a job since it is about the graduate’s ability to function in a job. Many authors such as Griesel and Parker (2009), Massyn *et al* believed that by integrating employability skills into education will be one of an overall agenda to groom students to become easily integrated employees. Thus a change in curriculum could help in improving the employability skills of students thus helping them to secure work. If employers and institutions came to one table and discuss the needs for the working environment, a better curriculum could be designed to ensure that graduates are well equipped for the workplace. Also a partnership of graduate absorption may be needed from employers,

this would see the curriculum design being successful as graduates would benefit by using the skills learned at university and also gaining real work experience.

2.3 Skills and Attributes expected by Employers worldwide

There is considerable consensus globally around the skills and attributes expected by employers**.**

Davies, Csete & Poon (1999) conducted a study on what employers' expectations of the performance of construction graduates were. They conducted a customer satisfaction survey that was used to determine the development of general skills by graduates from professional accredited construction degree programmes.

It was found from this study that employers often describe graduates as lacking in useful and instant fee-earning skills. This is a sentiment shown by many researchers that conducted their studies in a similar topic to the one that the above mentioned researchers did.

The expectations and differences in achievements of the graduates are rated as follows by the employers (Davies *et al* 1999):

- Employers suggested that graduates were not as ill-prepared for the workplace

The skills were divided into many categories and rated using the five point Likert scale.

Zey, Luedke & Murdock (1999) studied the skills required by Texas graduates to serve in the manufacturing industry. Employers were used as research respondents. In the research the respondents showed an emphasis on a few skills. These skills included reading, writing, calculating, communicating and critical thinking, interaction in groups, self-development, computer skills, technical skills, leadership and employability. The study found that the three most important skills required by employers are employability, interaction in groups and self-development (Kazilan, Hamzar & Bakar, 2009).

Table 2.2 Example of different types of employability skills sought by different employers (Bhanugopan & Fish, 2009)

General Business Skills	***Technical Skills***	***Personal Attributes***
• Time management • Written communications • Listening • Handling ambiguous situation • Problem solving • Leadership • Negotiation • Verbal communications • Team building • Organisational capability • Working independently • Cross-functional perspectives	• Total quality management • Project management • Resource planning • Cost-benefit analysis • Spread sheet applications • Word processing	• Intelligent • Extrovert • Rational • Confident • Flexible • Prudent • Visionary • Enthusiastic • Cautious • Tactical • Conforming • Creative • Conscientious • Sense of humour • Responsible • Adventurous • Motivated • Fearless • Perfectionist • Risk-taker • Controversial • Aggressive

In Australia 60% of final year students and colleges and universities worked part-time in order to train themselves, as well as to gain experience as new employees (Smith, 2004). Smith further highlighted that employers considered employability skills as a key factor that they would use when searching for new employees embarking on their career path. A further study by Graham (2001) on employer perception of the preparation of agricultural and extension education graduates aimed to provide the benchmark data from employers on the skills and abilities deemed important, and the level of preparation of recent agricultural and extension education graduates. Their overall findings were that graduates were reasonably prepared for entry-level positions.

However, there were several areas where skills could be improved in order to match the expectations of the employer. These were in the areas of interpersonal skills, team

work, decision making, leadership and initiative. Employers also rated access and use of internet as an important skill in the computer skills, and verbal communication needed to improve in the communication skills. Honesty, integrity and dependability were rated as very important abilities by employers. A decade of studies has found various needs desired by employers. In 1997 Andelt, Barret & Bosshamer (1997) found that employers sought for employees that have leadership abilities, especially in the areas of problem solving and teamwork. Klein (1990) identified listening abilities as well as carrying out instruction very important for employees.

Other abilities are as follows:

- Reading and understanding specific technical information
- Ability to use general business computer software
- Interpret and use mathematical and statistical methods
- Positive work attitude
- High ethical values and self-motivation

Long, Straquadine and Campbell (1992) found that graduates value knowledge and skills in the computer sciences and oral and written skills. They further argued that if there was more information on competencies that are needed in the agriculture careers, and also incorporated into curriculum development, it would make graduates employable in the market. The changes in college curricula coupled with increasing technological changes in a changing dynamic industry pushed for Graham (2001) to conduct research.

In a study done by Poon *et al* (1999) it was highlighted that the global recession had a huge impact in the economy and affected many industries. The real estate market in Britain at the time had shown resilience, it also suffered, affecting the labour market for real estate professionals. This study identifies a need to know if the real estate graduates are in fact qualified and whether universities prepared graduates sufficiently well for the workplace, and the current economic climate. It is also important to be aware of what employers expect from graduates' competencies in order to assist

academic institutions with the design of courses which aim to produce graduates who are equipped to meet those expectations

The Council for Industry and Higher Education (CIHE) in the UK conducted a series of studies concerning graduates' competencies in the last few years. In 2008, Archer and Davidson conducted research to identify what employers think and want from their graduate employees. Their findings were based on responses received from a sample of 233 graduate employers that employ over 750000 people. Amongst their findings were that 86% of employers considered good communication skills to be important, yet many employers are dissatisfied with the ability of graduates to express themselves effectively. Employers also think soft skills such as team work are vital and even more important than most hard skills although numeracy and literacy skills are considered essential by 70% of employers (*ibid*.). Of international employers, 60% indicated that the graduates who have overseas professional work experience are more employable (Archer & Davidson, 2008). However, the sample used for the purpose of this research is far smaller compared to the sampling in the research mentioned above. The purpose of the studies are similar, hence why the methods were adopted.

Academics involved in such professional programmes have to counter-balance the demands of employers with the need to achieve broader educational aims that will prepare graduates for not just the immediate work-entry years but for a life-long career with suitable skills that will allow graduates to adapt to changing work practices and market-skills needs

2.4 What does SA industry want?

A study commissioned by HESA and SAQA sought to establishing the attributes employers expected as opposed to what they actually received from graduates they employed .The key attributes the employers sought were (Griesel & Parker, 2009):

- Proficiency in English and Communication
- ICT skills

- Soft skills (learning to adapt, survive)
- A strong work ethic and
- Personal initiative

English is the most important form of communication in South Africa and in the world. So proficiency in the language had to be ranked as important by employers. In this modern day of technology, computer skills are also rated high as it forms part of daily duties in any workplace. Soft skills supplements the hard skills, and the person's ability to survive and adapt to organisational environment would most likely see a person excel in their respective job than one who was struggling to be in line with a particular organisation's culture or way of doing business. A strong work ethic and personal initiative finds itself also in the key attributes sought by South African employers. This is because that work ethics are a key role in any organisation, whereas personal initiative would see an individual work with little or no supervision at all.

2.5 The South African Education System

The South African Qualification Authority (SAQA) is one of the key bodies that regulate the South African education. SAQA's mission is to ensure the development and implementation of a National Qualification Framework (NQF), which contributes to the full development of each learner and to the social and economic development of the notion at large. A qualification as defined by the NQF is a planned combination of learning outcomes, which is intended to provide qualifying learners with applied competence and a basis for further learning. SAQA regulates the standard of the desired education and training outcomes. The employability of graduates has become an aim that governments around the world have, to varying extents, imposed on national higher education systems. Employment and its factors are a major topic that is consistently affecting most developing countries (Wickramasinghe & Perera, 2010). South Africa is also part of the countries that are experiencing a higher unemployment rate, most of which is blamed on the lack of the 'right' graduates. There is a two-tier route to professional qualification, a degree which is then followed by a period of

practical experience from work based learning and further test of professional competence is usually required. In a large number of professional routes to qualification, technical and practical knowledge aren’t married together.

Chapter 3 Research Design and Methodology

In this chapter, the details of the adopted methodology will be covered. The research design, population and sample will be discussed in detail. The data collection methods, data management and analysis will be discussed briefly, as it will be dealt with thoroughly in the next chapter. A descriptive method is used for the study. Both Qualitative and Quantitative approaches were used to analyze the research

3.1 Research Methodology and Design

Qualitative Research

A qualitative approach is one where the researcher makes certain knowledge claims based upon people's experiences with the intent of developing a theory or pattern. "The researcher collects open-ended, emerging data with the primary intent of developing themes from the data" (Cresswell, 2003: 18). Thomas (2003) further indicates that qualitative methods mean that the researcher describes kinds of characteristics of people and events without using measurement or amounts to compare events. Thus, qualitative research does not include a single objective reality, which can be observed and can have a measure of an amount. It is an analytical and interpretive approach. It usually attempts to investigate issues in a holistic manner. Qualitative research is further defined by Shank (2002) as a "form of systematic empirical enquiry into meaning". Systematic can be deduced to be planned, ordered, and public. In 2000 Lincoln claimed that qualitative research involved an interpretive and naturalistic approach.

Quantitative Research

It has been stated that research should be planned, ordered and systematic. That it should be valid, meaning whether the data collected portrays a true picture of what is being studied. Research should also be reliable, meaning that if the study is repeated

by the same person at a different time or by a different person using the same data collection method, the results would be the same time and time again Cresswell (2003).

A quantitative approach requires the researcher to use strategies inquiry strategies such as experiments and surveys. Cresswell (2003) continues to state that data collection has to yield statistical data. Dr Nokuthaba Sibanda of Wellington University in 2009 stated that quantitative research focuses on gathering numerical data, and generalises it across groups of people. Quantitative research measures a quantity or an amount. Thomas (2003:1) says, quantitative methods focus attention on measurement and amounts of the characteristics displayed by the people and events that the researcher studies. This approach manipulates variables and attempts to control natural phenomena. Du Plooy (1996) Stated that research questions or hypothesis are created and tested against reality.

Table 3.1 A comparison between Qualitative and Quantitative Research Methods (Bak, 2004)

Qualitative Method	**Quantitative Method**
Paradigm: subjectivism, interpretivism , constructivism	Paradigm : positivism, empiricism
Methodology: ethnomethodology, phenomenology, ethnography, action research, inductive, subjective, idiographic, intuitive	Methodology: scientific method, hypothesis driven, deductive, reliable, valid, reproducible, objective, generalizable
Methods: small scale, interviewing , observation, document analysis	Methods: large scale, generally surveying
Data Type: Thematic exploration	Data Type: Statistics

Research Design

There have been several research studies investigating industry's expectation of built environment graduates and the potential for the reform of built environment courses across the world. In Davies *et al* (1999) & Wong (2007) investigated employers' expectations of construction and surveying undergraduates in Hong Kong. The results

of these two studies were used to inform the revision of the RICS accredited undergraduate surveying courses at Hong Kong Polytechnic University.

The research method of these two studies was a quantitative nature and focused on gathering responses from graduates and employers. The researchers used a mixture of open and closed question surveys to collect data.

Justification of Research Design adopted for this study

The use of surveys in much of the literature that was reviewed shows that it is suited for this type of research that was undertaken in this study. The study was conducted in order to elicit the views of the respondents and a questionnaire allowed the respondents to answer the study in a more structured form in order to meet the objectives set out in the study. As presented above and within the literature review chapter, combinations of strategies were adopted for the purpose of the research design in this study.

3.2 Population and Sample

The population of this research comprised of employers in the Construction Industry, Property Companies and Financial Institutions that employ graduates from the Built Environment. A database with a list of employers where graduates were employed was provided by the school of CEM drawn from data collected for accreditation purposes. These employers were randomly selected from the database and questionnaires were sent out to 100 different employers. Since the CEM list only identified those employers who employed graduates directly on graduation, a snowballing sampling method was also used, whereby other questionnaires reached employers through their respective employees. Graduates were sent the employers questionnaire and asked to forward to their direct managers or relevant people that worked in their organization. This enabled the sample to be broadened to include employers of recent graduates.

The second sample is drawn from the population of graduates produced by the School of Construction Economics and Management between 2008-2011. The graduate's database defined the sampling for the purpose of the majority of this research, however

due to respondents passing on the graduate questionnaire to their peers, the sample became contaminated. This was not requested of the respondents. It was only a small percentage of the sample that was contaminated, and this will be further discussed in the data analysis chapter. A total of 150 questionnaires were sent out to graduates randomly, excluding those that were extended. Some of these graduates extended the research to their colleagues and peers as requested. It was not preventable by the researcher for the questionnaire to reach graduates other than the focused ones; however provision was made for such inferences and will be discussed under contaminated data.

The Employers

These employers will be selected from the database that the school has of records where the graduates are indeed working at. It is known to the researcher that some potential employers may have a policy that allows them to not employ graduates from the School, and that may create bias in a form that this research will target a database of employers that indeed employ graduates coming from the Wits School of CEM. However, caution must be taken in interpreting the findings and also their generalizability as the study will target employers that employ Wits CEM graduates, as well as only graduates that come from the school of Construction Economics Management from Wits University.

The employers responsible for recruiting the graduates that holds a degree in the School of Construction Economics range widely from private companies, government and financial institutions.

A list of these companies, not in any order of importance includes:

- Group 5
- Grinaker-Lta
- Murray and Roberts
- Basil Read

- ABSA, Standard Bank, Investec, FNB
- JHI
- Liberty
- Department of Human Settlements
- Public Works
- Infrastructure Development

The school is required by its accreditors to keep records of where its graduates go, this ease of access to information was the main reason why the study focused mainly on the School of CEM.

The Graduates

Background to the Built Environment Professions

Built Environment

The Built Environment is a term typically used to describe the interdisciplinary field which addresses the design, construction, management and the use of these man-made surroundings as an interrelated whole, as well as their relationship to human activities over time (Nicholas & Steyn,2008). The study of Engineering involves the conservation and development of the earth's natural, agricultural and mineral resources in order to serve humanity's needs (www.wits.ac.za).

In addition, engineering plays a vital role in the survival of the South African and international economies. We often take for granted our roads, bridges, buildings, cars, aeroplanes, fuels, electricity, televisions and telephones, but none of these would have been possible without engineers.

The Wits Faculty of Engineering and the Built Environment comprises 7 different schools:

1. Architecture and Planning

2. Civil and Environmental Engineering
3. Chemical and Metallurgical Engineering
4. Construction Economics and Management
5. Electrical and Information Engineering
6. Mechanical, Industrial and Aeronautical Engineering
7. Mining Engineering

The built environment was described by (Oyedele & Tham, 2007) as an entity that involves a number of professionals to complete its task i.e. project and urban development.

WITS University and the School of Construction Economics and Management (CEM)

The University of the Witwatersrand is situated in the Braamfontein area in Johannesburg, South Africa and was established in 1922. The university offers many disciplines and one of those disciplines will be used as a study for the research. The school of construction economics and management will be used for this research .The school of Construction Economics and Management is a branch in the faculty of Engineering and Built Environment in the University of the Witwatersrand, Johannesburg. The school is responsible for producing graduates for the built environment professions, which are responsible for the infrastructure development of the country.

<u>The programmes offered in the School of CEM:</u>

- BSc in Construction Studies BSc (CS) (3 years) (offered from 2012 with the first graduates in 2014)
- BSc in Quantity Surveying Studies BSc QSS (3 years) (offered from 2012 with the first graduates in 2014)
- BSc in Construction Management Studies BSc CMS (3 years)
- BSc Honours in Construction Management (CM) (1 year)

- BSc Honours in Quantity Surveying (QS) (1 year)
- BSc in Property Studies (4 years)

However the programmes have undergone change and the cohorts being investigated had also graduated from the following programmes which were 4 year professional degrees that ultimately became the 3 year BSc degree leading to an honours qualification:

- BSc in Construction Management (4 years)(offered before 2012)
- BSc in Quantity Surveying (4 years)(offered before 2012)
- BSc in Property Studies (4 years)(offered before 2012)

It must be noted that the respondents that took part in this survey were those that were on the old 4 years programmes.

Construction Management

Construction management is the overall planning, coordination, and control of a project from beginning to completion. It is aimed at meeting a client's requirement in order to produce a functionally and financially viable project. The construction industry is large and multi-disciplinary. The 4 year BSc degree (and the 3 year CS degree with 1 year Honours in Construction Management) offered at WITS provides students with the skills to actively participate and perhaps even become major players in the industry. The diverse selection of courses provides many opportunities upon graduation including amongst others:

- Working in construction
- Project Management
- Construction Management
- Property consulting
- Property portfolio management
- Property development and management

Quantity Surveying

A quantity surveyor is described as a professional that has the ability to analyse cost components and also understand the practical construction of works in order to solve problems that may be peculiar to each project (Shafiei, 2008). Quantity surveyors can also be described as construction economists who fulfil different and comprehensive duties to support cost-effective construction and property development projects.

The core competencies of quantity surveyors as follows (Omran and Shafiel, 2011):

- Determining project budgets
- Measuring project quantities
- Preparing contract documentation (Bills of quantities and cost control documents) as well as
- Administering contracts and preparing final accounts

Quantity surveyors' responsibilities require students to be educated and trained in highly skilled diverse subjects. It has been said in many studies that people in the industry often complain about the quality of works that quantity surveyors provide.

Property Studies

The real estate profession is responsible for producing services in different real estate portfolios, these would include but not limited to property development, property management, property finance, property investment, property marketing and property law. All these functions help to improve real estate as an asset. In many researches it was found that the course content had become out-dated and irrelevant to the industry. It is important to review the course content and evaluate current requirements of the industry and society.

3.3 Data Collection and Instrument

The method used to collect data were the use of questionnaires. The questionnaires consisted of two instruments for the two populations. The first questionnaire was for employers and the second one was for the graduates. This method of using questionnaires was used because it was adopted from similar research that was conducted this way. The research strategy to be used is in a form of a survey, the application of each of this strategy is defined below:

- Surveys – surveys are used to reach a wide audience and enable the researcher to survey a number of variables or issues. Generalisations can be made from a sample to the population (Creswell, 2003).

The instrument used in this study was a self-administered questionnaire that had 2 parts, Part A and Part B. Part A of each questionnaire was about general questions, the questions that were asked in this first part was to find out about the respondent and the organisation they belonged to. The Part B of the employer questionnaire was used to find information about the graduates and the workplace, together with skills and abilities. Part B of the graduate's questionnaire asked graduates about their skills and abilities.

The questions asked in relation to skills were the skills that were highlighted as important and somewhat important from different literature that was reviewed. These skills are tabulated above:

The WITS School of Construction Economics and Management currently offers undergraduate honours degree programmes in Construction Management, Quantity Surveying & Property Studies. As part of the review of their Curricula, the School sought to address the following concerns:

1) Do the abilities of the graduates match employers' expectations?
2) What other essential skills do graduates and employers feel are required from a degree education?

3) Do graduates feel they are well equipped for the workplace by their education?

Table 3.2 Skills asked in the questionnaire

Skills asked in the questionnaire	Source
• Planning • Gathering • Selecting • Appraising • Organizing and recording information • Communication	Glover & Youngman (2002)
• Proficiency in English and Communication • ICT skills • Soft skills (learning to adapt, survive) • A strong work ethic • Personal initiative	Griesel & Parker (2009)
• Time management • Written communications • Listening • Handling ambiguous situation • Problem solving • Leadership • Negotiation • Verbal communications • Team building • Organisational capability • Working independently • Cross-functional perspectives	Bhanugopan & Fish (2009)
• Reading and understanding specific technical information • Ability to use general business computer software • Interpret and use mathematical and statistical methods • Positive work attitude • High ethical values and self-motivation	Klein (1990)
• Reading • Writing • Calculating • Communicating • Critical Thinking • Interaction in groups • Self-development • Computer skills • Technical skills • Employabilty	Leon & Burchers (1998)

In this study, the survey is sent to two different populations, with slight variations to suit the different groups. According to Saunders, Lewis & Thornhill, (2012), the design of the

questionnaire affects response rates and the reliability and validity of the data collected but these issues these along the response rates, can be maximised by:

- Careful design of individual questions
- Clear and pleasing layout of the questionnaire
- Lucid explanation of the purpose of the questionnaire
- Pilot testing
- Carefully planned and executed delivery and return of completed questionnaires

“Questionnaires tend to be used for descriptive or explanatory research, such as that undertaken using attitude and opinion questionnaires. This will enable you to identify and describe the variability in different phenomena. Self-completed questionnaires are usually completed by the respondents and they sent electronically. Quantitative data has to be analysed using analysis techniques such as graphs, charts, statistics which helps to make the information useful. Preparing, inputting and checking data when undertaking quantitative analysis the following must be considered”

- Sample size
- Types of data
- Data layout and format
- Impact of data coding on subsequent analysis
- Process of entering data
- Need to weight cases
- Process of checking the data for errors

Types of data can be classified into two distinct groups: categorical and numerical.

Berman & Saunders (2008) defined categorical data as data whose values cannot be measured numerically but can either be classified into sets according to the characteristics that identify or describe the variable or placed in rank order. Numerical data are those whose values can be measured or counted as quantities. These are

more precise than categorical data. Data can be more precise as you can use a far wider range of statistics.

3.4 Research methods

There are various options in terms of determining what type of research method to use for a particular study. Taylor, Sinha & Ghoshal (2006) described the research method as a sequence of planned activities, which may include surveys, field research, content analysis or even observation. The most suitable research method must be selected in order for the study to be measurable, and achieve a reliable and valid result and form a conclusion (Cresswell, 2006). Taylor et al (2006) outlined the research methods that can be used, and include interviews, questionnaires, observation and documentary analysis. The application of each of these is briefly described as follows:

- Interviews – this method allows for the researcher to collect information directly from a respondent and can be undertaken face-to-face or telephonically (Leedy and Ormrod, 2005; Cresswell, 2003). Response rates with interviews are greater than with a questionnaire, but may be more costly to administer (Rabianski and Black, 1999);
- Questionnaires – a questionnaire is designed to collect specific information from the respondents using a set of structured, formalised questions (Leedy and Ormrod, 2005; Cresswell, 2003);
- Observation – the purpose of observation is to gather data in a natural environment which engages natural behaviour (Bogdan and Biklen, 2003); and
- Documentary analysis – the analysis of documents allows the researcher to uncover and describe the focus of individual, group, institutional or social attention (Weber, 1990; Stremler, 2001).
- Analysing the content of documents allows the researcher to make certain inferences, which can be corroborated when the researcher uses other methods of data collection (Stremler, 2001).

However for this research Questionnaires will be the method of conducting the data in order to collect the specific information required to answer the research questions.

3.5 Approach adopted in this research

According to the classification provided by Taylor, Sinha & Ghoshal (2006), the research methods and data types used in this discourse were decided upon as follows:

- The main objectives of this research were to find out from employers their views on the CEM graduates with regard to their employability skills and graduateness, and also to find out what their expectations are where these graduates are concerned. It was decided that the best method to meet these objectives was through the use of questionnaires, as this will allow respondents to give their own opinions.
- A list of graduates who graduated between 2008 and 2011, who completed their degrees in Property Studies, Construction Management and Quantity Surveying was drawn with the assistance of the school of CEM. The second sample, which is the one of Employers, was also drawn, it comprised of all the employers that are assumed to employ most of the graduates that are coming from the University of Witwatersrand, school of CEM. A database list was obtained from the school
- Individuals on this list from sample A and B were contacted through a letter in order to make them aware of the research. A questionnaire was then sent as follow up to the letter in the next two weeks from the day of sending letter. A follow up telephone call was made to ensure that the questionnaire had been received and a further telephone call was made as a reminder to complete and return the questionnaire.
- Responses from the two groups were compared in an attempt to determine if a trend emerged between the data collected from the two sample groups.
- The data gathered from the surveys was analysed in order to deduce the results of the study.

The research conducted, followed a similar format to that one of Jay (2011) in that surveyed and targeted two distinct population groups. For the study “How the property industry in South Africa has influenced curriculum development of the undergraduate property studies in the School of Construction Economics Management at the University of the Witwatersrand Jay’s first sample consisted of employers in the construction industry, government, property institutions and financial institutions in South Africa and the second, graduates who have completed either an undergraduate degree in property studies in the School of Construction Economics and Management. It has emerged from literature review that there’s a gap in what employers expect from graduates and what the higher institutions are producing. There is also a list of different skills and attributes was also deduced from different studies that were conducted in a similar field.

3.6 Ethical issues pertaining to research

There are many ethical issues that need to be addressed in any research conducting. Below are the issues that were considered for this research:

Ethical issues before research commences

- Procedure for identifying and recruiting potential respondents
- The principle of informed consent
- Potential disadvantage or harm which may affect respondents, the University
- Will respondents be likely to gain in any way from participation in the research
- Obtaining relevant permission to conduct research
- Reaching agreement with institutions’ or organisations in which research will be conducted

Ethical issues during the research

- Ethics of recording data
- The right of respondents to end involvement in the research
- Disclosure by respondents of sensitive material

- Ethical issues in the use of questionnaires

Ethical issues when data collection has been completed

- The issue of allowing respondents to read, edit and confirm the accuracy of data
- Reporting research results to respondents
- Arrangements for the disposal of raw data

Ethics statement

The key issues that may have ethical issues in the research are underlined below:

Collection of data (Population identification and access to information)

Private student information was required and to obtain that information the University had to give permission and access to. This information was treated with high confidentiality. This research treated the graduates and employers as a separate entity because they were off a separate population. The data collected was used to identify the sample frame and will not be mapped together. No correlation existed between the graduates and employers.

Analysis of data

Data was handled in a cautious way, anonymous raw data may be submitted to the University, but the data with the original names remains with the researcher.

Presentation and Dissemination of data

If the findings of this research were to somehow affect the reputation of the University, an embargo would be applied for, and that's where a decision can be made as to whether such information can be disseminated.

All these underlying issues have been thoroughly thought of, and a mechanism to mitigate the risk will be put in place in the course of the research.

The ethical issues that might arise in this research include the graduates right of privacy and potential harm can arise to the University's reputation if the results from the study are negative.

Anonymity

A personalized letter accompanied every questionnaire to make the responder feel safe, and to realize their importance in partaking in the research.

Students were pre-warned before conducting the actual research/data. Letters informing them about the survey were sent out before distribution of the questionnaires.

A letter with the University stamp accompanied questionnaires that were sent to the Companies/Employers. Anonymity was guaranteed for both parties, firms were classified in ranges to ensure that total anonymity is achieved, a platform was given to those individuals that don't mind being known or have extra information they want to elaborate on.

Table 3.3 below shows how the researcher made provision to the ethical issues discussed above. Respondents were given the opportunity to remain anonymous or alternatively could write their names on the questionnaire. The majority of the graduates' respondents were anonymous whilst others chose to identify themselves, while a small percentage of the questionnaires sent were spoiled.

Table 3.3 Graduate Respondents Demographics

Respondents	**Absolute Number**	**Percentage**
Anonymous	70	55%
Known	52	40%
Spoiled	6	5%
Total	128	100%

Ethics are a very crucial issue to consider when one is undertaking research. A total of 63% of the respondents used this to their advantage as they remained anonymous in

the study. The other 37% did not have a problem in giving their names. Those names will not be published in this research.

3.7 Summary of key issues

This chapter identified other studies and their related methodologies. It made a distinction between the types of methodologies that exist. Literature was used to rationalise the adoption of previous research design and instruments. The key issues that were considered in the research design were:

- Use of questionnaires to elicit answers to a predefined set of questions for the study
- Design of questionnaires through literature review

The next Chapter presents the data and analysis of the data from which findings were drawn.

Chapter 4 Presentation & Data Analysis

4.1 Introduction

This chapter presents the data collected, analyses the data and presents the findings of the research that was conducted. It provides a description on the observations and variances found in the data following analysis. The questionnaire used a mix of random sampling of known graduates and employers combined with a snowball sampling technique where known graduates from Wits University's School of Construction Economics and Management (CEM) graduates were sent the questionnaires and who were requested to forward the questionnaires to their peers in practice. Whilst this was not a random sample as this research was targeted specifically for the school of CEM and does not allow statistical inferences to be drawn from the data, it did allow access to a wider population that Wits graduates as some of the graduates were not from Wits, but who were also employed by the same employers that employed WITS CEM graduates. The issue of generalizability is that it cannot speak for other institutions, even though through the contaminated data it was addressed. 79% of the graduates were from CEM and this sample was set aside for analysis in isolation, as the researcher did not want to contaminate the sample. The 21% of the respondents was analysed separately and those findings will be mentioned later and compared to the Wits sample.

The questionnaire was also sent to employers identified by the School as employers of the School's graduates.

The questionnaire collected data to answer the following questions:

- What are the expectations of employers for graduates from the School of Construction, Economics and Management at the University of the Witwatersrand?
- What skills are graduates supposed to acquire from their degree?

- What are the perceptions' that graduates hold about the quality of education that they have received and its applicability in practice?
- Which graduate skills are most important to Employers?

The questionnaires sent out to both respondents were intended to shed light on both parties perceptions' in terms of the state of preparedness of graduates after the completion of their degrees, as well as employability as defined studying Chapter 2. Even though the findings cannot be used to conclude that the views presented in this chapter covers majority of employers and graduates, it gives one an idea of what some perception is out there in the industry and amongst the relevant stakeholders.

4.2 Graduate Questionnaire

The graduate questionnaire comprised of two parts, namely Part A and B respectively. Part A of the questionnaire covered the general information about graduate respondents while Part B was designed around the Skills and Attributes of graduates.

4.2.1 Part A: Graduate Respondents

The first questionnaire was sent out to a number of graduates from the School of Construction Economics and Management at Wits. The graduates that were selected/ targeted from the study were those that graduated between the year 2008 and 2011. A total of 150 questionnaires were sent out, excluding those that were extended. Some of these graduates forwarded the questionnaires onto their colleagues and peers as requested. A total of 128 responses were recorded, 101 respondents were from the school of CEM and 27 from respondents not within defined sample.

It was not preventable by the researcher for the questionnaire to reach graduates other than those from Wits; however provision was made for such inferences. In the questionnaire graduates were asked about the institution they had graduated from. This was done so to accommodate any surprises that could have possibly been encountered. The researcher did not lose sight of the target sample by receiving responses from graduates other than WITS CEM. In turn this

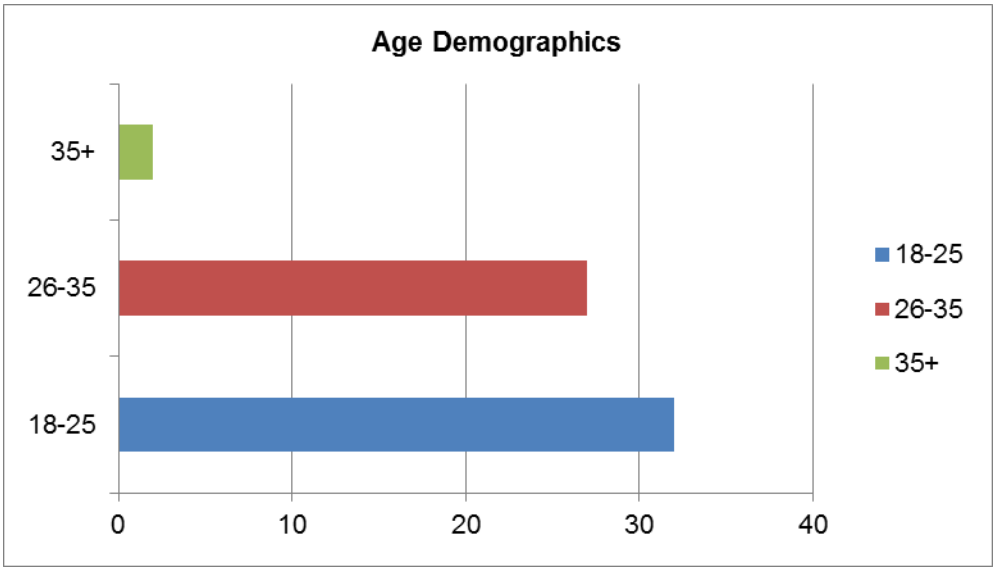
extension to other graduates made the questionnaire generalizable. Even though the undefined sample of 27 respondents was not big enough, it did give the researcher a feel of what graduates from other universities thought about the concept of graduateness and employability.

Even though the initial limitations stated that the research would only focus on WITS CEM graduates, majority of the respondents were graduates that had studied a degree in the school of construction and economics and management.

The majority of respondents remained anonymous whilst 40% of the respondents gave their identity. 5% of the questionnaires were spoiled and could not be used for the analysis. They were rendered void for the purpose of reporting clear and concise findings.

4.2.1.1 Survey Sample

Figure 4.1 Age groupings of the respondents



The respondents were asked about which age group they fell under, no real age was given as they could only select from the categories given. There were 3 age categories in the questionnaire as depicted in the graph. A majority of the respondents fell in the age grouping of 18-25, which wasn't so far apart from graduates that were in the age of

26-35. Only a few graduates fell in the 35+ age group, this grouping had graduates that were mature students and also those that graduated before the 2008-2011 graduates selection period preempt for the study.

Table 4.1 Gender of the respondents for the period 2008-2011

Respondents Gender	No of Respondents	Percentage
Male	55	54%
Female	46	46%
Total	101	100%

The ratio of the respondents in Table 4.1 clearly highlighted that there is some dominion by males in the built environment as there is an 8 % difference in the number of respondents. This phenomenon is not new to the built environment; the construction industry in South Africa is still highly dominated by males. Below one can see this reflection from Table 4.2 from data given by the school for different periods

Table 4.2 Gender profile of qualifiers (2010-2011)

Respondents Gender	No of qualifiers in 2010	%	No of qualifiers in 2011	%
Male	89	61%	112	59%
Female	56	39%	79	41%
Total	145	100%	191	100%

From the table above it is clear that the male dominion picked up during the data collection is a representative sample on the basis of gender. The above data was provided by the school of CEM based on its reports to its external accreditors.

Table 4.3 deals with the most important part of the research; the question was asked in the beginning of the research if the graduates of the school of CEM had employability skills hence making them employable. It is clear in the result that 90% of the respondents were said to be employed, which left 10% of the graduates unemployed.

This gives an indication that the graduates that are produced from Wits CEM are most definitely employable. This is said under the context that the graduates can secure employment. However the extension to employability goes further beyond just obtaining employment. It also covers issues such as sustaining the employment, and that can be said for many of CEM graduates that had left the School, as they had done both securing and sustaining some form of employment.

Table 4.3 Employment Status of the respondents

Employment Status	**Percentage**
Employed respondents	90%
Unemployment respondents	10%
Total	100%

High and rising graduate unemployment in South Africa has sparked public discussions and also raised concerns about the functionality of the higher education system and its employability of graduates since mid-2000s (van Broekhuizen & van der Berg, 2013).

However graduate unemployment in South Africa is neither high nor rising at an alarming rate. Graduate unemployment is remarkably low compared to overall unemployment rates in the country. Yet widespread public misconceptions remain about the extent of graduate unemployment in South Africa (van Broekhuizen & van der Berg, 2013).

In a recent study (Centre for Development and Enterprise, 2013) the current extent and nature of graduate unemployment in South Africa was evaluated. It was found that in 2012 graduate unemployment level was not significantly higher than in 1996. Despite a significant increase in the recessionary period since 2007, graduate unemployment was still only 5.9% in 2012, having been 5.4% in 1996. The change is so small that is not of significance (van Broekhuizen & van der Berg, 2013).

This then supports the findings in this research, as only 10% of the graduate respondents were unemployed. This is a total of 13 out of 128 graduates that were unemployed. This can be concluded as low.

4.2.1.2 Employment Destinations

In the next set of question asked, respondents were asked to name the companies that they were employed at, this was done so to highlight or trace which sectors and organisations the CEM graduates find themselves working under. It was found that many of the graduates had gone to work for different types of companies. Table 4.4 highlights the distribution and it is observed that majority of the respondents or graduates that partook in the study were employed within the government institution.

Table 4.4 Organisation sector where graduates are employed

Sector of Organisations	Number	Percentage
Construction Companies	15	12
Financial Institutions	6	4.7
Quantity Surveying	14	11
Government	44	34
Real Estate	13	10
Consulting Firm	13	10
Other	23	18.3
Total	128	100

The next highest sector is the contracting firms, followed by consultant quantity surveying firms. Consulting firms and real estate boast the same amount of graduates working for them, while the least of the graduates work in financial institutions such as banks. This result does not necessarily conclude that wits CEM graduates are highly found in the public sector, but merely highlights what was found from the study.

The majority of the graduates were found to work in large organisations. This indicates the capabilities of the graduates, and the opportunities that may in the future be presented to them. Many of the large firms are very visible at the university; this creates

a platform for graduates to end up working in large organisations. This may also reflect the choice of graduates in terms of having preferences to work in larger corporates on graduation.

Figure 4.2 Organisational Size

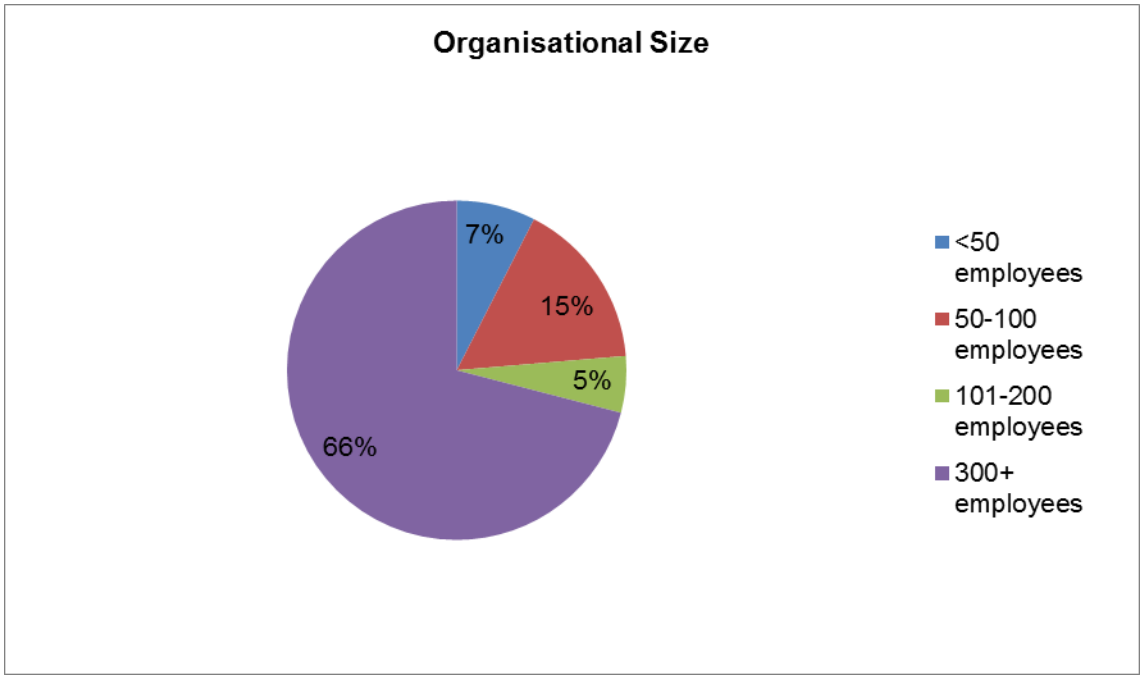
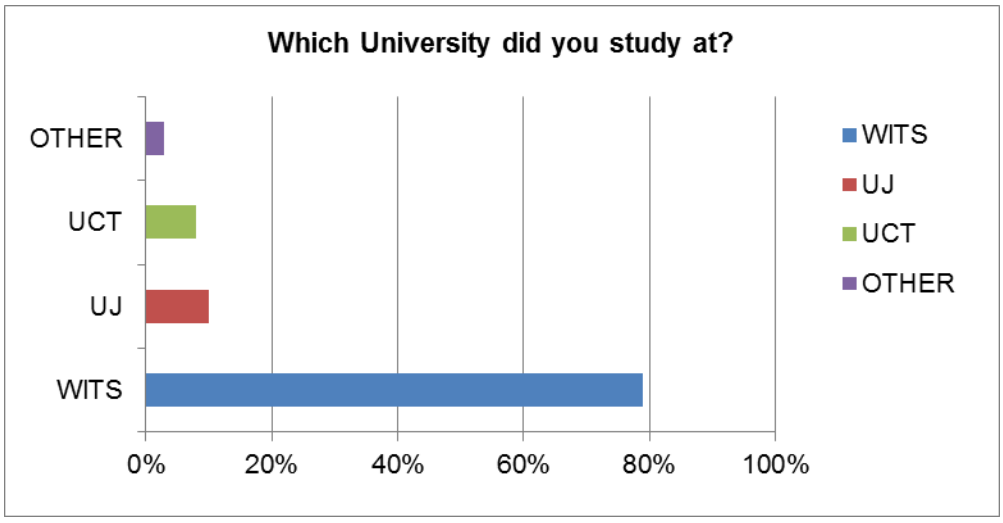


Figure 4.3 Graduate Institutions



Although the respondents sample was defined to be for wits CEM graduates, a provision was made with a list of other known institutions just in case. This provision came to use as the graduates extended the questionnaire to their peers or colleagues that did not come from WITS. As this study initially targeted Wits University graduates, the majority of the respondents were from Wits University. This then left the 21% of the respondents to split between UJ, UCT and graduates from other universities.

Fig 4.3 above indicates that 79% of the graduates were from CEM and this sample was set aside for analysis, as the researcher did not want to contaminate the sample. The 21% of the respondents was analysed separately and those findings will be mentioned as comparison, and not with the main findings of the majority respondents.

4.2.1.3 Analysis of the WITS CEM Sample

The sample below only comprises of the 79% of respondents who are from WITS CEM. The total number of respondents for the overall study were 128, 101 respondents were from the School of CEM and 27 respondents from other universities will be treated separately later in the chapter.

Table 4.5 Respondents Degree Types

Degree Type	No of Respondents	Percentage
Construction Management	20	16
Property Studies	20	16
Quantity Surveying	61	47
Total	101	79

Table 4.5 above, shows a dominance of respondents that had a quantity surveying degree at 47%, while graduates that have a construction management and property only formed 16% of the respondents. This is to be expected as the school produces more quantity surveyors than it does construction management and property studies graduates, this is due to the levels of enrolment and not pass rate.

Table 4.6 Enrolment Data for the period of 2008-2011

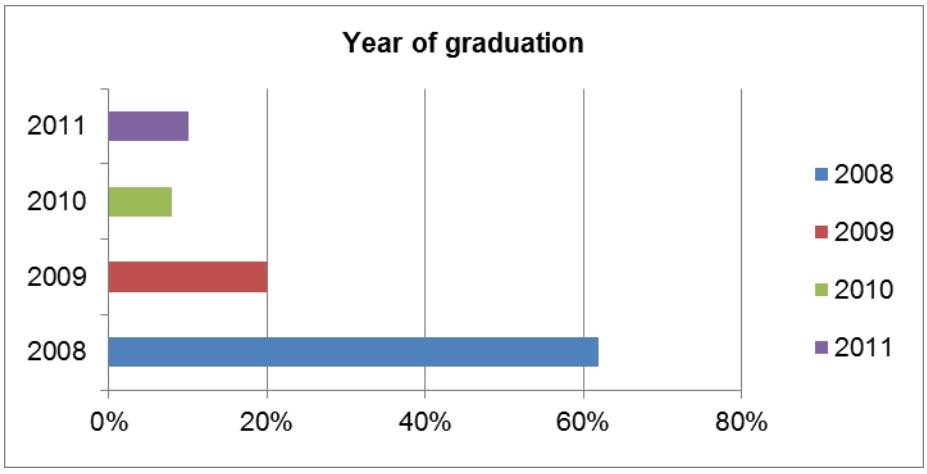
Degree Type	Year of study	2008	2009	2010	2011
Construction Management	1	53	66	78	0
	2	40	44	50	0
	3	26	23	29	3
	4	26	22	24	12
Quantity Surveying	1	129	100	80	0
	2	88	76	120	2
	3	57	70	90	17
	4	61	42	64	37
Property Studies	1	44	39	41	11
	2	36	48	31	20
	3	20	22	31	17
	4	17	17	20	33
Total		597	569	658	152

Table 4.7 Graduation Data for the period of 2008-2011

Degree Type	2008	2009	2010	2011
Construction Management	15	20	36	10
Quantity Surveying	56	38	98	32
Property Studies	15	15	19	33
Total	86	73	153	75

Table 4.7 proves that there are high levels of quantity surveying enrolments as well as graduation.

Figure 4.4 Completion Year



In figure 4.4 it was found that 62% of the respondents obtained their degrees in 2008, 20% in 2009, 8% in 2010 and 10% in 2011. It was also indicated by other respondents that they had graduated before 2008 and made a note on the questionnaire.

4.2.2 Part B (Graduate Questionnaire)

This is a presentation of Part B of the graduate questionnaire, this part of the questionnaire concentrates on the preparedness of the graduates, practical training within the degrees obtain and basic skills rating by graduates.

4.2.2.1 What do graduates think about the quality of education that they received and can they apply it to industry?

The question asked above was answered in Part B of the questionnaire which allowed the respondents to give a broader view about their education, skills and abilities. This part of the questionnaire was to elicit from the graduates their views on their preparedness of them towards the transition period to the workplace. The questions were close and open ended in order to give the respondents a chance to give input. A table was given with sets of skills that they had to rank according to what they perceived as most and least important.

Table 4.8 Preparedness of graduates after varsity

Preparedness of graduates after University	No of Graduates	Percentage
Yes	88	69
No	40	31
Total	128	100

In the second section of the questionnaire, the graduates were asked if they were prepared for the workplace after obtaining their degrees. In table 4.8 above 69% of the respondents felt that they were ready for employment after obtaining their degrees, whereas 31% of the respondents felt that they were not entirely ready. The next question was about practical training or practical experience, this question was asked in

order to find out if practical training does or can improve the level of preparedness of the graduates.

Figure 4.5 Practical Training

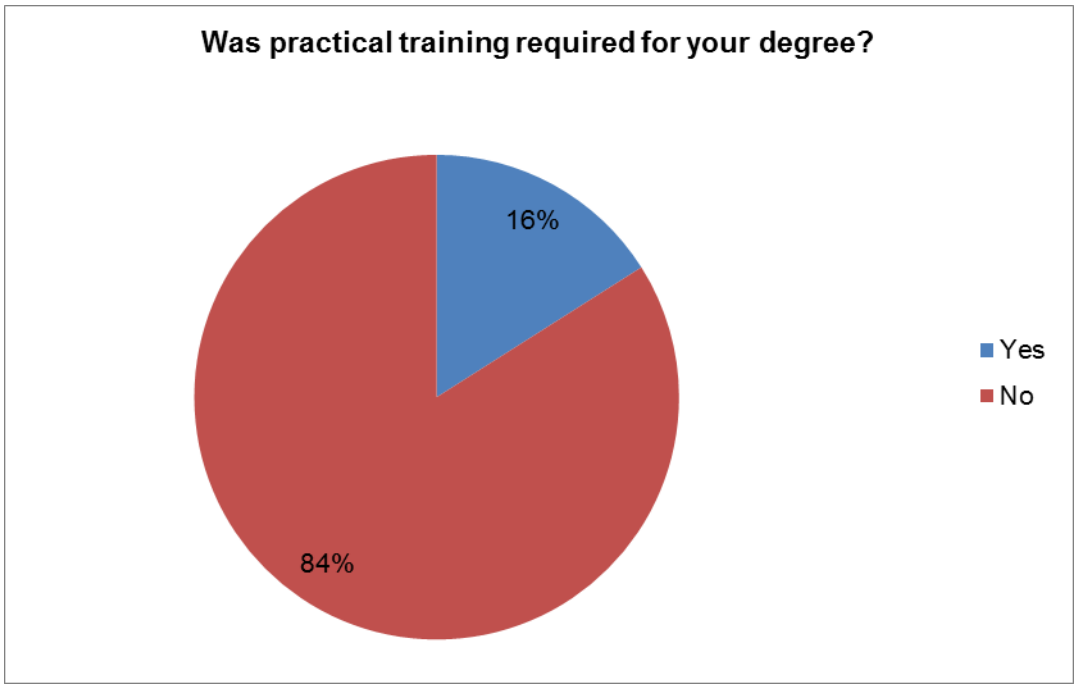


Figure 4.5 shows that 84% of the respondents did not have to complete practical training for their degrees, whereas the other 16% of the respondents had to complete practical training as it was compulsory for the completion of their degrees. These respondents were the construction management graduates. It is a pre-requisite for a student studying towards a degree of construction management to complete at least 12 weeks of practical training. This is because the rules of degrees at Wits only required practical experience as part of the CM programmes. Most of the respondents who required practical training were construction management graduates.

Some of the graduate respondents that answered yes and no to the question of practical training required made comments that are highlighted below.

Respondent 1

"Completed 20 weeks but still answered that they were ready for the workplace. "I feel that my education partly prepared me for the workplace" I am able to work in a team but I did not have managerial skills straight from University, the respondent continued to state that such skills come with experience. The respondent said that there is always room for improvement in conducting financial analysis."

The respondent above said to have completed 20 weeks of practical training and felt that their education partly prepared them for the workplace. It was further highlighted that many skills and abilities were polished in the workplace.

Respondent 2

"I feel my degree prepared me for the workplace; I am able to work in a team and undertake a financial analysis and have gained managerial skills. I completed (a) year of practical training, and this played a great deal in preparing me for the workplace."

Respondent 3

"I completed 11 months of practical training, and this helped in preparing me for the workplace"

Respondent 4

"I worked for 3 years and felt that prepared her for the workplace, but feels that their education did not entirely prepare me for the workplace"

Respondent 5

"I completed practical training for 12 weeks and did help later on when I went to work, I am driven, enthusiastic, and hardworking and dedicated."

Respondent 6

"I Completed 4-6 months practical training and felt that both the education combined with the practical training helped in preparing me for the workplace."

Respondent 7

"I can withdraw from a problem, analyse it and think of a solution then implementing it."

There is a clear pattern that even though most of the graduates felt that they were prepared by their degree for the transition to the workplace, a great deal of practical training also played a big role in this preparation. In the questionnaire the respondents were asked what attributes they felt they had and where they obtained these attributes. Table 4.9 below lists some of the attributes that were listed by the graduates. There is a clear indication that most of the attributes listed were obtained at the workplace.

Table 4.9 Attributes obtained by graduates

Attributes Type	**Achieved at what level (University/Workplace)**
Leadership Skills	workplace
Expertise in Managing Projects	workplace
Efficiency	workplace
Working in a team	Both university and workplace
Confidence	workplace
Team player	workplace
Patience	workplace
Skilfully analyse scenarios	workplace
Discipline	workplace
Diligence	workplace
Punctuality	workplace
Customer Care	workplace
Time Management	workplace
Reliable	workplace
professionalism	workplace
Solving problems	Both

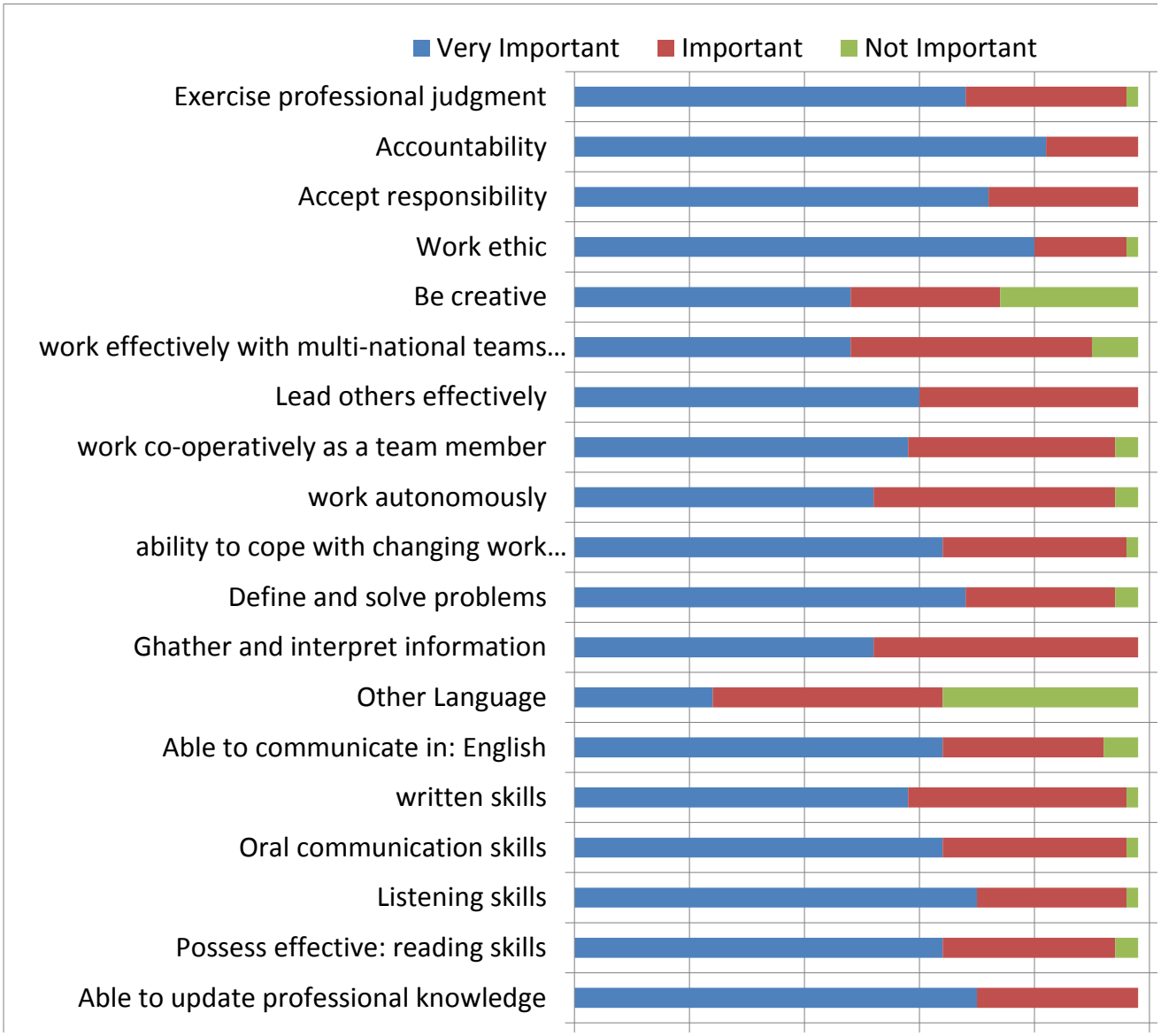
From the graduate respondents answers it was deduced that many of the graduates felt that their education did prepare them for the workplace, but those that did a bit of practical training found it rather easier to transit to the workplace. Undertaking a financial analysis depends on the complexity, but can be done at a general level opined most of the graduates. A university education prepares one to a certain extent, but confidence at the workplace is gained after working on a few successful projects. That's when the graduates' confidence starts to escalate.

Respondents were given selected attributes rated by employers worldwide as somewhat important depending on scenarios; the graduates were given the options to use the Likert scale method of rating. They had to rate the level of importance from not important, important and very important.

The figure 4.6 below depicts what the views of the respondents are in terms of which basic skills they found to be important or not important to function well in the workplace.

Majority of the respondents viewed extensive practical knowledge as a very important attribute to have. Being computer literate also came across as being very important. Respondents agreed that it is important that to be able to communicate in English, when some of the respondents said it wasn't important to know another language. It can be an added advantage to know a second language especially if you work in the construction industry. Many of the employees in this industry speak Afrikaans, Zulu, Sotho etc., and being able to communicate in an additional language other than English can make communication much easier for those counterparts that do not understand English.

Figure 4.6 Basic Skills ratings by graduates



4.3 Employer Questionnaire Analysis

The employer questionnaire comprised of two parts, namely Part A and B respectively. Part A of the questionnaire covered the general information about employer respondents and the organisation they were working at, while Part B was designed around the graduates that were employed within the organisation.

In the questionnaire analysis, the employer questionnaire will be analyzed in order to answer the research questions below,

- What are the expectations that employers have from WITS School of Construction, Economics and Management graduates?
- What skills are graduates supposed to acquire from their degree?
- Which graduate skills are important to Employers?

A total of 100 questionnaires were sent out to different employers, including those employers that were on the CEM database, other questionnaires reached employers through their respective employees. Graduates were sent the employers questionnaire and asked to forward to their direct managers or relevant people that worked in their organization. The responses from the employers were not impressive, as 62 responses were received back, in the 62 responses it was found that 27 responses could be totaled to be from different employers, as the other 35 worked in the same companies

4.3.1 Part A: Description of the Employer Sample

4.3.1.1 Employer Questionnaire Analysis

Part A was used to gather the respondent and organization's background. The following analysis of the questionnaire presents the results.

The employers were also asked in which organizations they worked at in order to have a form of traceability to the graduates as the database has listed. A similar list to the one given by graduates was given by the employers, the top 5 construction companies

came up, government departments, quantity surveying firms, facilities management companies and property companies were listed by respondents.

Figure 4.7 Organizational size of employers

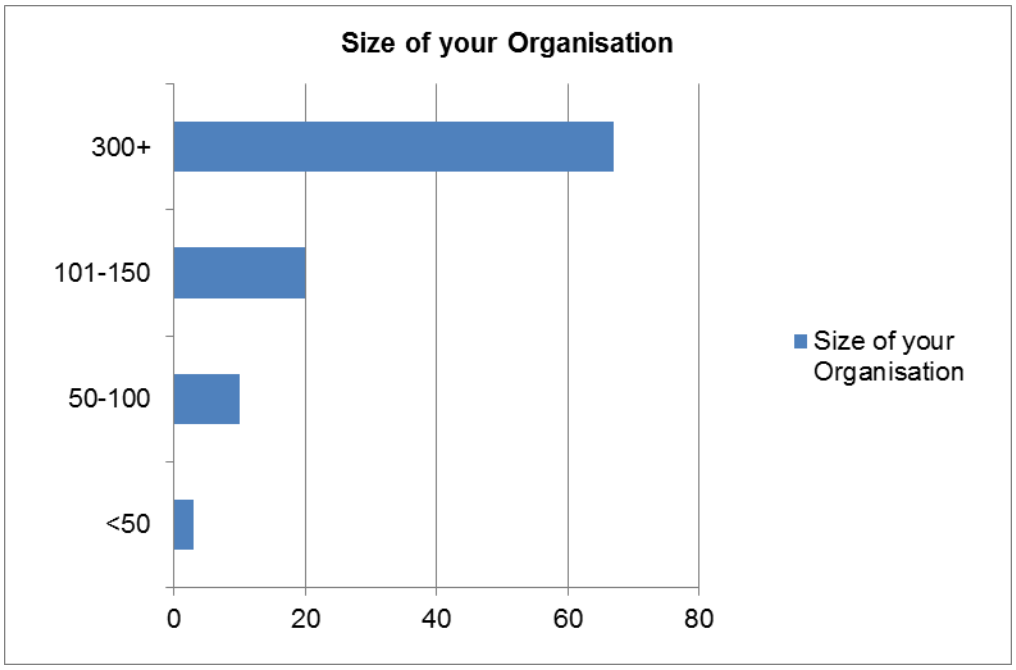


Figure 4.8 Organization Sector

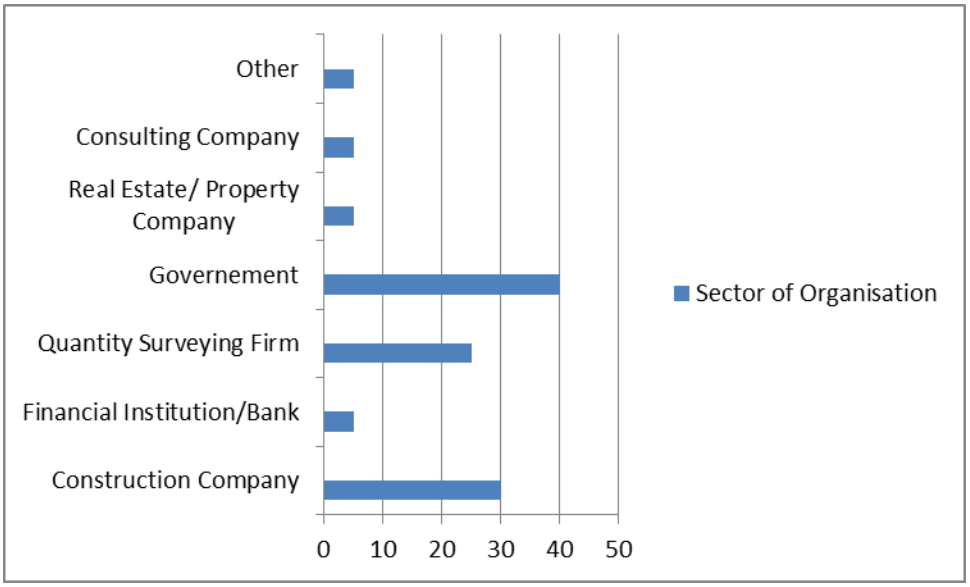


Figure 4.8 above shows the government sector as the dominant employer of the wits CEM, this is then followed by the construction industry. This is not a reflection of the entire statistics, but only for the responses obtained for this research. It is possible that the construction industry is the biggest employer of the graduates, but for the purpose of accuracy only the results found in the study are reported.

It is very clear that many of the respondents represent larger companies with more than 300 people in the organization. This is an indication of the dominant role players in the industry and more specifically in the recruitment of graduates. Such companies that are larger than 300 employees are, for example government, and listed entities such as the big 5 construction companies etc., Respondents were further asked what their role in the company was, these roles ranged from HR Managers, Bursary Student Administrators, Senior Contract managers, Managing Directors, Contract Managers, Senior Cost Managers to name a few. This gave the responses substance as these people participate and engage with part of the graduates' working life from their university days all the way to the full transition of the graduates into employees

Table 4.10 Highest level of education attained

High level of education obtained	**Percentage**
Grade 12/ Senior Certificate	0
Undergraduate Diploma	10
Undergraduate Degree	50
B tech Degree	0
4 year professional degree	10
Honours Degree	20
Post Graduate Diploma	0
Master's Degree	5
PhD Degree	0
Other	5
Total	100

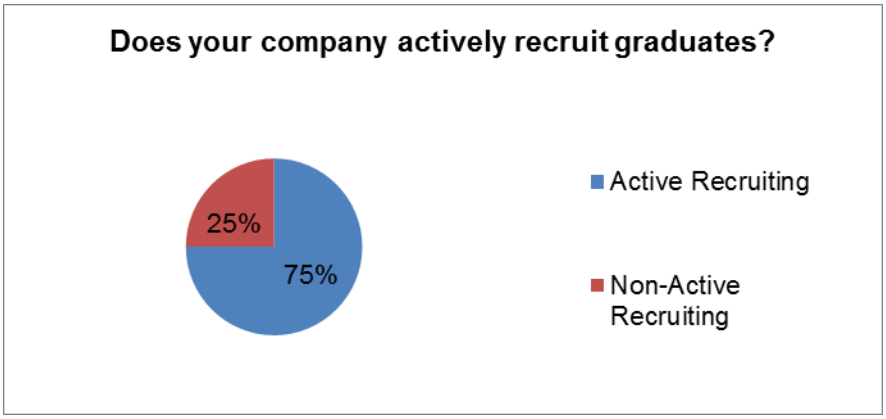
Table above shows that most of the employer respondents had just an undergraduate degree; this was followed by honors degree, and undergraduate diploma. Not many of

the respondents had a master's degree; this reveals that further education was not really common amongst managers employing the wits CEM graduates.

4.3.2 Part B – Employer Views of Graduates

Part B of the questionnaire tried to elicit what the employers views were on the graduates. They were asked questions related to the graduates they employ and their performance at the workplace.

Figure 4.9 Recruitment of Graduates

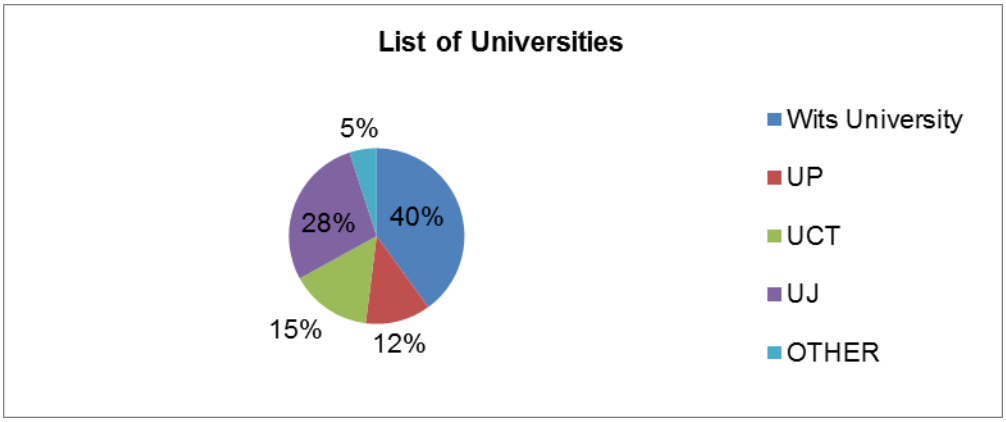


75% of the companies that took part in the study were involved actively in recruiting graduates. This totals a number of 20 out of 27 employers that employ graduates on a regular basis. These recruitments were done through different mechanisms, certain companies offered bursary to students and then after completion of the degrees, the graduates would then go work for the companies. Another form was in graduate programmes that graduates could apply directly for positions.

A database with the list of employers who employ wits CEM graduates was obtained from the school, although it proved to be difficult to single out the other universities in the study, in the figure 4.11 below, the researcher made provision to other universities. Majority of the employers that took part in the study employed 40% of CEM graduates. This means that a total of 52 graduates were employed by the respondents in the study.

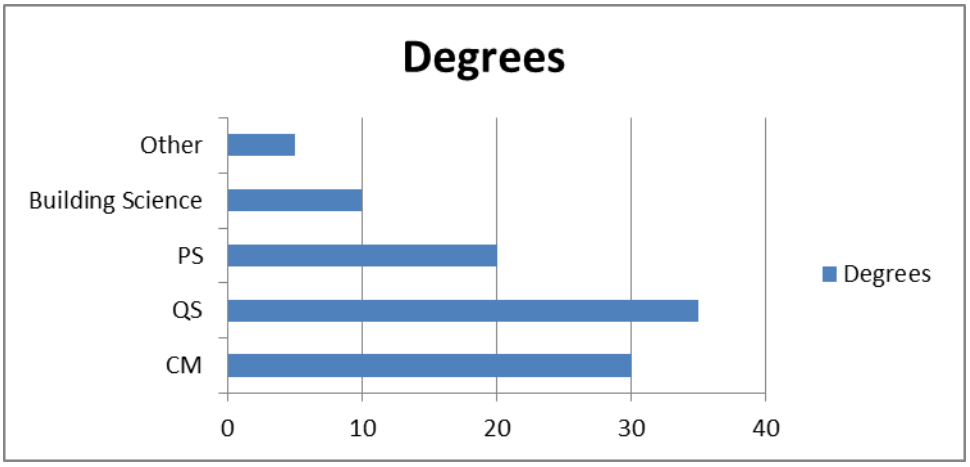
This cannot be taken in full view that the other graduates that are not counted in this study are not employed, and also the survey did not manage to reach out all the employers.

Figure 4.10 List of Universities where graduates studied



This was the majority of their graduates, in terms of keeping with limitations the employers that corresponded with the graduates were elicited as the majority of the views that formed part of the CEM graduates.

Figure 4.11 Educational background of graduates recruits

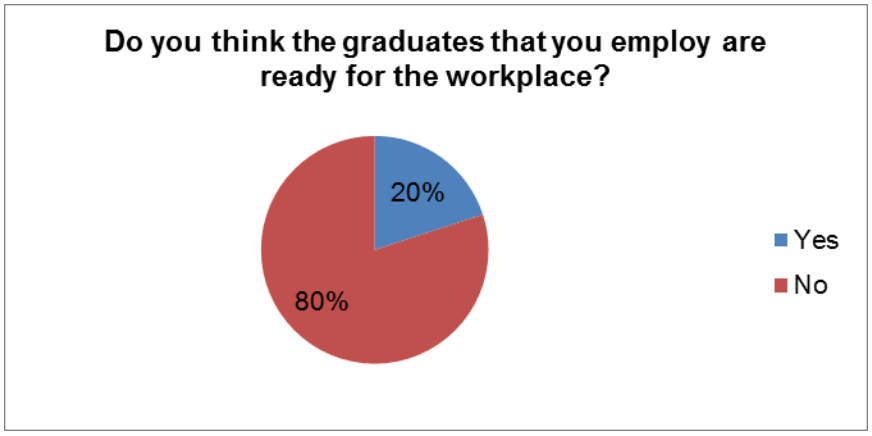


Quantity surveyors also found to be predominantly employed by the different employers, this could also be due to the fact that there are many quantity surveying graduates as

compared to construction management and property studies. This is also reflected as true in the enrolment and graduation data provided and discussed in Table 4.8 and Table 4.9 in the graduate analysis section.

The next question asked the employers respondents if they felt that the graduates that they recruited were ready for employment, the results are indicated below.

Figure 4.12 Readiness of graduates



80% of the respondents indicated that the graduates they employed were not ready for the workplace. The question continued for those respondents that had answered that their graduates were not ready for the workplace, were asked to state what it was that the graduates lacked in terms of being ready for employment. This was supported in the studies conducted by Poon et al (1999) and it was found that graduates from professional courses were lacking useful and instant fee-earning skills according to employers.

Employers further suggested in the study that their graduates were apparently not as ill–prepared for the workplace as is commonly thought (Davies *et al* 1999). However Graham (2001) stated on employer perception of the preparation of agricultural and extension education graduates that the overall findings were that graduates were reasonably prepared for entry-level positions.

The findings differ in terms of the graduates' views; the graduates said that they were ready for the workplace as opposed to the employers' views.

These are some responses that came up from their answers in relation to supporting why the employers stated that graduates were not ready for the workplace.

- *Graduates (new) graduates lacked work experience and appreciation of facilities management said one Programme Manager at a facilities management company*.
- *"They lack ability to go out to the workplace and work hard; most graduates want an office, a laptop and a car before they even do a stitch of work. Management skills are also inadequate and create tensions with people who have been on site for many years" (Contracts Manager – Large National Contractor).*
- *In some cases we feel that graduates should be involved with in-house training that will get them onto sites and not stuck in the office. On site the factors of human intervention play a major role in the success or failure of the project*
- *The reality of what is expected of people in the construction industry. Also what is the construction industry all about.*

The employers were further asked in an open ended question on the other skills that they felt should be incorporated into the university curriculum of graduates.

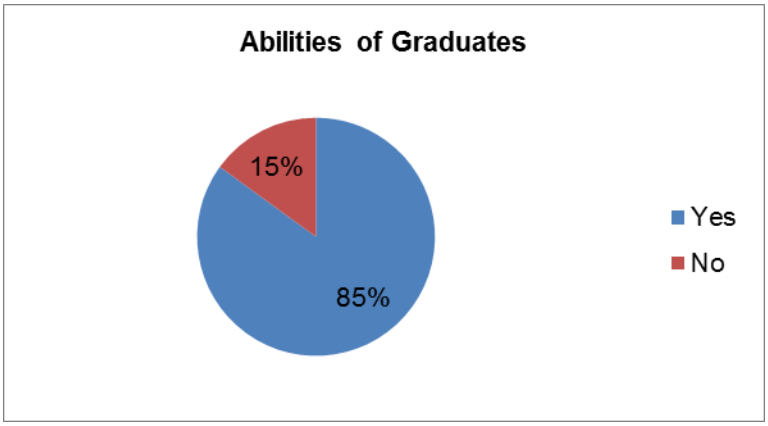
Table 4.11 Skills suggested by Employers who employ CEM graduates

List of Top Skills	**Comments**	**Reflection to Literature**
Experience of working with government departments Budgets Project Reporting Management of People Planning Self-Actualization/Awareness Practical Training	 Require higher standard Personal Coaching	Griesel & Parker (2009)

Employers also listed the following as what they expect from newly recruited graduates

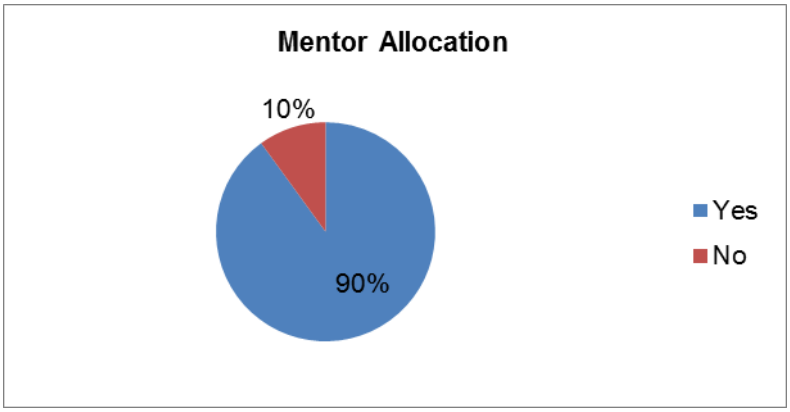
Skills Expected by Wits CEM Employers	Linkage to Literature
Energy	Bhanugopan & Fish, 2009
Willingness	Bhanugopan & Fish, 2009
Enthusiasm	Bhanugopan & Fish, 2009
Ability to plan, monitor and report on projects	Klein,1990
Technical	Bhanugopan & Fish, 2009
Academic knowledge	Leon & Burchers, 1998
An open mind, as a major portion of site work is based on past experience and not from text books, and an open mind to absorb the comments and skills of the seniors	Kazilan, Hamzar & Bakar, 2009

Fig 4.13 Abilities of graduates



It is indicated above that 85% of the employers that partook in the study believe that new graduates from the CEM do not have skills that match their expectations.

Figure 4.14 Allocation of mentors to new graduates



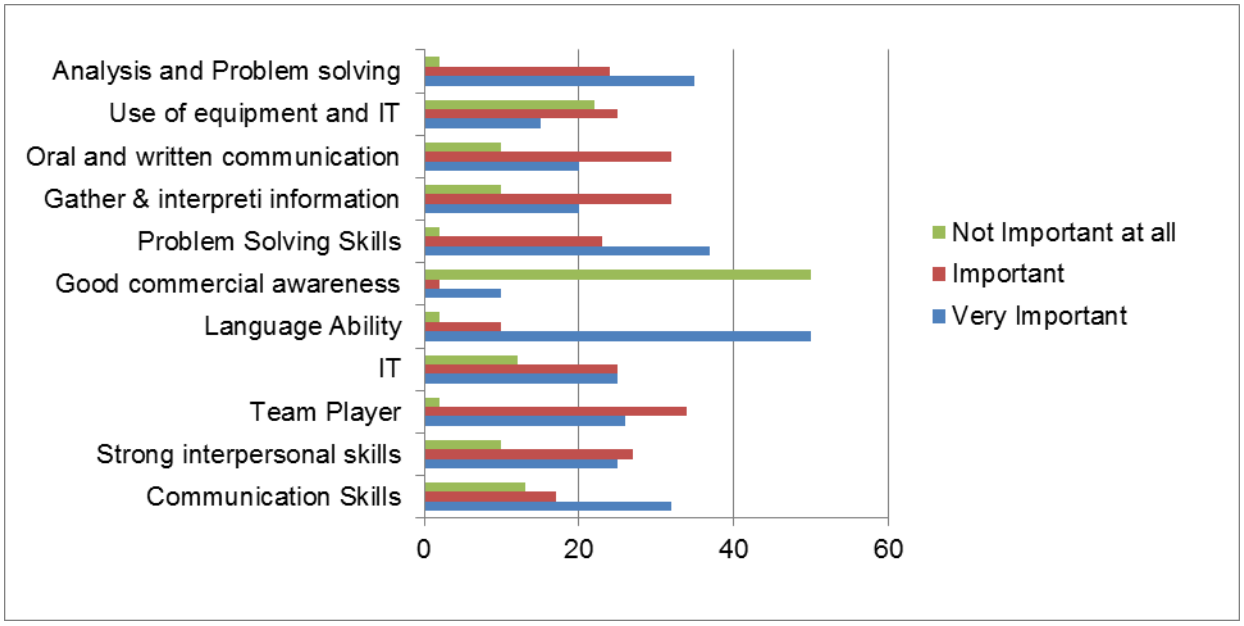
Majority of employers stated that indeed allocated a mentor for new graduates, this was done to support new graduates in the easy transition to the workplace. However, a few managers however indicated that the mentorship is currently failing and they were in the process of rectifying their programmes.

4.3.4 Rating of basic skills by employers

In the next analysis, employers were given a chance to give rating to the basic skills that graduates should have, then they were given a set of skills that they had to rate in comparison to what they were getting. Employers were asked to rate a list of basic skills that were highlighted by literature as skills that graduates are ought to have. They were given an option to rate the skills from not important, important and very important. The figure below shows which skills the South African employers of the CEM School rate as very important and those that they feel a graduate can progress without really having them.

The one skill that stands out as not important to have from the graph above is good commercial awareness. Employers rated all other skills as very important ad important respectively

Figure 4.15 Importance of skills rated by employers



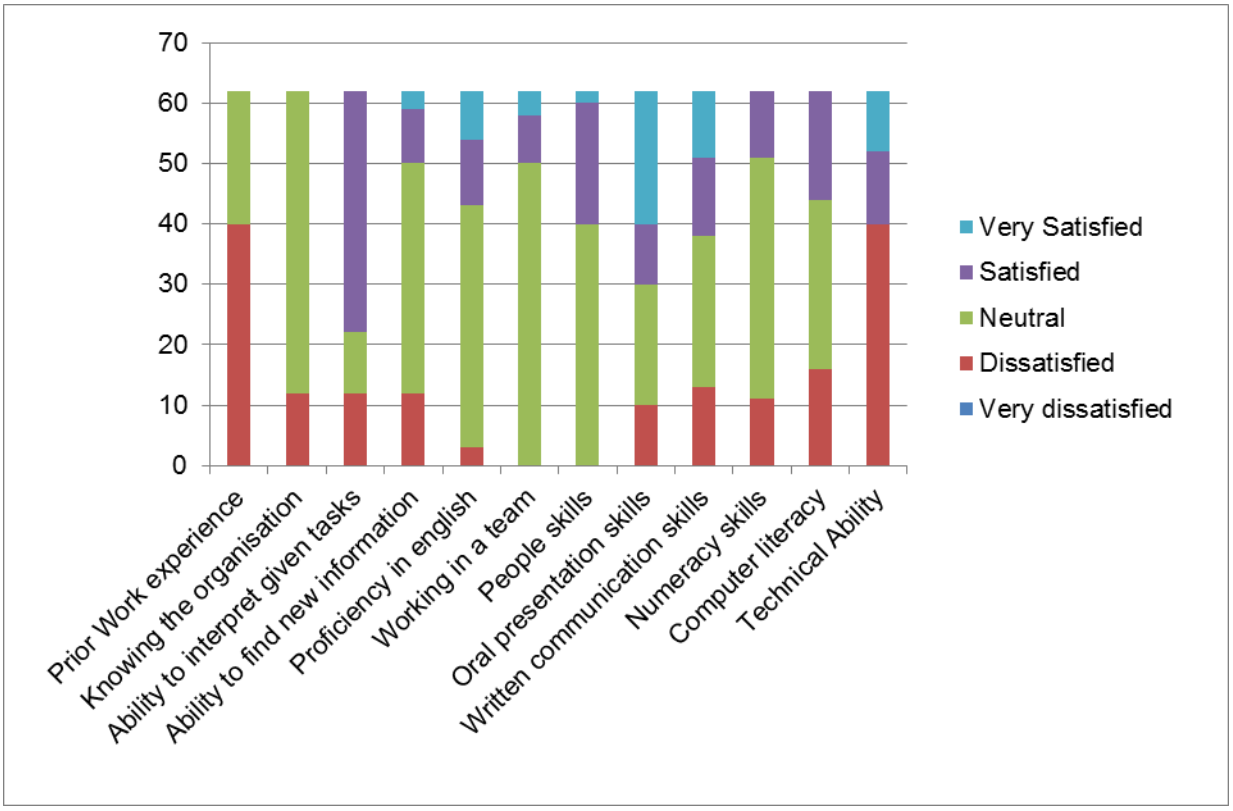
It can be deduced from this graph that the following skills can be categorized as very important skills:

- Communication skills
- IT
- Language Ability
- Problem solving skills
- Analysis and problem solving

These findings are similar to which skills are deemed important in other conducted research as discussed in Chapter 2. Griesel & Parker (2009) amongst many researchers also found that employers rated the mentioned skills as very important.

Figure 4.16 Basic skills and understanding

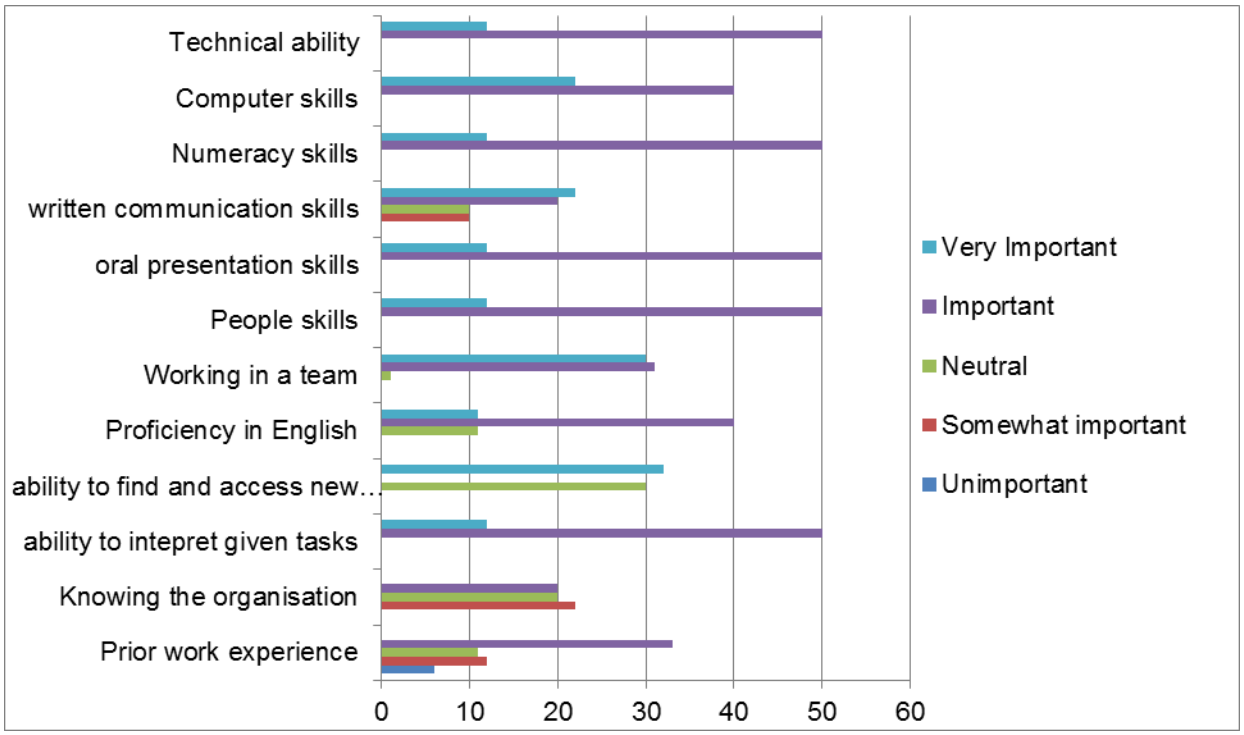
Analysis of the gap between employer expectation and satisfaction



The graph above shows the level of satisfaction or dissatisfaction that employers perceive to get from graduates in terms of the skills that have been ranked. There seems to be a great deal of dissatisfaction with the lack of prior experience of graduates that go into the workplace. Familiarity with the employing organization was not a high priority for employers as in the early stages of the graduate's career; they were only getting into the organization. They seemed to be very satisfied with the graduates' ability to interpret given tasks. However, employers raised concerns in the technical ability displayed by graduates. A low percentage of employers stated that their dissatisfaction was with the poor computer literacy, numeracy and written communication skills that graduates exhibited. From interpreting the data above, there's

no sense of satisfaction with what the CEM graduates offer the industry, there is a lot of neutrality in the level of satisfaction expressed by the employers.

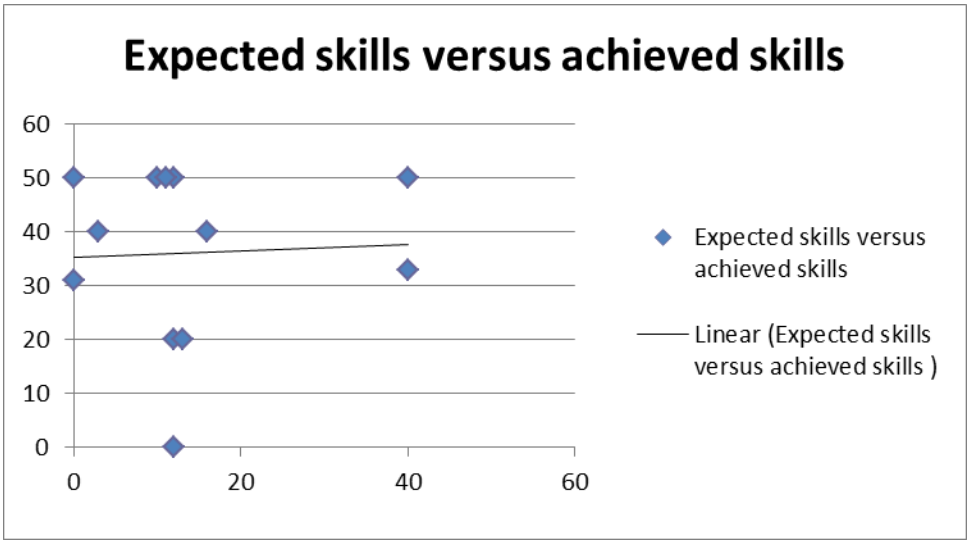
Figure 4.17 Skills and capabilities required by employers



The above figure shows what employers value as important abilities for a graduate to possess. Many of the skills listed above were rated as important by employers and are considered as essential for graduates to have. However, the previous graph highlighted a degree of dissatisfaction on the skills of the graduates.

Figure 4.18 Correlation Analysis

Correlation analysis of expected skills vs achieved skills of graduates by employers



When using the dissatisfaction values from fig 4.17 and important skills values fig 4.18, r was calculated to be 0.05. According to Pearson's r correlation of +.40 to +.69 indicates a strong positive relationship. This then proves that there is significance in what employers are expecting from graduates and what they deem as unsatisfactory according to what they are currently getting from graduates. According to the literature, a statistically significant finding is one that is determined to be very unlikely to happen by chance (Adler & Parmryd, 2010). This correlation shows the significance in the statement made by employers that graduates are not ready for employment and the skills that they deem as important for the workplace that are not being portrayed by the graduates.

After a complete and thorough analysis of the results the next step is to make the necessary conclusion and recommendations. The conclusion and recommendations will be made in Chapter 5.

4.4 Data Analysis for non-Wits CEM Sample

The graduate sample that comprised of graduates not from the Wits School of CEM will be analyzed below. This sample is deemed as contaminated due to the fact that these respondents were not graduates from the Wits University. This is only going to be discussed briefly for comparison. The limitation does not allow for this sample to form part of the main findings, as they would broaden the research beyond what the intention of the researcher found. 21 % of the sample was deemed as contaminated as there respondents did not come from the school of CEM from WITS University. Their views were quite interesting and an overall analysis will be presented below

15% of the respondents in the study felt they were prepared for the workplace through the respective built environment degrees obtained. The sentiments shared by WITS CEM graduates are shared by graduates from other universities. They found practical experience necessary to ensure that a graduate is fully equipped to transit in the workplace. These findings support the statement made in the abstract that universities in South Africa share similar problems where employability and graduateness are concerned. Moreover the graduate transit in the workplace.

4.5 Summary of key findings

The key findings that arose from the data are as follows:

- The majority of graduates that partook in the study stated that they were ready for the workplace, and that was purely with the help of the degree they had obtained,
- Some graduates felt that their preparedness lay on the grounds of having completed practical training during their study period.
- Other graduates felt that they were not ready for the workplace after university or after obtaining their relevant degrees, and expressed that had they undertaken some form of practical training would have helped a great deal in exposing them to the world of work.

- The majority of employers felt that these graduates were not ready for the workplace at all, citing issues such as lack of managing skills that causes conflict with older standing personnel on sites, and amongst many reasons having some sense of entitlement before even doing any work.
- That a gap certainly exists between the perceptions of graduates and employers. Graduates feel that they are ready for the workplace, whilst employers feel graduates aren't ready for the workplace.

Chapter 5: Conclusion & Recommendations

This chapter will conclude the actual findings of the research in relation to the research questions together with the hypothesis. It will also highlight the findings to the research questions that were asked.

5.1 Reflections on the Research questions, objectives and hypothesis

The purpose of this study was to conduct a survey on graduateness and employability on the Wits CEM graduates from the period of 2008 and 2011. The objectives of the study as set out in Chapter 1 included but not limited to finding out what the views and expectations' of employers of the Wits CEM graduates were. It also extended to what the graduates views were on graduateness in relation to the program they were offered by CEM.

The primary research question that was asked was to what extent do the construction graduates of the School of Construction Economics and Management have the necessary skills and attributes that employers required.

The views of graduates and employers with regards to the above questioned differed. Graduates stated that they had the necessary skills and attributes that employers required, these skills and attributes were said to have been acquired through the degree they had obtained, and for some both education and practical training ensured their readiness for the workplace. Employers on the other hand stated that graduates lacked the readiness to transit into the workplace.

The *Secondary Research Questions* tabled below were also asked and answered as discussed below.

What are the expectations that employers have from graduates?

Employers expect graduates to be ready for the workplace after obtaining their degrees, and also to have skills that can be gained from having had previous work experience.

What skills are graduates supposed to acquire from their degree?

The skills below were rated as the most important skills for graduates to obtain after completion of their respective degrees.

- Proficiency in English and Communication
- ICT skills
- Soft skills (learning to adapt, survive)
- A strong work ethic and
- Personal initiative

What do graduates think about the quality of education that they have and can they apply it to industry?

- Majority of graduates that partook in the study stated that they were ready for the workplace, and that was purely with the help of the degree they had obtained,

Which graduate skills are important to employers?

The following skills were rated as important for graduates to have by employers

- Experience of working with government departments budgets
- Project Reporting
- Management of People
- Planning
- Self-Actualization/Awareness
- Practical Training

Other sought after skills included

- Energy
- Willingness
- Enthusiasm

- Ability to plan, monitor and report on projects
- Technical
- Academic knowledge
- An open mind, as a major portion of site work is based on past experience and not from text books, and an open mind to absorb the comments and skills of the seniors

Research Objectives set out in the beginning of the study

- The objectives of this study is to find out what the views and expectations of employers of the WITS CEM graduates are
- To find out from the graduates what their views are on the Graduateness of the program offered by WITS CEM.
- To find out which employability skills do employers seek from CEM graduates
- To find out what skills should graduates from CEM should have after completion of degree
- To find out what the literature says about the problem of lack of graduateness and employability skills

The above objectives set out for the study were met through the intense data collection and rigorous literature review that was undertaken.

The hypothesis and null hypothesis were tested. The test results were different from both respondents' views. Below is the hypothesis and null hypothesis stated in Chapter 1 and the result from each test.

Hypothesis

Graduates from the School of Construction Economics and Management have achieved the level of graduateness to transit into the workplace was the hypothesis tested first, and the graduates respondents proved this hypothesis to be true. As can be seen from the results in Chapter 4, the graduates stated that they were ready for the workplace.

Null Hypothesis

The second hypothesis was proven by employers' respondents. Graduates from the School of Construction Economics and Management have not attained 'graduateness', hence do not have employability skills/ are not ready for the workplace. It can be seen that a gap exists in the perception of employers and graduates in terms of graduateness and employability.

5.2 Conclusion

It was concluded in a baseline study by Griesel & Parker (2009) that most employers wanted graduates that were proficient in English. It was found in this study that most of the graduates and Employers rated the ability to communicate in English as very important. In addition it was found that many of the graduates rated the ability to communicate in other language as not important, whereas the employers stated that being able to use one of the other 10 official language was an added advantage as certain people on site do not all understand English. Both employers and graduates stated that having a strong work ethic was as equally important.

All of the respondents were asked if they could undertake a financial analysis, many of the respondents which were quantity surveyors stated that they could not conduct a financial analysis, which forms an integral part of their careers. However they said that this skill or attribute was later obtained as they were working. Graduateness in the simple form of preparedness of a student after completing a degree/ course seemed to be a very conflicting issue amongst the graduates and employers. A percentage of the graduates that partook in the study stated that they were ready for the workplace, and that was purely with the help of the degree they had obtained, while on the other hand some graduates felt that their preparedness lay on the grounds of having completed practical training during their study period. Other graduates felt that they were not ready for the workplace after university or after obtaining their relevant degrees, and

expressed that had they undertaken some form of practical training would have helped a great deal in exposing them to the world of work.

This sentiment was totally different on the employer's side of things, as majority of employers felt that these graduates were not ready for the workplace at all, citing issues such as lack of managing skills that causes conflict with older standing personnel on sites, and amongst many reasons having some sense of entitlement before even doing any work. Glover in his study described employability as the ability to secure employment, which leads to the conclusion that WITS CEM graduates had attained employability skills as 90% of the graduates that partook in the study were in permanent employment. This may be the result of graduates securing bursaries and practical training with relevant employers that go onto retaining these graduates after building relationships with them through their studying careers. Confusion arises as employability is not only about getting a job, but it is also being able to function in that job. Many of the graduates believe that with time they were able to cope with the dynamics of the workplace, whereas employers expected them to be capable fresh from varsity.

Employers that employ the wits CEM graduates felt that there was a lack of understanding in terms of the expectations that graduates had versus what their expectations were. Although as stated by employers, the results indicates that there is lack of preparation for the students to transit in the workplace, it is clear that also employers expectations can be easily unreasonable, as most of the attributes or skills that they require can be obtained after one has gained insightful level of experience that the workplace provides. Graduateness and employability will continue to be a debate for many years to come, as it is subjective to personnel. It can be concluded through the perception that come through the employers that wits CEM graduates have not attained a level of graduateness, in the context of being ready for the workplace, the mere fact that graduates of the CEM find themselves employed shows that certain employability skills exists amongst them, even though they may not meet a satisfaction that the employers requires.

Graduate Perceptions and preparedness

As discussed in the data analysis chapter, it was found that 69% of the respondents felt that they were ready for employment after obtaining their degrees, whereas 31% of the respondents felt that they were not entirely read prepared for the workplace. The perception that arose from the study from the view of graduates is that they felt they were prepared for the workplace through the respective degrees they obtained at university. However when answering questions related to practical training, it could be deduced that those that did not have practical training as part of their coursework felt that it would have made their transition to the workplace easier. This was said in view of boosting preparedness of graduates after varsity.

Employer Perceptions

The opposite is said in view of the employers, 80% of the respondents indicated that the graduates they employed were not ready for the workplace. The question continued for those respondents that had answered that their graduates were not ready for the workplace, were asked to state what it was that the graduates lacked in terms of being ready for employment. Employers raised the concern of lack of work experience as one of the problems that have an effect on the performance of graduates in the workplace. It was also said that graduates have different expectations of the workplace and they lacked management skills, and a suggestion of undertaking in-house training was made by some employer.

Gap that exists between Employer and Graduate perceptions

A gap certainly exists between graduates and employers. Graduates feel that they are ready for the workplace, and they see a room of improvement in that readiness by introducing practical training in all coursework by CEM, on the other side employers feel that graduates are not ready for the workplace as they do not have sufficient work experience. This is a same gap that was highlighted on previous studies; higher education also felt a lack of appreciation existed from the employers with regards to the

quality of graduates produced by universities. This does not discourage the stakeholders from taking the views and perceptions of industry and trying to incorporate them in the early stages of a student's 'life.

If the study had to be done again for the second time, the researcher would include the School of CEM in the sample. The collection of data would also be structured in such a way that a conference would be held at the school at different periods inviting employers and graduates. The questionnaire would be handed over to the 3 groups, and after completion the findings would then be presented at the second conference. A debate could then be held and any gaps found would be addressed within such an environment.

The Council for the Built Environment stated they were aware of the problems at Wits, but also they expressed that those problems were not unique to Wits and were experienced by other educational institutions in the country.

5.3 Recommendations

After studying the topic and the findings, the following recommendations are made to the School of Construction Economics and Management

- Extend Practical Training to Quantity Surveying and Property Studies students
- Increase the number of weeks required for practical training from 12 weeks to 30 weeks of training
- Engage with employers bi-annually to find out their needs in a constantly changing environment
- Employers must design programmes that assist students in the transit from university to the workplace
- Give tasks that enables students to showcase managerial skills at varsity level
- Encourage group activities that will lead to improved efficiency and working in teams

- Have field trips that will expose students to the type of industries and expectations that are out there.

5.4 Area for Future Research

When analysing the data, it was found that practical training was not a subject that was enforced in the Quantity Surveying and Property Studies field in the school of construction economics and management. Practical training was only required from students studying towards the degree of Construction management students. However the students that had to do practical training felt that 12 weeks of practical training was not sufficient, it was also taken into consideration that it was not easy for student to find work from companies where practical work could be undertaken. This leads to research possibility in finding out ways of introducing practical training to the other courses, and also to partner with companies to ensure that this strategy works. This would enhance the employability and graduateness of students.

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APPENDICES

Appendix A: Letter to respondents

University
of the Witwatersrand,
Johannesburg

School of Construction Economics and Management

1 Jan Smuts Avenue, Johannesburg · P O Box 20 Wits 2050, South Africa · Telephone: +72 11 717-7652/63 · Fax: +27 11 339-8175
E-mail: cem@consecon.wits.ac.za

10 January 2013

To whom it may concern

My name is Celiwe Mtebula, an MSc student at the University of the Witwatersrand, Johannesburg. I am conducting research through the school of Construction Economics and Management and as a fulfilment to the degree I have to complete my thesis.

The topic in which I'm conducting the research is as follows;

Employers' and Graduates Perception Survey on Employability and Graduateness: A study in the School of Construction Economics and Management

I will be sending out a self-administered questionnaire that I would appreciate if you filled it in and email me back @ celiwemtebula@gmail.com or 0502323D@students.wits.ac.za

Please do not hesitate to contact me should you have any queries.

Yours Sincerely

Celiwe Mtebula

Appendix B: Follow up letter to respondents

University
of the Witwatersrand,
Johannesburg

School of Construction Economics and Management

1 Jan Smuts Avenue, Johannesburg • P O Box 20 Wits 2050, South Africa • Telephone: +72 11 717-7652/63 • Fax: +27 11 339-8175
E-mail: cem@consecon.wits.ac.za

23 January 2012

RE: Follow up letter

To whom it may concern

My name is Celiwe Mtebula, an MSc student at the University of the Witwatersrand, Johannesburg. I am conducting research through the school of Construction Economics and Management and as a fulfilment to the degree I have to complete my thesis.

The topic in which I'm conducting the research is as follows;

Employers' and Graduates Perception Survey on Employability and Graduateness: A study in the School of Construction Economics and Management

I will be sending out a self-administered questionnaire that I would appreciate if you filled it in and email me back @ celiwemtebula@gmail.com or 0502323D@students.wits.ac.za

Please do not hesitate to contact me should you have any queries.

Deadline: 30 January 2013

Yours Sincerely

Celiwe Mtebula

Appendix C: Graduate Questionnaire

Employers' and Graduates Perception Survey on Employability and Graduateness: A study in the School of Construction Economics and Management

Graduate Questionnaire

Part A General

1. Name of respondent (optional):
2. Age ☐ 18-25 ☐ 26-35 ☐ 35+
3. Gender ☐ Male ☐ Female
4. Are you employed?
   Yes ☐ No ☐

   If yes please continue with the questions below
5. Name of organisation:
6. Size of organisation:
   50-100 ☐ 101-200 ☐ 300+ ☐
7. Specialization of Organisation

Construction Company ☐

Financial Institutions/Bank ☐

Quantity Surveying firm ☐

Government ☐

Real Estate/Property Company ☐

Consulting Firm ☐

Other ☐

If other (Please specify):

8. Do you have a degree?
   Yes ☐ No ☐
9. Which university did you obtain your degree from? Select from the list provided below

Wits University ☐

University of Pretoria ☐

University of Cape Town ☐

University of Johannesburg ☐

Other ☐

10. What degree did you obtain?

    BSc Construction Management ☐

    BSc Quantity Surveying ☐

    BSc Property Studies ☐

    NDip Building Science ☐

    Other ☐

Part B Skills and Abilities

1. After obtaining your degree do you feel you were prepared enough to go into the workplace?
   Yes ☐ No ☐

2. Practical Training

a) Was practical training required for a completion of your degree?
   Yes ☐ No ☐
b) If you answered yes, please proceed to question (c); if you answered No proceed to question (e)
c) How many weeks or years of training did you complete?
d) Do you think the practical training helped in preparing you for the workplace?
e) Do you think that Practical training would have helped?

3. Do you think your education prepared you for the workplace?
4. Are you able to work in a team?
5. Do you have managerial skills?
6. Can you undertake a financial analysis?
7. What attributes do you have?
8. Do you feel you developed this attribute at university level?
9. Please rate the skills below by putting x where you feel it should be

Skill	Very important	Important	Not important
a) Extensive practical knowledge			
b) Computer literate			
c) Able to update professional knowledge			
d) Possess effective : reading skills			
e) Listening skills			
f) Oral communication skills			
g) Written skills			
h) Able to communicate in : English			
i) Other language			
j) Gather and interpret information			
k) Define and solve problems			
l) Adaptable and flexible to cope with changing work environment			
m) Work autonomously			
n) Work co-operatively as a team member			
o) Lead others effectively			
p) Work effectively with multi-national teams and projects			
q) Be creative			
r) Work ethic			
s) Accept responsibility			
t) accountability			
u) Exercise professional judgment			

Appendix D: Employer Questionnaire

Employers' and Graduates Perception Survey on Employability and Graduateness: A study in the School of Construction Economics and Management

Employer Questionnaire

PART A
About you and your organisation

1. Name of respondent (optional):
2. Name of organisation:
3. Size of organisation:

   50-100 ☐ 101-150 ☐ 300+ ☐

4. Role/Position in the organisation:
5. Population group (Optional):

   Black ☐ Coloured ☐ White ☐ Indian/Asian ☐

6. No of years in the organisation:
   Under 5 ☐ 5-10 ☐ 10-15 ☐ 20+ ☐

7. Your highest level of education:

Grade 12/ Senior Certificate	☐
Undergraduate Diploma	☐
Undergraduate Degree	☐
B tech Degree	☐
4year professional degree	☐
Honours degree	☐
Post-Graduate Diploma	☐
Master's Degree	☐
PhD Degree	☐
Other (Please specify)	☐

8. Sector of organisation

Construction Company ☐

Financial Institutions/Bank ☐

Quantity Surveying firm ☐

Government ☐

Real Estate/Property Company ☐

Consulting Firm ☐

Other ☐

If other (Please specify)

Part B
About Graduates in the workplace

1. Does your organisation actively recruit graduates?

   Yes ☐ No ☐

2. If you answered yes in Q1 please choose from the answers below, from which university do your graduates come from? (more than one selection can be made)

Wits University ☐

University of Pretoria ☐

University of Cape Town ☐

University of Johannesburg ☐

Other ☐

3. What degree do these graduates hold? (Note you can select more than one field)

BSc Construction Management ☐

BSc Quantity Surveying ☐

BSc Property Studies ☐

Dip Building Science ☐

Other ☐

If other please specify

4. Do you think the graduates you employ are well equipped for the workplace?

   Yes ☐ No ☐

5. If you answered no in Q4 what do you think they lack in terms of preparation for the workplace?

   ☐

6. What other skills do you feel should be incorporated into the graduates university curriculum?

   ☐

7. What do you expect from a newly recruited graduate?

   ☐

8. Do you think the abilities that newly graduates have match your expectations?
   Yes ☐ No ☐

9. Do you allocate mentors to new graduates?

   Yes ☐ No ☐

10. Below are a list of basic skills that a graduate is sought to have

    Please rate accordingly: (Place an X on the relevant box)
    1. Not important at all
    2. Important
    3. Very important

	1	**2**	**3**
Communication Skills	☐	☐	☐
Strong interpersonal skills	☐	☐	☐
Team player	☐	☐	☐
IT	☐	☐	☐
Language ability	☐	☐	☐

Good commercial awareness	☐	☐	☐
Problem solving skills	☐	☐	☐

The skills below have been compiled by RICS (Continue rating as done above)

Gathering & interpreting information	☐	☐	☐
Self-management and others	☐	☐	☐
Oral, written and graphical communication	☐	☐	☐
Use of equipment and IT	☐	☐	☐
Analysis and problem solving	☐	☐	☐

11. Basic skills and understanding

a) Please indicate how satisfied you are with the practical competence and understanding of the workplace by the graduates

1. Very dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. Very Satisfied

	1	2	3	4	5
Prior work experience					
Knowing the organisation					
Ability to interpret given tasks					
Ability to find and access new information					
Ability to handle large amounts of new information					
Proficiency in English					
Working in a team					
People skills					
Oral presentation skills					
Written communication skills					
Numeracy skills					

Computer literacy					
Technical ability					

b) Now please indicate what you expect from graduates using the same set of attributes in order for these graduates to meet their job objectives
   1. **Unimportant 2. Somewhat Important 3. Neutral 4. Important 5. Very Important**

	1	**2**	**3**	**4**	**5**
Prior work experience					
Knowing the organisation					
Ability to interpret given tasks					
Ability to find and access new information					
Ability to handle large amounts of new information					
Proficiency in English					
Working in a team					
People skills					
Oral presentation skills					
Written communication skills					
Numeracy skills					
Computer literacy					
Technical ability					