Exploring emerging engineering professionals' perspectives on job expectations

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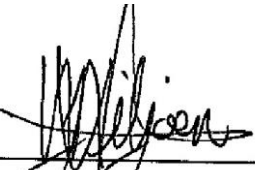
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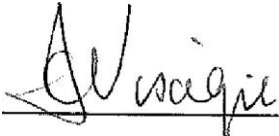
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Declaration with regard to independent work

I, **Johannes Matheus Viljoen**, identity number 9302265538083 student number 23415878, hereby declare that this research submitted to the North-West University, for the Masters study: **Exploring emerging engineering professionals' perspectives on job expectations,** is my own independent work and complies with the Code of Academic Integrity, as well as other relevant policies, procedures, rules and regulations of the North-West University; and has not been submitted before to any institution by myself or any other person in fulfilment of the requirements for the attainment of any qualification.

Johannes Matheus Viljoen
Student

Prof. Dr. Jan Visagie
Promoter

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Abstract

Exploring emerging engineering professionals' perspectives on job expectations

This research study is founded on previous research on the engineering industry in South Africa. Current statistics indicate that for every 2,012 individuals in South Africa, only one has pursued an engineering profession. Therefore, identifying the job expectations of emerging engineers might reveal the concerns or challenges faced before entering the industry. This is further exacerbated by the low (16%) number of university engineering graduates. However, in South Africa this is not the case for all engineering sectors, especially the mining sector. The lack of attracting engineers into other engineering sectors is a concern. Therefore, investigating the job expectations of emerging engineering professionals will provide an understanding of their perspective on the engineering industry. In order to achieve this goal particular objectives have been set in Chapter 1 and subsequently addressed throughout the study.

Chapter 2 has set out to explore and investigate job expectations and characteristics of job expectations within the current body of literature. An in-depth literature review has been compiled in order to provide a greater understanding of job expectations. Previous research conducted by pioneers such as Vroom (expectancy theory), Herzberg (two-factor theory), Maslow (hierarchy of needs theory), and Hackman and Oldham (job characteristics model) have been reviewed to indicate the interdependency of motivation and expectations. In addition, five models of job satisfaction were explained to indicate the relationship between satisfaction and expectations. Additionally, employee engagement, work engagement and organisational citizenship behaviour have all been explored in order to address employee retention. Employee engagement, work engagement and organisational citizenship behaviour provides a better understanding of commitment towards the organisation. Lastly, the happy-productive worker theory has been included to illustrate the beneficial relationship between a happy/satisfied worker and the organisation.

The methodology that has been applied in this research study is described in Chapter 3. Emerging engineering professionals have been interviewed to reveal the job expectations. The researcher made use of quota sampling to identify emerging engineering professionals. Subsequently, the sampling method has been converted into a snowball effect since the researcher asked the first

participants to be referred to other emerging engineering professionals. Semi-structured interviews were held in a comfortable environment. Participants gave their consent to be recorded and to be quoted in this study. A content analysis has been used to analyse the data and themes and categories have been obtained and reported in Microsoft Word© and Microsoft Excel©. The researcher has followed the American Psychological Association (APA) code of ethics.

The results are presented and discussed in Chapter 4 and 5. The biographical information of the participants and all the information obtained through the interviews is provided in Chapter 4. Emerging engineering professionals have defined job expectations as an individual's expectation on work demands, organisational expectation, working conditions, organisational benefits, remuneration, and co-worker relationships. Results revealed that half (50%) of the participants appear to be positive towards entering the engineering industry. The average monthly remuneration expectation was R27 500 and emerging engineering professionals have indicated expectation of organisational benefits to be a medical fund, organisational allowances, and pension fund. Additionally, 60% of the participants expected to work in modern conditions and the average expected working day has been expected to be nine hours long. Aspects related to the job, control, and overload has been considered as the major concerns. Emerging engineering professionals have also expected a work relationship with respect, varied interactions, and mindfulness, interrelatedness and effective communication. In addition, 50% of the emerging engineering professionals expect fast advancement opportunities in the engineering industry. Moreover, 60% of emerging engineering professionals have indicated a readiness to enter into the industry. Finally, in Chapter 5 recommendations for further research are identified. Firstly, it is recommended that research is done where job expectations of emerging engineers are compared with engineering professionals. Secondly, a gap in the current literature can be addressed by investigating the definition of job expectations more comprehensively. Thirdly, it is recommended that research is done where the ten job expectations are reviewed, since this research has identified knowledge, skills and abilities as a contributing factor in the job expectations of emerging engineers. Fourthly, a more comprehensive and diverse perspective of the current engineering industry is required to address the current lack of available literature. Lastly, the working environments of different engineering fields should be researched. Additionally, this research has found that knowledge, skills and abilities was considered an important factor in the evaluation of emerging engineers' job expectations and therefore necessitates further investigation.

Keywords: Job expectations, expectations, student perceptions, engineering students, motivation, job satisfaction, engagement

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Chapter One: Introduction, background, problem statement, goals and objectives and method of research

1.1 Introduction

For a period of time until now, the job expectations of students towards entering the labour market, including the realities they have to face in the workplace are to some extent inconsistent (Karoly, 2010). In 2013, the global average unemployment rate was 6%, and in developing countries throughout sub-Saharan Africa the rate was 7.7%. However, a dire situation in South Africa occurred, as unemployment rates have soared to 24.9%, four times more the global average (World Bank, 2015). In 2011, 16.5% of the total South African labour market held a tertiary education qualification (World Bank, 2015). It therefore appears that the correlation between successfully finding a job and starting a career is closely related to education.

On average 80% of South African men and 72% of women with tertiary qualifications are employed (Gary, 2015). The economic well-being of a country is very reliant on the knowledge, skills, and abilities (KSA) of its workforce, especially in countries such as South Africa where labour-intensive industries should be developed to facilitate the surplus workforce. Students often have preconceived notions or ideas and specific job expectations towards their future careers. If these expectations are not met, it could lead to a demotivated workforce or the loss of essential knowledge, skills, and abilities (KSA) in the labour market (Gallant, 2015). Students, unfortunately, have an unrealistic expectation of their careers before graduating. According to Porter (2014), students expect to find jobs within six months after graduating from university, although there is a very slim chance of stepping into one's dream job in reality.

Porter (2014) has further indicated that students hold unrealistic expectations especially regarding remuneration and pay. Many have student loans and expect they will be able to pay off the debt within their first working year. However, most graduates' first pay cheques will not be enough to cover all the expenses when starting out. Porter (2014) has stated that students rarely understand the economic condition of the country and that lower expectations are needed to be prepared for the future.

On the contrary, employers are not always aware of students' expectations towards future career goals. This could then lead to frustration with jobs and low job satisfaction resulting in low productivity as portrayed in the happy-productive worker theory (Cropanzano & Wright, 2001; Zelenski, Murphy & Jenkins, 2008; Böckerman & Ilmakunnas, 2012). In principal, the happy-productive worker theory states that when individuals are not satisfied with their jobs or their employers it could result in absenteeism, less productive employees, and poor-quality work. Thus, job satisfaction and motivation are key factors to consider when studying job expectations.

The next section deals with the key constructs of the study. Thereafter, the following section provides a brief background to position the problem that was investigated. The Chapter closes with the problem statement and research questions which the study attempts to address.

1.2 Background to the problem

This gap between the expectations and the reality of work is relevant for research purposes since job satisfaction and motivation of employees is such an important subject in Human Resource Management (HRM) and recognised elements of the happy-productive worker theory. Satisfied job expectations will motivate current and prospective employees to be more productive towards the goals of the organisation. According to Heskett (2010), one of the fundamental purposes of management and business is to achieve a successful bottom-line, and the only way of achieving this is a satisfied workforce (Lovins, 2015). Dyck (2003) has indicated through previous research that Canadian female students perceive that they will receive lower remuneration than male students. This is not surprising as on average most Canadian women get paid 66.7 cents compared to every Canadian Dollar paid to men (Canadian Women's Foundation, 2014).

Other research focusing on what students expected from career fairs reported on how organisations should improve their career fair efforts on five aspects including characteristics of employer representatives, specific behaviour of representatives, displays of stations, printed information about the organisation or employer and gifts (Roehling & Cavanaugh, 2000). Roehling and Cavanaugh (2000) have found that students expected that representatives should be sufficient, and they should be knowledgeable about the organisation, friendly, reflect the diversity and demonstrate a personal interest in the students. A professional display which promotes the

organisation, display available positions and provides professional recruitment materials were also expected.

In South Africa Maharasoa and Hay (2001) have done research on the expectations of university students regarding future employment. It has revealed that students are pessimistic towards future employment, since they feel that universities do not prepare them for all the challenges in the labour market. These studies are however outdated, and there was a need for a new perspective towards employment and the expectations that students hold towards employment in order to decrease the gap between employers and students and ensure greater job satisfaction and overall productivity in organisations. According to De Hauw and De Vos (2010) high expectations of employees that are not met can have unfavourable effects on an organisation.

According to Coetzee and Roythorne-Jacobs (2011), the problem is that most employers and students do not know or understand the following factors that form part of job expectations:
- Work demands which include the type of work that the individual will execute;
- Security, which includes a safe workplace but more importantly the security of the individual's employment stability;
- The expectation of the company or organisation, which includes the reputation of the organisation and that the individual is proud to work for the organisation;
- Advancement, which involves the progress of the individual in the organisation with regard to being promoted in the organisation;
- Co-worker relationship, since individuals expect that they will work with other individuals who have experience, skills, and knowledge, they also want to be compatible with other individuals;
- Remuneration or pay refers to individual's expecting organisations to pay them enough to meet their basic needs, and they expect to be paid equally with a comparison to other individuals with the same job or responsibility in the industry;
- Supervision includes supervision that is fair, competent and considerate;
- Working hours include individuals wanting working hours that allow them to spend time with their families or gives them time to explore their interests. A new trend in organisations is flexi-time, that allows individuals to work independently;

- Organisational benefits, which may include medical aid, pension fund contribution or a car allowance is expected from students and employees; and

- Working conditions, and ergonomic physical working conditions are what most individuals expect from the organisation, which also includes the culture of the organisation to satisfy the individual.

A detailed discussion of the relevant literature, as well as previous research on the topic, will be discussed in the literature chapter. With the aforementioned problems regarding job expectations in mind, this research has specifically focused on the job expectations of emerging engineering students as the next section explains.

1.3 Problem Statement

Eleanor Seggie (2012) has found that one of the biggest problems in South Africa is the lack of engineers. Seggie (2012) states that 74% of organisations in South Africa struggle to fill the engineering posts available in their organisations. This means that engineering students either do not graduate, or there are not enough engineering students which may lead to significant economic losses for South Africa. The engineering industry is one of the most difficult industries to supply suitable candidates to available positions, since employers feel applicants have a lack of technical skills and experience (Steyn, 2015). Over a 13-year period (1998-2010) on average, only one in every seven enrolled engineers graduated. This means that nearly 86% of enrolled students did not graduate. Moreover, enrolment at universities indicated that only 16% of engineers graduate, far lower than the global average of 25% (Seggie, 2012). Additionally, the Engineering Counsel of South Africa (ECSA, 2015), reports that there are 16 423 professional engineers, 5 156 professional engineering technologists, 1 165 professional certificated engineers and 4 598 professional engineering technicians registered. ECSA (2015) has reported that South Africa has one engineering professional per 2 012 people of the population. This number is well behind the ratios of Brazil (227), the UK (311), Australia (455) and Chile (681), although ahead of African countries like Tanzania (5 930) and Zimbabwe (6 373). According to Daniels (2007), another problem South Africa faces is the lack of engineering skills in Black individuals. Also, skill development of Black individuals should be focused on engineering and technical expertise (Erasmus & Breier, 2009). Besides, the engineering sector does not have an accurate register of

professionals in the country. At the same time, some engineers are emigrating while others are being lured by other industries (Rasool & Botha, 2011).

Ngetich and Moll (2013) have indicated that in general, engineers should have the following capabilities:

- Numerical competence;
- Advanced mathematics;
- Engineering Mechanics;
- Circuits and electronics;
- Computer science and calculation;
- Engineering design;
- Applied statistics;
- Manufacturing engineering;
- Quality control; and
- Material sciences.

However, while the type of competencies required and the shortage of engineers in South Africa is well documented, limited research to date, and to the researchers' knowledge, focused on the job expectations of engineering students. Thus, the goal of this study is to investigate the job expectations of engineering students compared to the reality of work in the South African engineering industry. This information is needed to prevent the loss of necessary knowledge, skills, and abilities (KSA) that graduated engineering students provide the economy of South Africa and in the engineering industry. This research will specifically determine the job expectations of currently enrolled engineering students at the North-West University, Potchefstroom Campus. In Chapter Four job expectations of an engineering student are identified and described in detail. This will furthermore identify gaps in job expectations. The problem identified is that some engineering students' expectations are not met in the industry, and then they are not satisfied with their job which leads to them changing careers or changing their study field to something they would find more fulfilling (Silbey, 2016 & Reich, 2011). Current engineering students are furthermore not informed about what to expect from the engineering industry, and then they leave the industry. Martin, Maytham, Case, and Fraser (2005) have found that engineering graduates experienced a

lack of practical work components from the education they have received at university. Moreover, Martin, Maytham, Case, and Fraser (2005) have also found that graduated engineers felt they lacked the managerial, financial and business skills needed in the market place. South Africa cannot afford the loss of necessary KSA in the engineering industry, since there should be more focus on technology and scientific skill development (Tancott, 2014). Thus, this research study has focused to fill a gap in the current literature regarding the job expectations of engineering students and to provide valuable information on what these job expectations are and how they can be met by the industry. Ultimately, this research provides guidelines on how engineering skills can be retained in South Africa – a country in dire need for more skilled engineers. The research study provides industry insight to facilitate or improve engineering graduate programmes in order to properly prepare them for industry requirements and the labour force. Thus, by considering the above-mentioned theory, the following problem could be derived, namely: What are emerging engineering students' perspectives on job expectations?

1.4 Research questions

To achieve the goals of the study, this research has addressed the research questions as described in full detail in Chapter Four. Below follow the research questions related to the problem statement: Emerging engineers' understanding of job expectations and their job expectations:

- Which main components of job expectations depicted in literature?
- How do engineering students understand the term job expectations?
- Which main components are important to engineering students concerning job expectation?
- What is emerging engineers specific job expectations?
- What do emerging engineers expect in terms of entering the engineering industry?
- What is emerging engineers' expectations towards remuneration, organisational benefits, working conditions, working hours, work demands/job tasks, work relationships and advancement opportunities?
- Are emerging engineers prepared for the industry?

1.5 Research objectives

The research objectives are divided into a general objective and specific objectives.

1.5.1 General objective

The purpose of this study is to investigate the job expectations of engineering students compared to the literature. The general objective of Chapter Four is to identify how emerging engineers understand the term job expectations, and the overall purpose of Chapter Four is to determine the different expectations emerging engineers have toward their career.

1.5.2 Specific objectives

More specifically, the research has the following objectives:

- To explain how job expectations are conceptualised in literature.
- To explain the different factors of job expectations.
- To identify how emerging engineers, understand the term job expectations.
- To compare job expectations literature obtained with the data collected through the interviews.
- To describe the expectations engineering students have regarding remuneration, work demands/job tasks, and working conditions, advancement opportunities, work relationships, working hours and organisational benefits.

1.6 Research design

1.6.1 Research Approach

This research has an exploratory nature as there is such a lack of research on the specific subject. A qualitative approach has been beneficial as it has allowed different engineering students to freely express views and perceptions concerning job expectations. Furthermore, a qualitative research approach had been used in this study as the qualitative research has necessitates the gathering of information which has allowed the researcher to see exactly what the participant was thinking and feeling (Struwig & Stead, 2011; De Vos, Strydom, Fouché & Delport, 2011). In this qualitative research, content analysis has been used to contextualise information that had been gathered from engineering students. This approach has helped the researcher to assign the information to categories of job expectations. Phenomenography has also been employed in this research, since it allowed the researcher to identify regularities and patterns in the information that has been obtained. In phenomenography, interviews are usually the method of data sampling where direct

quotations from the interviews are grouped based on their similarity. This allows the researcher to see how the participants experience, perceive, conceptualise and understand aspects of the engineering student within the South African engineering industry (De Vos, Strydom, Fouché & Delport, 2011).

1.6.2 Research Strategy

For this research, interviews have been conducted amongst engineering students. The collected data have been transcribed to identify the numerous themes and categories related to job expectations of engineering students. This study is exploratory in nature as, to date and to the researcher's knowledge; no specific research had been done on the subject of job expectations in the field and/or industry of engineering. Moreover, Chapter Two will focus on literature about job expectations while Chapter Four focuses on developing themes and categories related to the job expectations of engineering students regarding remuneration, working hours, type of work, working environment, employment stability, promotion opportunities, co-worker relationship, supervisor relationship, working conditions and organisational benefits. Semi-structured interviews have been applied to gather the information. This has allowed the questions to be based on research, experience, and theory. The interview questions have been formally structured, and all participants have been asked the same questions (Coetzee & Schreuder, 2012).

The two strategies discussed above have been used to obtain the necessary information for this study.

1.7 Research Method

1.7.1 Literature review

A complete literature review regarding job expectations has been conducted, and the following keywords have been applied: job expectations, expectations, student perceptions, and engineering students. Relevant articles have been consulted via the following databases; Google scholar; EBSCO host; Emerald and Nexus Lexis. The following journals have been studied as a result of their relevance to the current topic: Human Resource Management; South African Journal of Human Resource Management; Industrial and Human Resource Future; International Journal of

Cross-Cultural Management. Textbooks and dictionaries have also been used to understand constructs regarding the research.

1.7.2 Research setting

For this research, the researcher has conducted one-on-one interpersonal interviews in a room that has been welcoming, open, noise-free and comfortable. The room that has been used was a conference room in the Ferdinand Postma library, NWU, PC with comfortable seating and an open neutral environment. This room has also ensured the privacy of the participant. The setting has been perfect for interviews as it was noise free and the participants had been undisturbed while answering the questions. The interview has been recorded which allowed the researcher to transcribe the data afterwards.

1.7.3 Entrée and establishing researcher roles

The researcher has explained the reason for the research to the participants (engineering students) as well as the role of the researcher. In this study, the researcher has acted as an interviewer during the interview process. In the role of interviewer, it is critical that there is mutual trust between the researcher and the participants. Mutual trust has been formed between the researcher and the participants by explaining what the research entails and by confirming confidentiality. Also, participants have consented to participate and signed consent forms. Mutual trust has also been achieved since the researcher, and the participants were both students. The researcher has gained access to the students via hostels and approached the academic house committee member to obtain the contact details of emerging engineers. Afterwards, the researcher has stated that interviews had to be held for a research project on engineering students regarding job expectations and that the engineering students would be able to message the researcher to arrange the time and place of the interview. Timeslots have been made available and the students had been able to contact the researcher.

1.7.4 Sampling

This research project has been conducted among 10 engineering students of the North-West University (NWU), Potchefstroom Campus (PC), South Africa. The researcher has made use of quota sampling to identify engineering students on the NWU, PC. Struwig and Stead (2011) has

concluded that quota sampling implicates that participants comply with certain criteria before qualifying for inclusion in the sample. For this research study, the criteria are that the participant must be a full-time engineering student at the NWU Potchefstroom Campus, and to be a participant, the student must be obtaining a degree in the engineering field. The number of participants (engineering students) was not be fixed. Interviews have continued until the researcher has attained data saturation (Terre Blanche, Durrheim & Painter, 2006). The participants have been selected at random and voluntary on the engineering campus at the NWU Potchefstroom Campus. The interviewer has aimed to interview the same number of female and male engineering students. Furthermore, the researcher has ensured that the sample of each gender has consisted of various ages, ethnic groups, and engineering fields currently enrolled at the NWU (within the disciplines of Chemical and Mineral, Electrical, Electronic and Computer, Mechanical and Nuclear, Industrial and Electromechanical).

The following criteria have been applied to select the participants: for the interviews students will be used.

- The participants should be willing to participate in the research and must give a written consent that they fully understand the research and the purpose thereof.
- The participants should be engineering students at the NWU Potchefstroom Campus.
- The participants should be willing to be interviewed.
- The participants should be prepared to have their interviews recorded on a digital device.
- The participants should have a good command of English since this is the language in which the interviews will be conducted

1.8 Data collection methods

Data has been collected by semi-structured interviews with emerging engineers.

1.8.1 Semi-structured interview

A pilot study regarding the semi-structured interview has been done before the implementation of the official process. Such a pilot has been done with participants that have the same characteristics as required for the research study and indicated in the previous section. A pilot study includes the pretesting of the interview questions and is done to increase the possibility to achieve the main

goals of the study and research (Van Teijlingen & Hundley, 2001). Struwig and Stead (2011) explain that a semi-structured interview involves open questions to be asked to the participants.

The interviews have been planned according to an interview guide that has assisted the researcher to achieve comfortable communication between the interviewer and interviewee to ensure similar data is collected from all the participants. The following questions have been used in the interview guide:

- What does the term job expectation mean to you?
- Do you have any specific job expectations?
- What is your expectation on entering the engineering industry in general?
- What are your expectations concerning remuneration?
- Do you have any expectations on receiving other benefits?
- What is your job expectation concerning working conditions?
- What do you expect your weekly working hours will be?
- What is your expectation concerning work demands/ job tasks?
- What do you expect from the supervisory relationship and or co-worker relationships?
- Do you expect early advancement opportunities?
- Do you feel prepared for entering the engineering industry?

Written consent forms have been obtained from all the participants before the semi-structured interviews commenced. Participants have been informed that the interviews were recorded to ensure all the information is gathered. The semi-structured interviews have been scheduled as thirty minute sessions were conducted over a period of a month.

1.8.2 Recording of data

The semi-structured interviews have been recorded with the participants' consent and were transcribed afterwards into a Microsoft® Word document to extract main ideas from information obtained in the interview. The researcher has also made field notes during the interviews to gather more information. After the interviews, the recordings have been encrypted to ensure the privacy and confidentiality of the participants. The transcribed Microsoft® Word document transcripts have also been encrypted to ensure the safety of the information that was obtained.

1.8.3 Data analyses

The data gathered from the structured interviews has been analysed through the content analysis method. A content analysis is conducted in three stages; namely stage one the data collection, stage two data coding and stage three data analyses (Bowling, 2009).

According to De Vos et al. (2011), it is imperative to transcribe the interviews before implementing the data analyses as it assists in the creation of themes. Furthermore, to code is to identify the differences in the information or data from the answers gathered through the interviews. In addition, the researcher's field notes ensure the reliability of the data analyses method. In this research, open coding has been applied while reading through the data since it is the part of the data analyses method that concerns itself with the categorising and naming of phenomena (De Vos et al., 2011). Open coding allows the researcher to break down the data into smaller parts to closely examine and compare the data for similarities or differences. This has allowed questions to arise about the phenomena found in the data. The coding mentioned above has allowed the researcher to categorise findings. The final stage has been interpreting, report and present the findings from the data (Bowling, 2009).

1.8.4 Strategies employed to ensure quality data

When conducting qualitative research, it may be difficult to ensure quality data. However, Lincoln and Guba (1985) have identified four main criteria that should be displayed and presented in the research. Firstly, credibility: this requires the researcher to establish that the results are credible and believable from the perspectives of the participants in the study. It also includes the continuous search for disruptive evidence throughout the study which the perceptions of the participants support. Secondly, transferability refers to how results can be generalised to other contexts. This requires the researcher to provide sufficient information regarding the context and framework of this study to make it more transferable. Thirdly, dependability concerns itself with repeatability and replicability. Moreover, detail descriptions regarding the research methods, analysis, and reporting have been made available to the reader to ensure how the research was done, and finally confirmability: the degree to which the research results could be confirmed. The researcher has documented the procedures used in the study in order that it could be reproduced again.

1.8.5 Reporting

According to De Vos et al. (2011), reporting is the conclusion of data analyses and reports the findings in a final Microsoft® Word document after all the data have been analysed and assessed. This research has been reported in the qualitative writing style and reflects the perspectives and experiences of all the participants.

Qualitative reporting includes the gathering of themes and categories of the data. The themes and categories have been identified and explored which make up the most important part of the research process. The researcher has described and interpreted these findings, which has allowed in-depth understanding of the phenomenon. Thus, in this study student expectations have been researched. Reporting in a qualitative study has allowed the researcher to have detailed context (De Vos et al., 2011).

1.9 Ethical considerations

The researcher has been professional throughout the conducting of the interviews. Moreover, the researcher has explained the purpose of the study to each of the participants, as well as how the study is to be accomplished. Participants have been asked to complete consent forms, which have provided confidentiality and privacy to the participants. The participants have been willing and been enabled to withdraw from the study at any time. The researcher has followed the American Psychological Association (APA) code of ethics, and has evaluated the benefits of this study and acted with kindness towards participants. The researcher has been professional at all times and has been aware of the role and responsibilities of society; the researcher has been honest and has shown integrity throughout the study. The researcher has not been biased and has treated all the participants equally, and the researcher has protected the rights of the participants (Smith, 2003).

1.10 Definitions of key constructs

The following terms should be defined within the frame of this study in order to ensure clarity for the reader and understanding as the terms are intended in the context of the study:

- Bottom-line is the final line in the accounts of the organisation, stating the total profit or loss that has been made in the financial year (Cambridge Dictionary, 2016a).

- Engineers are individuals who plan, build, or maintain engines, machines, or structures, whose work entails to plan or build machines, engines, or electrical apparatus, or facilities such as roads, railways, or bridges, using scientific principles and reasoning (Cambridge Dictionary, 2016b).

- Job expectations are defined as the factors that future employees expect from their jobs such as work responsibility, job tasks, good pay and benefits (Cambridge Dictionary, 2016c).

- Job motivation is the process of energising employees to complete the work goal throughout a specific plan or strategy (Roy, 2001).

- Job satisfaction is defined as having a predominately optimistic outlook towards the work condition (Bergh, 2011). According to Coetzee and Schreuder (2010), job satisfaction is when employees have a positive and negative feeling or outlook on their job and include the positive or emotional state resulting from the successful appraisals on their work or their job experience.

- Students will be defined as people or individuals who are studying or expanding their knowledge, skills, and abilities at a university or another place of higher education (Cambridge Dictionary, 2016d).

- Unemployment is the state of not having a job or income (Cambridge Dictionary, 2015).

1.11 Chapter division

The chapters in this mini-dissertation are presented as follows:

Chapter 1: Introduction, background, problem statement, goals and objectives and method of research.

Chapter 2: Exploring job expectations.

What is job expectation as supported by literature?

What are the main components of job expectations under engineering students?

Chapter 3: Research methodology.

Chapter 4: Empirical findings and discussion

What is emerging engineers' understanding of job expectations?

What is emerging engineers' job expectations in detail?

What are the specific job expectations of emerging engineers?

Chapter 5: Summary, conclusions and recommendations.

Chapter two: Exploring job expectations

2.1 Introduction

This chapter focuses on research in literature that investigates key terms and concepts to define and explain the application of certain terminologies and vocabularies in this study. Firstly, the use of the word expectation has been defined, as it forms the main interest in this study. Victor Vroom's classical expectancy theory of motivation has also been investigated. Vroom's Expectancy theory is one of the most respected and well-researched theories amongst organisational and industrial psychologists (Kiatkawsin & Han, 2017). Moreover, job expectations have been defined and nine factors of job expectation according to Coetzee and Roythorne-Jacobs (2011) have been explained to allow the exploration of emerging engineers' perspectives. Mellado and Scherman (2017) have reported there three aspects that impacts job expectations; namely educational socialisation, gender and motivation. Furthermore, there is a strong relationship between job expectation and motivation (Lawler and Hall, 1970). Thus, motivation has been defined and Herzberg's Two-Factor Theory and Maslow's Hierarchy of Needs theory have been discussed for optimal clarity on the relationship between job expectation and motivation. Tietjen and Myers (1998) have suggested a strong relationship between motivation and job satisfaction. Therefore, job satisfaction has been defined and the job characteristics model of Hackman and Oldham has been explored. The happy-productive worker theory has been explored because it presents a solid relationship between job satisfaction and employee productivity (Cropanzano and Wright, 2001). Moreover, Mäkikangas, Aunola, Seppälä, and Hakanen (2016) have stated that research on the happy-productive worker theory has focused on the individual-level. For this study thus, the research has focused on emerging engineers (engineering students). However, when conducting this research, it is important to observe knowledge, skills, and abilities as it is the "product" employers "buy" from employees. In addition, in this research job expectation, job motivation and job satisfaction have been explored to provide valuable information to observe knowledge, skills and abilities in further investigation for a link between job expectation, job motivation and job satisfaction and knowledge, skills and abilities. After the definition and explanation of key terms, this literature chapter defines and explains how the terms engineering and emerging engineer are applied, since these groups form the population of the study. The

explanations of terms serve to orientate the reader towards study and further enable the reader to explore the background of the terms for optimal clarity.

2.2 Literature review

2.2.1 Expectations

Expectations is a term used in multiple academic fields and for the purpose of this research, the psychological meaning of expectation has been used and investigated. According to Gibson and Robinson (2001) expectations are sets of stable assumptions (expectations) to inform an individual's observations of life. Parasuraman, Zeithaml, and Berry (1988) have defined expectations as the desires or want of individuals. Burgoon (1993) has defined expectation as an enduring pattern of anticipated behaviour. Based on Coye (2004), expectations are beliefs about future events. Moreover, expectations are frequently developed through a process of associative learning (Rief & Petrie, 2016). However, for this research, the term expectations is defined as sets of assumptions, desires, wants, needs, anticipated behaviour and beliefs about future events from an individual's (i.e. an engineering student) perspective. Furthermore, Victor Vroom's expectancy theory is briefly explained as it provides a full background about the term 'expectation' and it also forms the focus of this particular research study.

2.2.2 Expectancy theory

The Expectancy theory shows a strong link between expectations and perspective. This theory is discussed below to indicate how expectations operate as well as the importance for including the theory when studying engineering students' job expectations. As Barba-Sánchez and Atienza-Sahuquillo (2017) have reported, individuals combine their needs with their expectations and beliefs for the chance of a successful or positive outcome. In 1964 Victor Vroom has developed the expectancy theory through his research on the motivation (expectation) for an individual's decision making (Vroom, 1964). The Expectancy theory is a development theory of motivation that highlights an individual's assessments of the environment. This assessment indicates that actions are consequences of an individual's expectations (Purvis, Zagenczyk & McCray, 2015). As Lunenburg (2011) has reported, Vroom's Expectancy theory is concerned with the cognitive experiences that go into motivation and the means they relate to one other. Moreover, the expectancy theory is a mental process theory of motivation that is grounded

in the awareness that individuals believe that there are relationships between the input at work, the performance that are achieved, and the rewards (expectations) that they receive from their input and performance (Ajzen, 1991; Lunenburg, 2011). Furthermore, the theory states that individuals will be motivated if they believe that strong input will lead to respectable performance; and respectable performance will lead to expected rewards (Lăzăroiu, 2015). The Expectancy theory hypothesises that when individuals enter work organisations with certain (job) expectations and values, and if their expectations and values are met, they will likely remain a member of that organisation (O'Meara, Bennett, & Neihaus, 2016).

The Expectancy theory also suggests that individuals select how to adjust their behaviour depending on their expected result (Lawler & Suttle, 1973). Moreover, these individuals, in the case of this research study, engineering students have expected that consequences are linked to their behaviour and this expectation has driven their behaviour to improve (Hackman & Porter, 1968). To simplify, individuals or engineering students have chosen how to behave based on what they have expected the outcome would be (Isaac, Zerbe, & Pitt, 2001).

As Van Eerde and Thierry (1996) have stated, Vroom's Expectancy theory is based on three elements: Firstly, expectancy which is the belief that an individual's effort will result in their desired goal. This expectation is based on the individual's own experience, their self-confidence and how they perceive the level of difficulty to achieve their end goal. Secondly, instrumentality which includes the belief that the individuals (i.e. the engineering students) will receive a reward if they meet their performance expectations and lastly valence is explained by the value the individual place on the reward or result. Therefore, the Expectancy theory states that individuals (engineering students) are most motivated if they expect that they will receive the desired reward if they reach an achievable target. Individuals are least motivated if they do not want the reward or if they do not expect that their hard work will result in any reward (Guest, 1997). Considering the above-mentioned definition and brief explanation of the Expectancy theory, it is important to define job expectations as it is a focus term of this research study and since this research study is based on engineering students' job expectations.

2.2.3 Job expectation

Job expectations provide the impression of what type of work and career an individual aspires to do (Järlström, 2000). For this study, the job expectations that have been investigated were in the field of engineering. The expectations have been obtained from emerging engineers (i.e. engineering students). As Arthur (1994) has stated, job expectations can be defined as long-term outlooks which concern qualities of work. Job expectations also represent a subjective view of a future career. Moreover, organisational behaviour literature suggests a strong relationship between job expectations and job satisfaction. This relationship is influenced by individual organisational commitment, work absenteeism, employee turnover, job performance and organisational citizenship (Eveleth, Baker-Eveleth & Stone, 2015). Furthermore, to allow full understanding of the term 'job expectation' the factors of job expectations are discussed below for clarity and background as the main objective of this study is to investigate emerging engineers' job expectations.

- **Factors of job expectations**

Coetzee and Roythorne-Jacobs (2011) have identified ten job expectation factors that include work demands, security, organisational expectation, advancement, co-worker relationship, remuneration, supervision, working hours, organisational benefits, and working conditions. These ten job expectation factors are briefly explained below.

Work demands refer to the type of work that the individual will be doing. For this study, work demands refer to the type of work that the emerging engineer will be doing in their future career as well as the field of the engineering industry they will have work demands.

Security refers to a safe workplace, but more importantly to the security of the individual's employment stability. For this study, emerging engineers' expectations about their future careers have been investigated and how secure they feel on obtaining a job in their designated field or industry.

The expectation of the company or organisation embraces the reputation of the organisation as a whole. This also involves the individual's feeling pride to work for the organisation. In this study,

it is important to investigate emerging engineers' expectation about the organisations that they show interest in to pursue a working career; as well as the reason for focusing on those specific organisations.

Advancement involves the progress that the individual will make in the organisation regarding promotions and other growth opportunities in the organisation. In this research study, advancement has been explored with regard to emerging engineers' expectations on advancement opportunities in their future careers.

Co-worker relationship refers to an individual's expectation about relations with other individuals who have experience, skills, and knowledge. It further involves individuals' expectation to be integrated into the organisation's culture and get along with the other employees. In this research study, emerging engineers' expectations based on co-worker relationships have been explored.

Remuneration or pay refers to the individual's expectation that an organisation is to pay a sufficient monthly wage or salary to meet basic needs and the individual expects to be paid equally compared to other individuals with the same job or responsibility in the industry. Individuals also expect to be paid for their knowledge, skills and abilities. In this research study, emerging engineers' expectations concerning pay have been investigated.

Supervision refers to supervision and management that is fair, competent and considerate. For this research study, the expectations of emerging engineers on supervision and management have been explored to gain a better insight into the larger job expectation of.

Working hours consist of individuals wanting working hours that allow them to spend time with their families or gives them time to explore their personal interests. A new trend in organisations is flexi-time, and it allows individuals to work independently or from home. In this research study, the emerging engineers' expectations of working hours have been investigated.

Organisational benefits may include medical aid, pension fund contribution or unemployment fund. In this research study, emerging engineers' expectations regarding organisational benefits have been explored to find out what benefits they expect from the engineering industry.

Working conditions refer to the ergonomic physical working climate. This working climate is also what most individuals expect from the organisation (Bhatt & Ramani, 2017). In this research study, emerging engineers' expectations regarding their working climate have been investigated.

Regarding the above-mentioned job expectation factors, it is important to investigate these factors to clearly understand what emerging engineers want and what they expect from their future career and the industry. The information that has been obtained will allow organisations and engineering industries to motivate emerging engineers to join the organisation or industry and to retain them in the South African engineering industry.

2.2.4 Motivation

For the purpose of this research study it has been important to investigate motivation as it provides a clear understanding of the reasons for emerging engineers' focus when entering into the engineering industry. The exploration of 'motivation' has also specified what those factors are that could encourage emerging engineers. The multiple definitions of motivation have also been provided in the following section.

Motivation is extrinsic in nature since it refers to individuals that perform in a certain mode and behaviour with the intention to attain positive consequences or rewards (Kuvaas, Buch, Gagné, Dysvik, & Forest, 2016). Based on the development of the construct of Whiseand and Rush (1988), motivation is defined as the willingness of an individual or employee to do something and the willingness is conditioned by actions to satisfy their needs. Motivation can be defined as the psychological procedure that provides behaviour purpose and direction (Kreitner, 1995); a tendency to behave in a specific way to achieve specific, unmet individual needs (Buford, Bedeian, & Lindner, 1995); the internal individual drive to satisfy an unsatisfied need (Higgins, 1998); and the determination to achieve that internal need (Bedeian, 1993).

Motivation is also defined as the inner force that drives individuals to achieve individual and organisational goals (Lindner, 1998) Moreover, Wregner and Miller (2003) has defined motivation as something that energised (motivate) individuals to do something which is concerned with their choices. The individual then makes this choice part of their goal-oriented behaviour. The definition of Fuller et.al. (2010) state that motivation is a person's concentration, direction, and determination of efforts to achieve a specific objective. From this statement, concentration is elaborated as for how hard an individual will try to attain the specific objective while the direction is the channel that concentration uses to reach the objective. Determination refers to how long an individual continues the effort to reach the specific objective. On the other hand, Saraswathi (2011) has defined motivation as the willingness to apply high levels of effort toward goals, conditioned by the effort's ability to satisfy the individual's need. Considering all these mentioned definitions of motivation, it is important to investigate motivational theories to allow a better understanding of the term and to promote understanding of those factors which motivates emerging engineers.

2.2.5 Herzberg's Two-Factor Theory
The Herzberg two-factor theory has been developed and implemented for clarity and the understanding of job satisfaction drivers. Additionally, it has also been implemented to analyse the drivers that influence the employees that work in the organisation.

The motivation-hygiene theory, also known as the two-factor theory, has suggested that the two critical factors namely motivators and hygiene job satisfaction influence.

Herzberg et al. (1959) has separated motivators from job satisfaction through the accomplishment of an individual's needs for personal growth and self-actualization. Also, motivators for job satisfaction include the work itself, individual responsibility, achievement of goals, acknowledgment by supervisors and advancement opportunities.

The work itself motivator incorporates the individual's understanding of their own worth for the organisation and how their work role fit into the overall organisational structure (Dugguh & Dennis, 2014). Furthermore, this motivator has a positive influence on employee performance, effectiveness, success, and productivity. Firstly, the objective is the achievement and usage of

knowledge, skills, and abilities. Secondly, employees are directed to the objective of realising that their current responsibilities and benefits are inadequate. Consequently, this leads employees to seek and develop new opportunities. Thus, employees who normally have high achievement motivators are likely to search for challenging, threatening situations, with high responsibility, and hard work. These employees have the need to tackle difficult and complicated tasks (Ghafoor, Gillani, Cheema & Azeem, 2013).

Employees with the responsibility motivator need less supervision. These employees are searching for more authority, and yearn for more control over their activities to allow them to acquire freedom and power to execute their jobs and tasks with a high success rate (Dugguh & Dennis, 2014). Moreover, in some cases, individuals want to include more complicated tasks in their jobs to make it more challenging.

Individuals will feel achievement when they are placed in challenging positions where the employee can use their knowledge, skills and abilities, while receiving positive support to improve performance in their work roles. However, in order to allow employees to feel this sense of achievement it is necessary that supervisors and managers set goals for their employees. In addition, these goals should be clear, measurable, and achievable as well as receive support and continuous feedback allowing them to be successful (Dugguh & Dennis, 2014).

Acknowledgement refers to the identification or recognition given to something or someone (Gallucci, 2014). Employee acknowledgment involves praising employees and indicating credit for excellent performance and behaviour in the organisation or work situation (Dugguh & Dennis, 2014). Effective employee acknowledgment improves an individual's productivity and develops their job satisfaction through hard work and organisational commitment (Munene, Atambo & Kabare, 2012). Consequently, a positive response is received from employees when supervisors or managers apply appreciation, which is communicated through the acknowledging of the employees' high performance and success in achieving goals. The instant that employees receive acknowledgment, it confirms to employees that their efforts are valued.

Advancement involves supervisors and managers recommend employees for promotion opportunities to allow employees to move from their current role to a higher role in the organisation (Dugguh & Dennis, 2014). Advancement, also known as promotions are motivators for all employees. Advancement allows employees to feel valued, and decreases absenteeism. It also rewards employees for their hard work and excellent performance through financial and other motivational benefits.

Although hygiene factors are not motivating factors, these factors can decrease employee dissatisfaction if they are implemented correctly. Hygiene factors include job security, working climate, remuneration, supervision, policies, and procedures, working culture and additional organisational benefits. Thus, motivators may be of little or no organisational benefit if hygiene factors are not planned and implemented thoroughly.

Dugguh and Dennis (2014) have reported that, job security can be defined as freedom from a threating feeling of dismissals, discrimination, harassment, and bullying. Furthermore, Dugguh and Dennis (2014) have stated that a struggle in feeling a lack of job security obstruct individuals' needs for growth in the organisation, leading employees to burn out and seek organisational opportunities elsewhere. Consequently, while job security is not a direct job motivator, it can lead to an increase in employees' job dissatisfaction.

Working climate refers to employees to have the need to feel proud about their working area. However, if the working climate is not satisfactory, it can lead to employee dissatisfaction. Also, if organisations want to prevent job dissatisfaction, they need to implement procedures that will improve the work climate by providing employees with ergonomic modern equipment and facilities, well-ventilated offices, and well-spaced offices with quality furniture and a secured workplace (Dugguh & Dennis, 2014)

Previous research on remuneration has proven that salary levels have a minimal effect on job satisfaction. Nevertheless, the research has found a strong relationship between job satisfaction and employee ranks instead of salary. Furthermore, while it is accepted that salary is not a job

motivator, employees still need to be paid accordingly to their inputs, leading employee to job dissatisfaction, that has a negative influence on employee performance (Dugguh & Dennis, 2014)

Supervision includes employee perception on direct supervision, support and feedback received from the supervisor and the general relationship between employee and supervisor. Additionally, the supervisor needs to apply an applicable leadership style in the working place. Consequently, when employee perceptions on supervision are negative it has a negative influence on job satisfaction.

Policies and procedures also influence employee job satisfaction, when employees find the policies and procedures unclear or unnecessary it has a negative influence on job satisfaction (Dugguh & Dennis, 2014). Therefore, policies and procedures need regular reviews and adjustments to allow understanding and relevance among employees.

Organisational culture needs to be created in a harmonious way to increase interpersonal employee relationships, poor employee relationships lead to job dissatisfaction. Co-worker relationship refers to the expectation to work with other individuals who have experience, skills, and knowledge. Thus, employees also want to be integrated into the organisation's culture.

Herzberg has reported that motivators are described as intrinsic factors. These factors are generated from the nature and experience of doing work (Herzberg, 1959). However, hygiene factors are described as extrinsic factors, as they have no relationship or correlation with motivation. Nonetheless, hygiene factors influence job dissatisfaction. Important though, is that the opposite of job dissatisfaction is not job satisfaction, but *no satisfaction* (Herzberg, 2003). Rafique et.al. (2014) have defined job satisfaction as the individualistic constructive thoughts on work and the work culture and climate, even though job dissatisfaction leads to unhappy thoughts about their work and the work culture and climate. These researchers have described job satisfaction and dissatisfaction as the effective and emotional response to numerous factors of employees' work.

Over the years, researchers have recognised five factors of job satisfaction, namely job tasks, remuneration, advancement, supervision and work culture and climate. Therefore, it can be

assumed that employees would have an increase in satisfaction levels if they are happy with their job tasks, remuneration, advancement, supervision and work culture and climate. Additionally, job satisfaction influences co-worker relationships both negatively and positively when investigating employees' age. However, there is a minimal correlation between job satisfaction and employee qualifications and experience.

As stated by Stello (2011) in 1959 the Two-Factor Theory of motivation was developed by psychologist Frederick Herzberg. Herzberg has studied the responses of 200 accountants and engineers who were asked about their positive and negative emotional state about work. Herzberg has recognised two factors that had an influence on employees, namely motivation and satisfaction (Sanjeev & Surya, 2016). Motivational factors are factors that lead to satisfaction and motivate individuals to work harder, and examples include enjoying your work, recognition, as well as advancement (Herzberg, Mausner & Snyderman, 1959). Hygiene factors can evoke dissatisfaction and a lack of motivation if the hygiene factors are absent. Examples of hygiene factors include remuneration, policies and procedures, benefits, relationships with managers and co-workers (Herzberg, Mausner & Snyderman, 2011). According to Herzberg's conclusions, although motivational factors and hygiene factors equally influence the motivation of individuals, these two factors work completely different from each other. Motivational factors have improved employee satisfaction and motivation, and the absence of these factors did not necessarily cause dissatisfaction. However, the presence of hygiene factors did not seem to cause an increase in satisfaction and motivation either. Nevertheless, the absence of hygiene factors has produced a rise in dissatisfaction (Gawel, 1997).

Referring to Latham (2012), Herzberg has developed a two-dimensional model of factors that influence individuals' attitudes about work. Herzberg concluded that factors like company policy, supervision, interpersonal relations, working conditions, and remuneration are hygiene factors and not motivating factors (Ghazi, Shahzada, & Khan, 2013). As explained by the theory, the absence of hygiene factors can lead to job dissatisfaction, but the presence of hygiene factors does not motivate or generate satisfaction (Yusoff, Kian & Idris, 2013). Moreover, Herzberg has concluded that the motivational factors have enriched individuals' job. The theory has provided five factors that were strong determinants of job satisfaction, namely achievement, recognition, work itself,

responsibility, and advancement (Robbins, 2009). The motivational factors relate to long-term positive effects in job performance even though hygiene factors have constantly produced only short-term changes in job attitudes and performance, to only quickly drop back to their former level (Herzberg, 1968).

2.2.6 Maslow's Hierarchy of Needs

In 1943, Abraham Maslow has written a research paper concerning human motivation (Maslow, 1943). The hierarchy theory has been based on the core that individuals or employees should satisfy their most basic need before they will be motivated to achieve a more sophisticated need (Maslow, Frager & Cox, 1970). Maslow's hierarchy of needs consists out of five stages (Kanfer, 1990). Firstly, physiological needs should be satisfied to allow survival of the individual. These basic needs are for example food, water, and shelter (Maslow, 1989). Secondly, safety needs consist of the satisfaction of health, well-being, personal and financial security (Gawel, 1997). Thirdly, a need of belonging is based on the relationship between friends, family, and the individual's significant other. Fourthly, egotistical needs refer to the need to be respected by other individuals and to feel internal confidence (Maslow & Lewis, 1987). Lastly, self-actualization is the need to reach all goals and to achieve personal greatness (Pardee, 1990). According to the hierarchy theory of needs, individuals must be in good health, live in a safe environment, be in reliable and meaningful relationships and be confident before they can achieve their optimal performance (Maslow, 2013).

The explanation and investigation of motivational theories in detail allow understanding of motivation and it provides a better insight about the relationship between motivation and expectation, since the focus of this research study has been based on the job expectations of emerging engineers.

2.2.7 Job satisfaction

Job satisfaction is an important part of the investigation of emerging engineers' job expectations since satisfaction is usually the end result of an expectation. Rizi et.al. (2013) have reported that leadership is considered an essential element of employee job satisfaction as it has an influence on employee motivation and dedication. As Hoppock (1935) has defined, job satisfaction is the pleasant emotional state in which an individual finds him/herself, that resulted from the appraisal

of work through achieving or facilitating job values. Smith, Kendall, and Hulin (1969) have described job satisfaction as the effective responses or feelings individuals experience to the facets of the job situation. Moreover, Locke, Sirota, and Wolfson (1976) have elaborated that job satisfaction is the positive or pleasurable fettle employees experience from the appraisal of their job.

Additionally, Cranny, Smith, and Stone (1992) have explained that job satisfaction is a positive emotional reaction to one's job, consequential from the incumbent's evaluation of the actual outcomes with their expectation. In 1998, Brief has stated that job satisfaction is a positive attitude an individual has towards their job (Brief, 1998). Job satisfaction is defined as "a general expression of workers' positive attitudes built up towards their jobs" (Herzberg, Mausner & Snyderman, 2011). Additionally, job satisfaction usually refers to the attitudes and feelings that individuals have about their job; with positive and favourable attitudes indicating job satisfaction (Funmilola, Sola & Olusola, 2013). The internal organisational climate and culture, leadership styles and employee relationships, has a significant influence on employee job satisfaction (Rizi et al, 2013).

Daley (2012) has reported that the research of the Society for Human Resource Management conducted in 2012 has discovered some of the main contributors to job satisfaction among individuals. Firstly, individuals like having the opportunity to use their knowledge, skills and abilities at work beyond the position for which they were hired. Secondly, fair rewards (remuneration) is a strong contributor to job satisfaction. Thirdly, individuals look for a good relationship with their immediate manager and lastly, employees want a good relationship between themselves and the organisation's management at large.

As Parvin and Kabir (2011) have stated, job satisfaction is a very complicated construct that can also be influenced by the organisation's management style and culture, employee involvement, individual empowerment and independent workgroups. Buitendach and Rothmann (2009) have suggested that job satisfaction is a potential determinant of employee absenteeism and turnover. The relationship between an individual's job expectations and their actual achievements has directly impacted their job satisfaction or job dissatisfaction (Belias & Koustelios, 2014). Elnaga

and Imran (2014) have stated that satisfaction provided by a job is part of the total remuneration that an individual receives. Thus, employees with high job satisfaction levels are often willing to settle for lower wages. Finally, job satisfaction can be internationally viewed as a set of factors in the organisation's climate and culture that cause a feeling of satisfaction (Aziri, 2011). To allow a full understanding of job satisfaction it is important to explore models of job satisfaction to ensure that emerging engineers will be satisfied in their future careers

- **Models of job satisfaction**

Mehndiratta and Tripatti (2012) have reported that there are five models that can be utilised to investigate the causes of job satisfaction. These five models include the need for fulfillment, discrepancies, value attainment, as well as equity and disposition models. These five models of job expectation are important for investigation since the aim of this research study is to determine emerging engineers' job expectations when entering into the engineering industry.

In the instance of need fulfillment models, job satisfaction is viewed as the characteristics of a job that allows an individual to fulfill needs. As stated by these need fulfillment models, unmet needs may have a direct negative influence on both job satisfaction and turnover of employees.

Secondly, discrepancies view job satisfaction as the result of achieved expectations characterised by the difference between an individual's expectations of a job, compared to what the individual actually receive. According to this model, if job expectations become greater than the actual results, an individual's job satisfaction will decrease, leading to dissatisfaction. However, if an individual achieves the above job expectations, there will be an increase in job satisfaction and thus lead to employees being satisfied.

Thirdly, the model referring to value attainment views job satisfaction as a consequence of the individual's perception that a job addresses one's core work values. Therefore, managers of the organisation, need to structure the work climate and culture, rewards and acknowledgment in such a way to strengthen employee values. Once managers fail to do so, job dissatisfaction levels may increase.

Fourthly, equity considers job satisfaction as fairness. This means that job satisfaction results from an individual's perception that employees are fairly compared with co-workers based on each one's efforts and deliverables. The moment organisations fail in equity, job dissatisfaction levels may increase.

Lastly, disposition regards job satisfaction as both personal qualities and inherited factors. This means that personal qualities and inherited factors contribute to the individual's job satisfaction levels.

The different models of job satisfaction have been investigated. In addition, the job characteristic model is investigated as it provides knowledge about motivation which supports the strong relationship between expectations, job satisfaction, and motivation.

- **The Job Characteristics Model**

In 1975, Hackman and Oldham have created the job characteristics model (JCM). The model is based on the idea that the job tasks itself are vital to employee motivation (Hackman & Oldham, 1975). This is especially true when an individual has an uninteresting and repetitive job. These job tasks suppress motivation for employees to perform well. However, when individuals have a challenging and interesting job task it improves motivation (Hackman & Oldham, 1976). There are also three ways to make job tasks more challenging and interesting; namely through variety, autonomy and decision authority (Wall, Clegg, & Jackson, 1978). The two ways to add variety and challenge to job tasks include job enrichment and job rotation (Evans, Kiggundu & House, 1979). The JCM clarifies that job satisfaction occurs when the work climate and culture inspire intrinsic motivating characteristics among individuals (Champoux, 1980). The JCM applies five key job characteristics; namely skill variety, task identity, task significance, autonomy and feedback (Oldham & Hackman, 1981). These five key job characteristics have an influence on three critical psychological states, which include meaningfulness of work, the responsibility of outcomes, and knowledge of results (Graen, Novak & Sommerkamp, 1982). These psychological states, influence work outcomes which include job satisfaction, absenteeism and work motivation (Loher, Noe, Moeller, & Fitzgerald, 1985). The five core job characteristics can be combined to form a motivating potential score (MPS) for a job. This MPS can be used as an index of how likely

a job is to influence an individual's attitude and behaviour (Fried & Ferris, 1987). Furthermore, if organisations want to improve their employees' job satisfaction, they need to consider the implementation of the JCM (Hackman & Oldham, 1976). Additionally, it is also important to investigate employee and work engagement to ensure that the theoretical background corresponds with the expectations of emerging engineers.

2.2.8 Employee and work engagement

Markos and Sridevi (2010) have stated that the term 'employee engagement' has contrasted to and overlaped with the terms of organisational citizenship behaviour (OCB) and employee commitment. Employee engagement or work engagement can be associated with employee involvement, enthusiasm, captivation, passion, dedication, commitment, devotion and energy (Schaufeli, 2013). Employee engagement or work engagement can also be explained as a level of voluntary effort that employees express towards the organisation. In addition, it can be categorised as a level of commitment which employees show towards the organisation (Akingbola, 2013).

There is also a direct link between engagement and attitude as Ibrahim and Al Falasi (2014) have reported, except engagement is mainly not an attitude but the level to which employees are focused on their job. It is also the level or how fascinated employees are in accomplishing the goals attached to their roles in the organisation. Ibrahim and Al Falasi (2014) have further argued that although it is easy to confuse organisational citizenship behaviour (OCB) with work engagement, there should be a clear understanding that OCB involves an employee's voluntary behaviours and actions to assist co-workers and the organisation. On the other hand, employee engagement focuses mainly on an employee's knowledge, skills and abilities to perform tasks and attain goals which the organisation formally expects from them because of their position and role in the organisation.

However, as Field & Beitendach, (2011) have explained, it should be noted that the moment employees are engaged in their work, their commitment increases towards the organisation. Furthermore, the moment when employees become engaged and committed towards the organisation, their commitment provides a crucial competitive advantage for the organisation, including an increase in productivity and a decrease in employee turnover (Vance, 2006). Avery, McKay, and Wilson, (2007) have claimed that engagement is more complex than just employee

satisfaction. Engagement refers to the employees' hunger, obligation and willingness in their voluntary efforts to assist the organisation to achieve their goal.

Bakker, Schaufeli, Leiter, and Taris (2008) have defined work engagement as the positive, sentimental and emotional state of employee accomplishment and have categorised using drive, devotion, and preoccupation. Bakker, Schaufeli, Leiter, and Taris (2008) have also described work engagement as a more determined and universal affective-cognitive state with no focus on any specific object, event, individual or behaviour. They have further provided essential definitions for three bonds of work engagement (Bakker, Schaufeli, Leiter, and Taris, 2008). The first drive refers to employees' high degree of energy and resilience while executing their job. Drive also involves individuals' willingness to invest effort in their work together with their determination in times of challenges and difficulties. Secondly, devotion refers to employees' involvement in their work while simultaneously feeling a sense of passion, meaning, pride, inspiration, and challenge. Lastly, preoccupation refers to a state in which employees are completely determined and fortunately captivated in their job. Preoccupation is characterised by situations whereby time passes quickly and one has difficulties with separating oneself from work.

A study conducted on work engagement argues that employees with high engagement strive to increase their knowledges, skills and abilities in the organisation to meet job requirements (Brough, Timms, Siu, Kalliath, O'Driscoll, Sit, & Lu, 2013). The study has further suggested that employees with high engagement are motivated to receive feedback from their supervisors to allow them to excel in their tasks. Eventually, it is envisaged to be supported in obtaining higher psychological and financial rewards when employees achieve tasks. However, job resources should be understood as a key driver of employee engagement because both drivers are intrinsic and extrinsic motivational role players that encourage growth, learning, and development, while at the same time assist employees to achieve their work objectives (Bakker, 2011).

As Armstrong and Taylor (2014) have suggested, there are three levels of employee engagement; namely the physical, emotional and cognitive levels. The first level is the physical level and refers to employee engagement. This level consists of employees that put in high levels of effort to complete their job tasks. The second level is the emotional level. This level kicks in when

employees get attached to their job and include employees that become strongly involved in their work. Employees feel inspired and their job tasks challenge them. The third level refers to the cognitive level and is the highest level of employee engagement. At this level employees unconsciously forget about everything else when performing their job tasks and become entirely occupied by their job tasks.

An effective two-way relationship between the employee and the organisation results in employee engagement. This two-way relationship and employee engagement is a critical factor when management considers decisions related to employee talent management and retention (Markos & Sridevi, 2010).

The theoretical background mentioned above regarding employee and work engagement provides a clear understanding of the importance of employee and work engagement in the organisation. Consequently, employee and work engagement raise a need for organisations to strive and improve the levels of employee and work engagement in the organisation. Furthermore, researchers have developed different notions aimed at assisting organisations to improve and increase employee and work engagement in the organisation.

McMullen (2013) has recommended eight strategies that organisations could consider implementing to improve employee and work engagement. The eight strategies include: (1) Creating a business case for engaging employees; [2]m (2) Measure employee engagement and act on survey results; (3) Hold managers and supervisors accountable for employee engagement; (4) Connect employees with the future; (5) Go beyond a remuneration mindset to a mindset of 'total reward'; (6) Include employees and managers in reward design launch; (7) Use engagement metrics when criticising performance; and (8) Communicate the value of employee engagement initiatives to the employees. Organisational citizenship behaviour is of importance for this research study as it also links to emerging engineers' expectation of the engineering industry and that tasks they will actually do.

2.2.9 Organisational Citizenship behaviour (OCB)

DW Organ and TS Bateman have introduced Organisational Citizenship Behaviour (OCB) in 1982. Since then, the term has been used in literature mainly for management and organisational behaviour (Ozdem, 2012). Organ (1988) has defined organisational citizenship behaviour as a state where an employee does work beyond their normal job responsibilities, standards and job descriptions identified by the organisation, making use of extra voluntary efforts not included in contractual agreements with the employer. OCB refers to an employee's own efforts and behaviour towards the organisation. The organisation does not directly reward these efforts and behaviours. However, the efforts and behaviours of the employees significantly improve the organisation's effectiveness (Govindarajan, Vijayabanu & Renganathan, 2014).

Additionally, the most successful and competitive organisations are those with employees who are engaged in OCB. This can be characterised by employees' willingness to go the extra mile beyond expectation. These employees do not just perform the formal duties that they have been employed for, but they strive for more (Von Glinow & McShane, 2010; McShane & Von Glinow, 2011). Furthermore, as Purnama (2013) has reported, employees that possess the OCB quality, are usually thoughtful and meticulous in their work. OCB can be compared with job satisfaction, and refer to the employees' perception and evaluation of their role which are influenced by their wants and needs, values and expectations (Buitendach & Rothmann, 2009).

In addition, employees with high job satisfaction are most likely to help their co-workers. These employees perform additional work tasks for the benefit of the organisation and without instruction. They will always have a positive comment towards the organisation. Employees with high job satisfaction have minimal complaints during challenging times in the organisation (Nelson & Quick, 2014). Furthermore, employees with high organisational citizenship behaviour also support the organisation's reputation. These employees take disciplinary actions to minimize potential risks, they offer business support beyond those required for their own job, and they also attend functions voluntary, solely for the benefit of the organisation. These employees keep up with new developments and trends in the organisation (Nelson & Quick, 2014). OCB is voluntary among employees and consequently cannot be directly or obviously monitored by means of a

formal reward system. Thus, if OCB vanish among employees it is also not punishable (Yaghoubi, Salarzehi & Moloudi, 2013)

OCB has two major components. The first component is compliance, which directs to the willingness of employees to comply with the organisational policies and procedures. The second component is altruism, which specifies the willingness of employees to voluntarily help others and the organisation (Lee, Kim & Kim). Organ (1988) has opposed that organisational citizenship behaviour depends on responsibilities for being a civil citizen. Also, OCB can be classified into five dimensions; which are altruism, conscientiousness, courtesy, civic virtue, and sportsmanship. Ozdem (2012) has provided the interpretation of the five dimensions. Altruism involves all voluntary behaviour. These behaviours are aimed at assisting co-workers in the organisation, either in challenging times or during the execution of their work. Altruism could include assisting a new co-worker to acclimate in the new working culture and climate, supporting a co-worker while performing a challenging work task, helping a co-worker in operating new equipment or even undertaking specific activities of a co-worker when they feel physically unequipped. Conscientiousness includes behaviour and actions outside an employee's agreed responsibilities. This is an employee's extra efforts to contribute to the well-being of the organisation. Conscientiousness could include, but is not limited to, situations where the employee works unpaid overtime to assist the organisation. These employees avoid taking needless breaks, they arrive early at work or leaves late to satisfy work needs and demands, and they attend intra-organisational meetings aimed at assisting or improving the organisation. Courtesy includes positive behaviours of employees. Constant interaction with one another during the execution of their activities is characteristic of this behaviour. Eventually, the results on duties and decisions are a collective affect. It could include the continuous sharing of information related to the job at hand among each other, the collective analysis of decisions that could affect them, and sharing opinions to properly execute the tasks.

- Civic virtue

Civic virtue includes the employees' responsible and logical involvement in the political activities of the organisation through constructive intervention. It could include employees to focus to identify possible threats and opportunities for the organisation, to get involved in activities that

improve the reputation of the organisation as well as follow and be involved with the changes of their organisation, or those that their organisation initiates and drives. organisation

- Sportsmanship

Sportsmanship includes employees' actions to avoid being involved in negative behaviours that might affect co-workers and possibly result in tension among them. It also includes maintaining a positive mood and attitude while executing their duty even in challenging times. It means being resilient towards stressful challenges and difficulties related to a job, avoiding complaining about co-workers, maintaining positive attitudes even in difficult situations.

Now that OCB has been investigated, a closer look into the happy-productive worker theory is important as it provides a strong relationship between expectations, motivation, and satisfaction.

2.3 Happy-productive worker theory

The happy-productive worker theory essentially states that when individuals are not satisfied with their jobs or their employers it could result in absenteeism, in employees that produce less, and work quality that deteriorates (Cropanzano & Wright, 2001; Wright & Cropanzano 2007; Zelenski, Murphy; Jenkins, 2008; Böckerman & Ilmakunnas, 2012). Job expectations and job satisfaction play an important role in the happy-productive worker theory because, when individuals expect job security, sufficient remuneration, flexible working hours, positive job climate and culture, or meaning full work and these expectations are satisfied then production, job retention, and overall job satisfaction will increase (Ayala, Peiró, Tordera, Lorente & Yeves, 2016). Thus, the happy-productive worker theory is also important for this research study, because of the strong relationship it could illustrate of the expectations of emerging engineers with regard to the engineering industry which they are about to enter. Additionally, it is important to observe the knowledge, skills and abilities of the emerging engineers, as these are the qualities and services what emerging engineers are going to 'sell' to their future organisations and the industry.

2.4 Knowledge, skills and abilities (KSA)

As Cheney, Hale, and Kasper (1990) have concluded, knowledge, skills and abilities are the mandatory attributes to perform a job which education and training provide. Knowledge can be

defined as the theoretical or practical understanding of a subject (Hollenbeck, DeRue & Guzzo, 2004). Skills are the talents developed through training or experience and skills are usually talents that have been learned and can develop through the transfer of knowledge (Hines, Hungerford & Tomera, 1987). Ability refers to the capability to complete a visible behaviour or a behaviour that results in a visible product (Turner, DeMers, Fox, & Reed, 2001). For this study, it is important to mention the role of knowledge, skills and abilities, since these are the qualities that make engineers a very high commodity for organisations and industries.

2.5 Engineering

Grasso, Callahan, and Doucett (2004) have reported that engineering is defined as the application of mathematics and science in service to humanity and engineering is the bridge that connects sciences and humanities with an emphasis on social relevance, sustainability, and improvement of the human condition. Davis (1996) has defined engineering as the application of knowledge on mathematical and natural sciences with identification and innovation to develop solutions to apply the resources and forces of nature for the benefit of society. For this research study, a clear definition of engineering is needed as it is the industry the research focus is based on. Moreover, to provide optimal information to the reader, the term 'emerging engineer' is also explored and defined.

2.6 Emerging engineer

For this research, the term emerging engineer replaces the term student. Emerging engineer is defined as an individual who is studying in the field of engineering and who is planning to graduate and follow a career in the engineering industry. This student or emerging engineer should complete an engineering degree at a university to ensure formal training took place.

2.7 Conclusion

In conclusion, the above-mentioned information provides a clear understanding and explanation of the theoretical background that is necessary for this research study. Expectations have been defined and explored as it is the term that forms the main focus of this study. As the study focuses on emerging engineers' job expectations, it was also necessary to explore the expectation theory as it provides an in-depth look at the term 'expectations'. The theory has also supported the

motivation behind expectations. The expectancy theory has also provided important information for investigating emerging engineers' job expectations. Job expectations have also been defined and investigated as it is the key subject of this research study and it is one of the components required from the emerging engineers. Factors of job expectations have also been reviewed to provide optimal clarity on the background of the subject to assist when conducting the research on emerging engineers regarding their job expectations. Motivation and motivational theories have been defined and elaborated as a strong relationship have presented between motivation and expectations. Moreover, it is evident from the literature review that motivation leads to job satisfaction and this is the end result that should be provided from the expectations of emerging engineers. Job satisfaction and models of job satisfaction have also been explored and defined to provide more knowledge and information on the subject as job satisfaction is the end result to pull from job expectations. The job characteristic model has also been researched since it shows a strong relationship with job tasks and motivation. It also supports the theoretical background of this research. Employee and work engagement has also been the interest of investigation as it allows a clear understanding of employee involvement, enthusiasm, captivation, passion, dedication, commitment, devotion and energy. All of these terms are important when exploring emerging engineers' job expectations, because emerging engineers have specific expectations regarding the type of work they have to execute in the industry. Organisational citizenship behaviour was also reviewed given the strong relationship it has with employee and work engagement. The happy-productive worker theory has also been defined and briefly explained. This theory supports the statements of job satisfaction and why job satisfaction is important, as well as that expectation combined with motivation leads to job satisfaction. Knowledge, skills and abilities also needed some clarification as it these are what emerging engineers are 'selling' to organisations. Also, the engineering industry has its own expectations based on knowledge, skills and abilities. Engineering has also been briefly explained as it is the industry on which this research is based. The emerging engineers form the population of this research study and have been therefore been defined. Lastly, all the above-mentioned information is to provide clear and optimal understanding and to position the reader to this research study.

Chapter 3: Research methodology

3.1 Introduction

In the previous chapter, various literature regarding job expectations have been discussed. This chapter elaborates on the research methodology and empirical findings, as well as the analysis of the interviews with emerging engineers. The research population of this study has been emerging engineers (students). This chapter also provides the demographic information of the emerging engineers (students) that have taken part in the study. For the purpose of the interview, participants have been divided on an equal basis of 50 percent male and 50 percent female engineering students.

The research methodology has aimed to obtain, analyse and present data on the current job expectations of emerging engineers of which all is discussed in the current chapter. The questions have been developed for semi-structured interviews. All questions have also been based on Coetzee and Roythorne-Jacobs' (2011) ten job expectation factors. These job expectation factors and together with other literature have already been discussed in Chapter Two. The literature review of job expectations, has ensured that the interview questions focused on the topic under discussion. The semi-structured interview questions that have been used for the interviews with emerging engineers are outlined in section 3.3.2.5. Interpersonal, face-to-face interviews have been executed with the engineering students in a conversational style. The researcher has presented the questions in an informal and conversational manner to allow an atmosphere that enables the researcher to describe the inputs from the participants in detail. The next section discusses the research methodology for the empirical study in more detail.

3.2 Research methodology

Firstly, before explaining the detailed research methodology that has been applied in this research study, it is crucial to describe methodology within the context of social science research. Mouton and Marais (1988) have argued that the methodological dimension of social science research involves a type of research called the "how" of social science research. Furthermore, this type of research includes how research should be planned, structured and implemented to be measured against criteria of science. Moreover, the undertone of the methodology is interpreted as the logical implementation of scientific methods in the ontology. The definition of the methodology can be

understood when individuals realise that methodology is mostly a decision-making process in scientific research. In methodology, the researcher should make decisions based on, which: 1) theory or model is most appropriate for investigation of the specific subject; 2) research hypotheses can be formulated to support the theoretical background or model; 3) measuring instruments and data-collection methods best fit the study; 4) method is best for analysing the data; and 5) how the findings are to be interpreted as well as the way in which the findings support the problem. Considering the above, methodology is defined as the application of scientific methods and approaches in a logical manner to investigate a phenomenon. In conclusion, the logical process of decision-making in scientific research is a methodology (Mouton & Marais, 1988).

Additionally, Becker, Bryman, and Ferguson (2012) have stated that the theories that social science researchers apply has allowed the researcher better insight into the social world. Also, these theories have influenced the subject matter and how the researcher has interpreted the findings. Moreover, the theoretical background has influenced the investigated topics. This means that social research is knowledgeable research and theory and literature influence social research. The new study has also made contributions to available literature and theory development, since the findings have provided feedback to knowledge that relates to literature and theory.

In addition, as mentioned above, recent, available literature and knowledge on the subject matter are crucial elements in social science, since it forms the background of the research approach. In the implementation of research, the researcher should be acquainted with the theoretical framework and literature relevant to the subject matter. This has, in this research study, allowed the researcher to ensure that a repeat study has not been done, but that the necessary contributions to research and literature could be made (Becker, Bryman & Ferguson, 2012).

As Grix (2010), has explained research methodology includes the planning and discussion of how research should be understood and started. Thus, research methodology is very important because it is the exploration and examination of research methods and the way it should be implemented. Additionally, research methodology is the choice of research approach versus other available and alternative research approaches. Moreover, ontological and epistemological assumptions steer research methodology. Research methodology also involves a conceptual framework, research

methods, research questions and data collection methods. Conclusively, all these different sections link with each other in a logical scientific way (Grix, 2010). In this research, a qualitative research approach has been implemented in the form of semi-structured interviews.

3.2.1 Qualitative and Quantitative research strategies

In this additional section, qualitative and quantitative research are briefly described. However, a qualitative approach has been followed due to the exploratory nature of the study.

3.2.1.1 Qualitative research

Struwig and Stead (2011) have stated that qualitative research defines more than a singular research method. Also, Leedy and Ormrod (2010) have argued that qualitative research includes multiple approaches to research and each approach differentiates from each other. However, all qualitative research approaches have two characteristics. Firstly, qualitative research focuses on phenomena that transpire in natural settings, in the realistic view of the world. Secondly, qualitative research includes the investigation and observation of these phenomena with all their complexities.

Additionally, researchers that make use of qualitative research hardly try to simplify what they are investigating or observing. As an alternative, qualitative researchers distinguish that the problem being investigated or observed has multiple levels and elements. Thus, qualitative researchers attempt to interpret and depict the research problem in a multi-faceted fashion (Leedy & Ormrod, 2010).

Denzin and Lincoln (2011) have clarified that the implementation of a qualitative research approach place emphasis on procedures and connotations that are not quantitative in nature. Furthermore, when research is conducted in the social sciences, some researchers prefer a more in-depth breakthrough and understanding than testing hypothesis through a quantitative statistical study. Notably, Leedy and Ormrod (2010) have suggested that a qualitative research approach usually supplies more explanatory data that allows the researcher to extract meaningful findings and conclusions.

Similarly, qualitative research generally implements in-depth investigation of knowledge by, for example, making use of interviews as observation method. Most of these methods do not make use or rely on numerical measurements and statistical significance. Besides, qualitative research includes the clarification and understanding of data, and the researcher generally analyses cases, usually a small number, in the social and cultural context over a period of time. Also, the researcher positively interacts with participants and can even take the role of a participatory observer (Grix, 2011).

Qualitative research recognises that when studying physical events, objective methods are appropriate. However, an objective approach when investigating human events is not desired or sometimes not even possible (Creswell & Poth, 2017; Eisner, 2017; Marshall & Rossman, 2014). The researcher's capability to decode and understand is critical for comprehending any social phenomenon. Furthermore, the researcher can be perceived as an instrument in the same manner as for example, a rating scale. Moreover, some researchers who make use of qualitative research are confident that there is not essentially a solitary, vital truth to be exposed. However, participants' perspectives on the same phenomenon may differ where with each of the participant's perspectives having equal validity and/or truth (Creswell & Poth, 2017). One main objective of a qualitative study is to uncover the nature of these multiple perspectives. In conclusion, this study has made use of a qualitative approach because of its exploring nature as well as for the learning of the numerous perspectives on the subject under investigation.

3.2.1.2 Quantitative research

As Becker, Bryman, and Ferguson (2012) have interpreted, quantitative research is a research strategy that highlights the gathering and analysis of data in a numerical manner. Furthermore, quantitative research requires a logical approach to the connection between theory and research. The statistical testing of theories is emphasised and the quantitative researcher combines the implementation and the expected scientific model norms positivism. Finally, quantitative research represents an objective reality, a strict external view of social reality.

Additionally, as Blanche, Blanche, Durrheim, and Painter (2006) have supported, quantitative research makes use of a double deductive process to create predefined observational measures.

Firstly, conceptualisation, meaning to define a construct in abstract terms according to theoretical connotation, and operationalisation is the translation of the theoretical definition into variables of the construct. Thus, to define conceptualisation, means the categorisation of experiences or perceptions, while operationalisation is the assignment of meaning to a variable or construct by explaining and specifying the actions or procedures required to measure the variable (De Vos, Delport, Fouché & Strydom, 2011). Furthermore, when conducting quantitative research, it is vital for the researcher to keep validity and reliability in mind since validity is a true image of the conceptual definition, and validity aims to measurement reliability. The measurement of reliability means that measures are constant in the sense that the measurements give the same data repetitively when used under the same comparable conditions (Blanch et al, 2006). However, this study did not apply a quantitative approach.

3.2.1.3 Rational for using the qualitative research approach

This research strategy that has been applied in the study is exploratory in nature because of the lack of research on the subject matter. A qualitative approach has been beneficial as it has allowed different emerging engineers to freely express their views and perceptions on job expectations. Furthermore, a qualitative research approach has been used in this study as qualitative research necessitates the gathering of information that has allowed the researcher to see exactly what the participant was thinking and feeling (Struwig & Stead, 2011; De Vos, et al, 2011). In this qualitative research, content analysis was used to contextualise the information that has been gathered from emerging engineers. This approach has assisted the researcher to assign the information to different categories of job expectations. Phenomenography has also been implemented in this research, since it has allowed the researcher to identify regularities and patterns in the information that has been obtained from the emerging engineers. In phenomenography, interviews have been utilised as the method of data sampling where direct quotations from the interviews have been grouped based on their similarities. The grouping of the data has allowed the researcher to see how the participants have experienced, perceived, conceptualised and understood aspects of engineering students regarding the South African engineering industry (De Vos, et al, 2011).

Leedy and Ormrod (2010) have argued that qualitative research studies characteristically tend to be descriptive, interpretive, confirmative and evaluative. Descriptiveness in qualitative research usually exposes the nature of specific circumstances, surroundings, procedures, relations, systems, or individuals. Moreover, interpretation has allowed the researcher to obtain fresh and in-depth understandings about a specific phenomenon. Interpretation has also allowed the development of fresh concepts or theoretical perspectives on the phenomenon. In addition, interpretation has allowed the researcher to discover new problems that had already existed within the phenomenon. What is more, qualitative research makes use of confirmation that allows the researcher to test the validity of certain expectations, theories, or generalisations within a real-world context. Finally, qualitative research makes use of evaluation to offer methods through which the researcher can evaluate the effectiveness of specific guidelines, exercises, or innovations. Based on the above discussion of qualitative research purposes, the research objectives of the study have best been achieved by means of the qualitative research approach.

3.3 Research design

As De Vos et al (2011) have stated, qualitative research design is the method researchers prefers for the investigating and observing of a specific phenomenon. Mouton and Marias (1988) have argued that a research design is used for the planning and structuring of a specific research study. The research design is implemented to maximise the validity of the research. The research design of any study provides a framework or plan of action and fills the gap between the research questions and the application of the research. The research design serves as guidelines to arrange the contexts and events used for the gathering and analysis of the data (Blanch et al, 2006). Moreover, Becker, Bryman, and Ferguson (2012) have promoted that the research design is a framework for researchers that sets certain criteria for the research. The research design that has been implemented for this study, include a literature review and as data collection method, interviews with emerging engineers have been implemented.

The data collection method that has been implemented, involves semi-structured interviews with emerging engineers to explore the phenomenon of job expectations within the engineering industry. Additionally, using interviews as data collection method has generated a better understanding of the phenomena under discussion; the participants; the problem under

investigation; and has increased the validity and credibility of the outcomes. Furthermore, the implementation of the data collection method has ensured that the phenomenon under investigation was analysed from an in-depth advantage point. The following section discusses the elements of the research design.

3.3.1 Literature review

A literature review is balanced summary and analysis of available and relevant literature about a topic under investigation. The literature can have a research or non-research background; however, the different literature sources are critical for the topic being investigated (Hart, 1998). The aim and purpose of a literature review are to inform the reader with recent information and sources on the topic that is being investigated and to develop a basis for another goal, i.e. the reasoning for future research on the current topic. Moreover, a recent literature review provides information about a specific subject from multiple sources.

A literature review as Mouton (2011) has explained, is a review of a body of multiple scholarships. Mouton has stated that researchers are interested in a wide range of different research from different authors and other scholars. Mouton has also provided multiple reasons for literature review of current and available literature being so important. Firstly, a good literature review minimises the chance of duplicating previous research. Secondly, a literature review provides the researcher with the most current and respected theories in and about the subject at hand. Thirdly, an effective literature review assists the researcher in discovering the accepted empirical findings within the field. Fourthly, a sufficient literature review helps the researcher to identify existing instruments that has proved to be valid and reliable. Fifthly, a literature review determines the main accepted key concepts and definitions in a field; and lastly through a literature review the researcher saves time by not duplicating research studies.

Additionally, a good literature review of current and relevant literature does not only save the researcher time, a good literature review assists the researcher to avoid making the same mistakes as previous researchers and prohibits the duplication of unnecessary results. However, a good literature review provides the researcher with more knowledge in the field. This is beneficial for

the researcher as more knowledge delivers more evidence and recommendations for the focus of the next research (Mouton, 2011).

Finally, a complete literature review regarding job expectations has been conducted, and the following keywords have been used: job expectations, expectations, student perceptions, and engineering students. Relevant articles have been consulted via the following databases; Google scholar; EBSCO host; Emerald and Nexus Lexis. The following journals have been studied because of the relevance to the topic under investigation: Human Resource Management; South African Journal of Human Resource Management; Industrial and Human Resource Future; International Journal of Cross-Cultural Management. Textbooks and dictionaries have also been used to understand constructs regarding the research.

3.3.2 Research method

3.3.2.1 Research setting

The researcher has conducted semi-structured interviews with engineering students in a study room in the library. The room used for the semi-structured interviews has been welcoming, open, noise-free and comfortable. The room where the interviews have been conducted, was a study room in the NWU-Potchefstroom Campus library with comfortable seating, good lighting, controlled temperature and has provided an open neutral environment. This study room has also allowed some privacy for the participants. The setting has been perfect for interviews as it was noise free and the participants were undisturbed while answering the interview questions.

3.3.2.2 Entrée and establishing researcher roles

The researcher has explained the reason for the research to the participants (engineering students) as well as the role of the researcher. The researcher has acted as an interviewer during the interview process. In the role of interviewer, it has been critical to establish mutual respect and trust between the researcher and the participants. Mutual trust has been formed between the researcher and the participants by explaining what the research entails and by ensuring participants confidentiality through the providing of consent forms. Mutual respect has been achieved since the researcher, and the participants were both students.

The researcher has gained access to the engineering students via residencies on campus. After a few participants have been interviewed, a snowball effect occurred. The researcher has also asked the emerging engineers that was interviewed to recommend more students to participate in the study. The researcher has explained that the interviews were necessary for a research project on engineering students regarding their perception on job expectations. The engineering students have been informed that they could text the researcher to schedule a time for the interview. The researcher has provided the venue for the interview, as well as the timeslots of the interviews according to the availability of the engineering students (free time according to class schedules), since they have many classes during the day.

3.3.2.3 Sampling

This research project has been conducted amongst ten engineering students of the North-West University (NWU), Potchefstroom Campus (PC), South Africa. The researcher has made use of the quota sampling method to identify engineering students on the NWU, PC. Struwig and Stead (2011) have concluded that quota sampling is applied for participants complying with certain criteria before qualifying for inclusion in the sample. After the sampling method has been applied, it has been converted into a snowball effect since the researcher asked the first participants to also refer other engineering students. The criteria that has been used for the quota sampling were that participants had to be full-time engineering students at the NWU Potchefstroom Campus, and they had to be studying in the field of engineering. The number of participants (engineering students) have not been fixed; and interviews have been continued until data saturation had been reached (Blanch, Terre Blanche, Durrheim & Painter, 2006). The participants have been selected at random and voluntary on the engineering campus at the NWU Potchefstroom Campus. The interviewer has interviewed the same number of female and male engineering students. Furthermore, the researcher has ensured that the sample of each gender has comprised of various ages, ethnic groups, and engineering fields currently enrolled at the NWU (Chemical and Mineral, Electrical, Electronic and Computer, Mechanical and Nuclear, Industrial and Electromechanical).

The following criteria have been applied to select the participants for the interviews:
1. The participants were willing to participate in the research and gave written consent that they fully understand the research and the purpose thereof.

2. The participants were engineering students at the NWU Potchefstroom Campus.

3. The participants were willing to be interviewed.

4. The participants gave permission to have their interviews recorded on a digital device.

5. The participants had good command of English since this is the languages in which the interviews were conducted

3.3.2.4 Data collection methods

The study has been based on interviews with ten emerging engineers. As De Vos et al (2011) have mentioned, interviews are the predominant method of data or information that are collected in a qualitative research approach. Moreover, when using interviews, researchers obtain direct in-depth information from participants. These participants are expected to be knowledgeable in the field of interest or topic under investigation. Additionally, an interview is a social relationship developed for information exchange between the researcher and the participants (Ritchie, Lewis, Nicholls & Ormston, 2013). The creativity and perceptiveness of the researcher will depend on the quality and quantity of the data obtained, the management of this relationship is crucial for a successful study. Furthermore, researchers need to be very careful in the selection process of participants, as the participants should be from different backgrounds to obtain a more reliable and valid view of the world (Silverman & Marvasti, 2008).

3.3.2.5 Semi-structured interview

In this study, semi-structured interviews have been applied. The semi-structured interviews comprise of multiple key questions that assist to define parts of the research that needs to be explored. Nevertheless, these key questions also allow the interviewer or interviewee to wander in order to pursue an awareness or answer in more detail (Longhurst, 2003). Semi-structured interviews are used most frequently in social sciences, as semi-structured questions provide participants with guidance on what to talk about and most participants find it very helpful (Silverman, 2013). The flexibility of this data collection approach, mostly compared to structured interviews, also allows for the finding or explanation of data and information that is important to participants and at might not have previously been thought of as relevant (Liamputtong, 2013).

Also, to consider when designing the interview schedule and/or questions, it is crucial to ask questions that are likely to produce as much data and information about the phenomenon as possible. The interview questions have been able to address the goals and objectives of the research (Smith, 2015). In a qualitative interview, good interview questions should be open, neutral, sensitive and understandable. Furthermore, it is usually best to start with easy questions and then proceed to more difficult or sensitive topics. The implementing of easier questions first, put participants at ease. This also allows participants to build up confidence and understanding. This method usually produces rich data and information that allow the semi-structured interview to develop further (Hill, 2012).

Additionally, in any research, it is wise to do a pilot of the interview schedule/questions with a few participants before the data or information is formally or officially obtained (De Vos et al, 2011). Consequently, the implementation of a pilot study allows the researcher to determine if the interview schedule/questions are clear, understandable. It will also determine if participants in the desired target group are proficient in answering the research questions or if any changes are required to the interview schedule/questions (Van Teijlingen & Hundley, 2001).

A pilot study for the semi-structured interviews have been done before the implementation of the official interviews. The pilot study has been done on participants with the same characteristics as indicated in the sampling section above. A pilot study includes the pretesting of the interview questions to be used and is done to increase the possibility to achieve the main goals of the study and research (Van Teijlingen & Hundley, 2001). Struwig and Stead (2011) have explained that a semi-structured interview involves open questions that were asked to all the participants.

The interviews have been planned according to an interview guide that has assisted the researcher to achieve comfortable communication between the interviewer and interviewee to ensure similar data was collected from all the participants. The following questions have been used in the interview guide:

- What does the term job expectations mean to you?
- Do you have any specific job expectations?
- What is your expectation on entering the engineering industry in general?

- What are your expectations concerning remuneration?

- Do you have any expectations on receiving other benefits?

- What is your job expectation concerning working conditions?

- What do you expect your weekly working hours will be?

- What is your expectation concerning work demands/ job tasks?

- What do you expect from the supervisory relationship and or co-worker relationships?

- Do you expect early advancement opportunities?

- Do you feel prepared for entering the engineering industry?

Written consent forms have been obtained from all the participants before the semi-structured interviews commenced. Participants have been informed that the interviews were recorded to ensure that the researcher has gathered all the necessary information. The semi-structured interviews have been scheduled for thirty minute sessions and have been conducted over a period of a month.

3.3.2.6 Data recording

The semi-structured interviews have been recorded with the participants' consent and have been transcribed after the interviews into a Microsoft® Word document. The main ideas and categories that have been obtained in the interview, were extracted from the transcribed document and then recorded in table format. The researcher has also made use of field notes during the interviews to gather the demographical information of the participants. After the interviews, the recordings have been encrypted to ensure the privacy and confidentiality of the participants. The transcribed Microsoft® Word document transcripts have also been encrypted to ensure the safety of the information obtained.

3.3.2.7 Strategies employed to ensure data quality and integrity

The conducting of qualitative research, may result in difficulty ensuring the quality of data. However, there are four main criteria which Lincoln and Guba (1985) have identified to test quality of research. Firstly, there is credibility; namely that the researcher should establish that the results that has been obtained from the semi-structured interviews are credible, since it is the perspectives of the participants. Secondly, research should be transferable and means that the results have to

able to be generalised to other contexts. This requires that the researcher should provide sufficient information regarding the context and framework of this study to make it more transferable. Thirdly, research should be reliable or dependable. This means that the research should be able to be repeated. Moreover, detail descriptions regarding the research methods, analysis, and reporting have to be available to the reader in order to ensure that the reader know in which way the research was done. Finally, the research must be verifiable, namely the research should be confirmed.

3.3.2. 8 Data analysis

The data gathered from the semi-structured interviews have been analysed through the content analysis method. A content analysis should be conducted in three stages, stage one has been the data collection, stage two the data coding and stage three the data analyses (Bowling, 2009). The researcher has firstly collected the data by using semi-structured interviews with emerging engineers, secondly the researcher has coded the data according to literature and similarities in the information obtained and lastly, the researcher has analyzed the data into more sensible understandable terms.

According to De Vos *et al.* (2011), it is imperative to transcribe the interviews before the data analysis as it assists in the creation of themes. Thus, the researcher has transcribed all the interviews before executing the data analysis. The researcher has made use of coding to identify differences in answers gathered from the interviews. The field notes have assisted the researcher to ensure the reliability of the data analysis method. Open coding has been implemented while reading through the data, since it is the part of the data analyses method that concerns itself with the categorising and the naming of phenomena (De Vos *et al.*, 2011). Open coding has allowed the researcher to break down the data into smaller parts to closely examine and compare the data for similarities or differences. This has allowed questions to arise about the phenomena found in the data. The coding mentioned above has allowed the researcher to categorise findings. The final stage is to interpret, report and present the findings that have been produced from the data (Bowling, 2009).

3.3.2.9 Reporting style

According to De Vos *et al.* (2011) reporting is the conclusion of data analysis and the researcher has reported the findings in a final Microsoft® Word document after all the data have been analysed and assessed. Reporting in a qualitative study allows the researcher to have a detailed and in-depth view of the context (De Vos *et al.*, 2011) This research has been reported in the qualitative writing style and reflects perspectives and experiences of all the participants.

Qualitative reporting includes the gathering of themes and categories from of the data that has been gathered. The themes and categories have been identified and explored which was the most important part of this research process. The researcher has described and interpreted the findingsThis has allowed in-depth understanding of the phenomenon. In this study, emerging engineers' job expectations have been researched.

3.3.2.10 Ethical considerations

The researcher has been professional throughout conducting the interviews. Moreover, the researcher has explained the purpose of the study to the participants as well as the way in which the research study had to be accomplished. Participants have been asked to complete consent forms which have provided confidentiality and privacy to the participants. The participants have agreed and have been able to withdraw from the study at any time. The researcher has followed the American Psychological Association (APA) code of ethics. Also, the researcher has evaluated the benefits of this study and acted with kindness towards participants. In addition, the researcher has been professional at all times and has been aware of the role and responsibilities of society. The researcher has been honest and has shown integrity throughout the study. Furthermore, the researcher has been unbiased by treating all the participants equally, and has protected the rights of the participants (Smith, 2003).

Chapter four: Findings and discussion

4.1 Introduction

The primary purpose of this chapter is to present the findings of this research study. Moreover, the research objectives and questions address the problem statement in full. The primary objective of this study has been to investigate and understand how emerging engineers (engineering students) understand the term job expectations. This objective has been achieved in the findings as discussed in the remainder of the chapter. Additionally, section 4.3 addresses and identify the specific job expectations of emerging engineers. Furthermore, the reporting of the findings classifies what it really is that emerging engineers expect when they enter the engineering industry with regard to remuneration, organisational benefits, working conditions, working hours, work demands and job tasks, work relationships and advancement opportunities. Finally, section 4.12 indicates if the emerging engineers feel prepared to enter into the engineering industry.

Additionally, the reported findings have been obtained through interviews with ten emerging engineers. The demographic information of the participants have been provided in section 4.1. The emerging engineers answers have been directly quoted and then further explained throughout the chapter. The order of the findings has been based according to the order of the questions that were asked during the interviews with the emerging engineers regarding their job expectations. Furthermore, the questions that have been formulated for the interviews were structured to address and achieve the general objective of this study. As mentioned throughout the study, the general objective has been to explore and identify the job expectations that emerging engineers have regarding their career and the engineering industry.

Also, the reported findings are illustrated and tabularised to assist with the analysis and the understanding of the data that has been obtained. This findings chapter addresses every interview question in different sections to avoid confusion and to assist the reader to understand the information in its best possible way. Each section has its tables and figures and has been logically arranged to assist the researcher and the reader in interpretation. The chapter concludes with a summary that describes the essential findings which ensures that all the research questions have been answered.

Section 4.1 displays the demographic information of the participants in Table 4.1 and further support the information with an Illustration, Figure 4.1.

4.1 Demographic information.

Table 4.1 Demographic information				
Participant	Gender	Age	Language	Study field
One	Male	23	Afrikaans	Telecommunication
Two	Male	22	Afrikaans	Industrial engineering
Three	Female	19	Afrikaans	Chemical engineering
Four	Female	19	Afrikaans	Chemical engineering
Five	Female	22	English	Industrial engineering
Six	Male	21	English	Industrial engineering
Seven	Female	19	Afrikaans	Chemical engineering
Eight	Male	20	Afrikaans	Industrial engineering
Nine	Female	20	Afrikaans	Industrial engineering
Ten	Male	19	Afrikaans	Computer and electrical engineering

Table 4.1 provides the demographic information of the emerging engineers. The average age of the participants have been 20 years old. Most of the participants have been busy with their second or third year of studies. It is evident from Table 4.1 and Figure 4.1 that the participants have been equally made up in gender, namely 50% male and 50% female participants. The equal divide in gender has been important to be sure to obtain feedback from both a male and female perspective alike.

Figure 4.1 Gender of emerging engineers

Male   Female
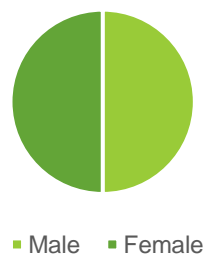
Moreover, 80% of the participants have been Afrikaans although the interview has been executed in English. The other 20% of the participants' home language was English. Furthermore, 50% of the participants have been enrolled as industrial engineers, 30% of the participants have been enrolled as chemical engineers, 10% of the participants have been enrolled for a masters' degree in telecommunication, while the other 10% have been registered for computer and electrical engineering.

Section 4.2 illustrates the emerging engineers' definition of job expectations in Figure 1.1. Table 1.1 gives more information concerning participants' definition regarding job expectation.

4.2 Emerging engineers' definition of job expectations

Figure 4.2 Emerging engineers' definition of job expectation
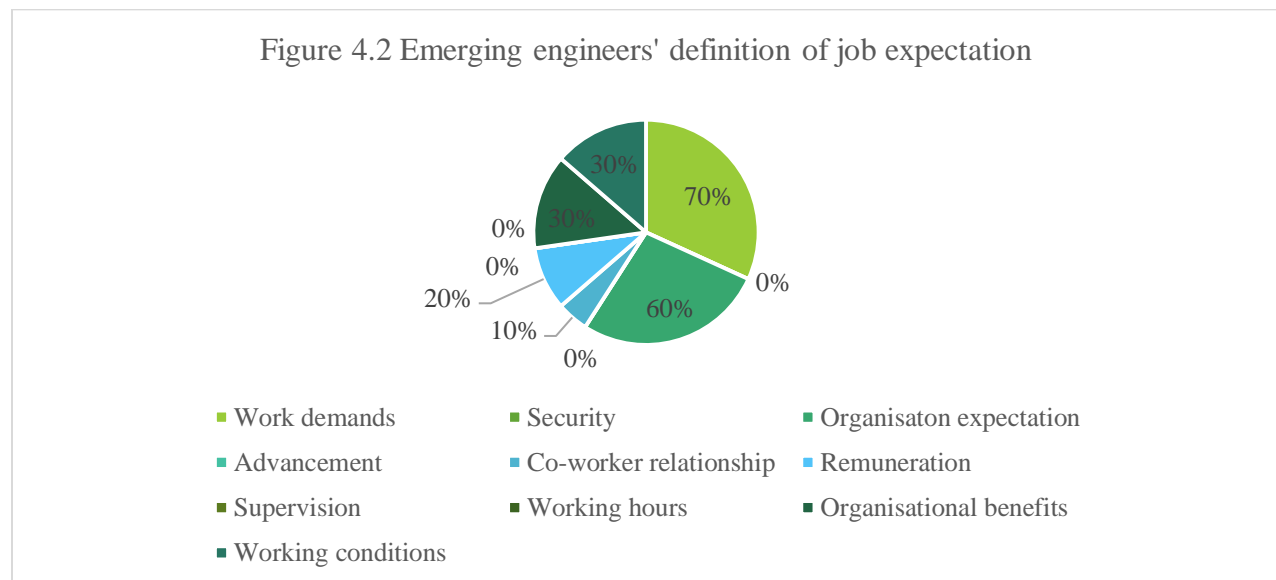
Coetzee and Roythorne-Jacobs (2011) have provided ten job expectation factors. These job expectation factors include work demands, security, organisational expectations, advancement, co-worker relationships, remuneration, supervision, working hours, organisational benefits and working conditions.

The researcher has asked the participants to define job expectations and expected the participants to mention at least one of the ten factors in their definition. After the transcribing and analysis of the data, six of the ten job expectation factors have been mentioned in all the participants' definitions of job expectations. The majority (70%) of the participants have identified work

demands in their definition of job expectations. Furthermore, 60% of the participants have mentioned organisational expectation when they defined job expectations. A mere 30% of the participants have named working conditions and organisational benefits in their definitions of job expectations. Remarkably, only 20% of the participants have mentioned remuneration when they defined job expectations and only 10% of the participants have mentioned co-worker relationships. It is evident from the interview statements that participants have not mentioned four of the ten factors in their definitions of job expectations. These four factors are security, advancement, supervision and working hours. As collected from the emerging engineers' job expectations, the following aspects have been defined as an individual's work demands; namely organisational expectation, working conditions, organisational benefits, remuneration, and co-worker relationship. Table 4.2 illustrates the way in which emerging engineers have defined job expectations.

	Participant number	Interview segment	Subcategories	Codes: Factors of job expectation	Analytic memos / questions to discuss
Table 4.2 Emerging engineers' definition of job expectation					
What does the term job expectation mean to you?	1	"Okay so um… 'ja' the term job expectations um… means that I um… had a certain experience in the the study I'm doing now and that there are um… certain um… degrees of outcomes that I have to deliver in the work um… or in the workplace and 'ja', I have to um… let's say come to the level of their outcomes um… when I go to work there 'ja'."	1. Certain experience 2. Degrees of outcomes 3. Come to the level of their outcomes 4. Individual perspective	1. Working conditions 2. Organisation expectation 3. Work demands	Participant one states in the interview that job expectations are working conditions, organisation expectation, and work demands. Participant one mentions organisation expectation, however from an individual perspective.

	2	"Um… it's just what um… I can expect when I leave university what I can expect to be involved with after my studies when I work and um… what people are expecting from me and what I will be expected to do and 'ja.'"	1. Work/task expectation 2. Organisational perspective 3. Workplace expectation	1. Working conditions 2. Organisation expectation 3. Work demands	Participant two identified the same factors as participant one in the interview which includes working conditions, organisation expectation from an organisational perspective and work demands.
	3	"Um… It would be my idea of what qualification, what 'eienskappe' I need to have to um… be able to like to complete the job."	1. Knowledge, Skills, and Abilities (KSA) 2. Task completion	1. Work demands 2. Organisation expectation	Participant three mentioned KSA which is exciting and should be considered to be included in the ten factors of job expectations. Furthermore, participant three also mentioned organisation expectation from the organisations perspective.
	4	"Um… its' what you will be expecting in a job what you will be doing what you think you will be doing one day in that specific job."	1. Work/task expectation 2. Organisational perspective	1. Work demands 2. Organisation expectation	Participant four emphasised on the work demands job expectation faction. Once again organisation expectation was mentioned and interpreted from the organisations perspective.

	5	"Um... to me it means the things as an individual you would expect from a job and when you go in what you want from it."	1. Individual perspective 2. Organisational benefits/Remuner ation	1. Organisational benefits 2. Organisation expectation	Participant five defines job expectation as receiving organisational benefits and participant five mentions organisational expectation from an individual perspective.
	6	"Job expectations, well for me I think its kind off has to do with um, the environment, the relations I will have with my future manager, employer, maybe perhaps salary, the standard of living incentives and just work culture as well that I will have to apply to."	1. Workplace expectation 2. Co-worker relationships 3. Remuneration/ organisation benefits 4. Organisational culture 5. Individual perspective	1. Working conditions 2. Co-worker relationship 3. Remuneration 4. Organisational benefit 5. Organisation expectation	Participant six defined job expectations the best and mentioned five of the ten factors. Participant six mentioned that job expectations include working conditions, co-worker relationships, remuneration, organisation benefit, and organisation expectation from an individual perspective.
	7	"Job expectations is a general term as to what a company expects of the position that you are applying for."	1. Organisational perspective 2. Work/task demands	1. Work demands 2. Organisation expectation	Participant seven mentioned two of the ten factors namely work demands and organisation expectation, however from an

					organisations perspective.
	8	"Um… I think the obvious answer would be um… What you expect to do one day when you finish, graduated (Laugh)."	1. Individual perspective 2. Work/task demands	1. Work demands	Participant eight defined job expectations as one of the factors namely work demands.
	9	"Basically, means to me what to um… expect or what to what I would receive when I walk out with my degree in the industry."	1. Individual perspective 2. Organisational benefits/ remuneration	1. Organisational benefits 2. Remuneration	Participant nine placed focus on two of the ten factors when defining job expectations namely organisational benefits and remuneration.
	10	"Um… Job expectations to me, what I would expect to happen inside a job and 'ja', that is actually very simple concept but 'ja' that is what I would expect in a job."	1. Individual perspective 2. Work/task expectations	1. Work demands	Participant ten only mentioned one factor when defining job expectations. Moreover, participant eight and ten only identified work demands with their definition of job expectations.

Table 4.2, the first column, displays the question that has been asked during the interview with the emerging engineers. In column two, the participant's response has been quoted verbatim. Column three shows the first step of the analysis. Column four provides the coding of the data and the last column conveys the researcher's analytic memos. During the interviews with the emerging engineers regarding their definition of job expectations, specific themes developed from the data which correlates with the ten job expectation factors of Coetzee and Roythorne-Jacobs (2011).

1. Participant one has stated in the interview that job expectations are defined by three of the ten factors, including working conditions, organisation expectation, and work demands.

2. Participant two has identified the same factors as participant one in the interview, which includes working conditions, organisation expectation, and work demands.

3. Participant three has mentioned knowledge, skills, and abilities. Participant three has also mentioned organisation expectation during the interview.

4. Participant four has emphasised the work demands, as well as organisation expectation.

5. Participant five has defined job expectation as receiving organisational benefits and has also identified the organisational expectation as a key factor.

6. Of all the participants, participant six has been the ablest to define job expectations and has mentioned five of the ten factors. Participant six has mentioned that job expectations include working conditions, co-worker relationships, remuneration, organisation benefit, and organisation expectation.

7. Participant seven has mentioned two of the ten factors, namely work demands and organisation expectation.

8. Participant eight has defined one factor of job expectations, namely work demands.

9. Participant nine has placed focus on two of the ten factors in defining job expectations, that is organisational benefits and remuneration.

10. Participant ten has only mentioned one factor in the definition of job expectations, i.e. work demands. This corresponds with participant eight's definition, as both these participants have only identified work demands with their definition of job expectations.

After the researcher has obtained the definitions of job expectations from the emerging engineers, the next logical step was to investigate if the participants had any specific job expectations. Section 4.2 discusses and investigates the emerging engineers' specific job expectations. Section 4.2 also addresses the research question regarding the main components that emerging engineers find essential as to job expectations.

4.3 Emerging engineers' specific job expectations

Figure 4.3 Emerging engineers' specific job ecpectations
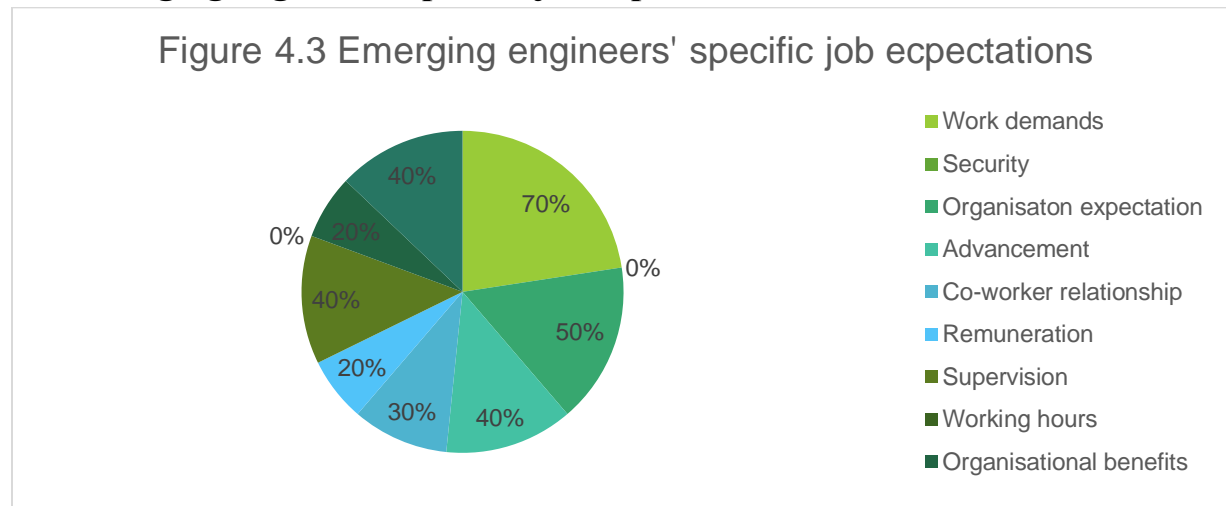
As illustrated in Figure 4.3, emerging engineers have identified specific job expectations that they expect when entering into the engineering industry. Most participants (70%) have mentioned *work demands* to be a factor of job expectation when they were questioned about their job expectations during the semi-structured interviews. Moreover, 50% of the participants have stated that they expect that the industry or organisational expectation of them would be very demanding or challenging. Interestingly, participants have mentioned three of the ten job expectation factors when they were interviewed about their specific job expectations. The factors that have been mentioned were advancement, supervision and working conditions. Although some participants (40%) have revealed these three factors, as the interview progressed and participants have been asked to define job expectations, none of the participants have mentioned advancement or supervision. Only 30% of the participants have named co-worker relationships as a factor of job expectations during the interview. Remarkably, two other factors of job expectations have been mentioned, though only represented by a small part of the participants (20%). These two factors are both used as motivation by organisations, and are remuneration and organisational benefits. Lastly, two of the ten job expectation factors have not been mentioned when emerging engineers were questioned on their specific job expectations; namely supervision and security.

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Table 4.3 Emerging engineers' specific job expectations				
Participant number	Interview segment	Subcategories	Codes: factors of job expectation	Analytic memos/ questions to discuss
1	"Um… I am doing my masters now in engineering, so I have done that basically to um… to broaden my um… amount of 'Kennis' knowledge 'ja', and um… so 'ja' in the work expectation I would like to um… know that the knowledge I adhered here can be implemented in the workplace and that they, if there is something I do not know that or haven't learned that they would train me or um… 'ja' give me courses that I can come to their level of expectations 'ja'"	1. Work challenges 2. Training 3. Individual perspective	1. Work demands 2. Advancement 3. Organizational expectation 4. Supervision	Participant one identified four of the ten factors of job expectation when questioned about their specific job expectations. Participant one focused more on work and continuous learning.
2	"Um just that I would like to be treated as someone that has no experience and would like people to help me and not expect too much of me and 'ja'."	1. Fair treatment 2. Organisational support 3. Not too high expectations 4. Individual perspective	1. Working conditions 2. Organisations expectation 3. Co-worker relationship 4. Supervision	Participant two also identified four of the ten factors of job expectation when questioned about their specific job expectations. However, participant two focused more on co-worker relationships and that the organisation would be understanding and helpful.
3	'Ja,' obviously when you are going to apply for a job your um… Going to look at the things that you have to do and the um… the thing you get with it um… Medical and pension would be like one of the most important, and obviously, like the 'vereistes' the 'kleinskrif.'"	1. Job demands 2. Medical aid 3. Pension fund 4. Requirements 5. Fine print 6. Individual perspective	1. Work demands 2. Remuneration 3. Organisation benefits 4. Organisations expectation	Participant three identified three of the ten factors of job expectation when questioned about their specific job expectations. Participant three focused on remuneration and organisational benefits.
4	"Um… I think at the start you will always do like the "sleppy" work, um… be	1. Bad work 2. Prove yourself first	1. Work demands 2. Advancement 3. Supervision	Participant four identified four of the ten factors of job

Do you have any specific job expectations?

	like the um… you have to prove yourself first before you get the quality job."	3. Promotion 4. Individual perspective	4. Organisation expectation	expectation when questioned about their specific job expectations. However, they focused on the work demands, job tasks, and work-related expectations.
5	"I feel like saying salary (laughs). Yeah no, I expect to be treated fairly, to not be discriminated against, to receive a salary, also um have to opportunity to climb the ladder and be given opportunities to grow as an individual."	1. Salary 2. Fair treatment 3. Promotions 4. Training opportunities 5. Individual perspective	1. Remuneration 2. Working conditions 3. Advancement 4. Organisational benefits	Participant five identified four of the ten factors of job expectation when questioned about their specific job expectations. Moreover, they focused on remuneration and organisational benefits.
6	"Well, I kind of hope that when you know, when I enter the workplace that I'll establish sort of like secure relations with the manager and I'm not going to be sort of overworked and basically abused and everything sent on to me and I just basically have all of my work rights sort of."	1. Strong relationship with manager 2. Not overworked 3. Worker rights 4. Individual perspective	1. Co-worker relationships 2. Supervision 3. Work demands 4. Working conditions	Participant six identified four of the ten factors of job expectation when questioned about their specific job expectations. Participant six focused more on relationships within the organisation.
7	"I have an expectation of the company that I'm applying for will only require for me what I can give them, so they won't require from me to do something that I have not done before, as an engineer I am used to solving problems, so I'm expecting a lot of problems but I do not expect them to ask me to do admin cause that's not what I signed up for."	1. Work demands 2. Job tasks 3. Organisational perspective	1. Work demands 2. Organisation expectation	Participant seven identified two of the ten factors of job expectation when questioned about their specific job expectations. They focused on what the organisation expects from them and their work demands.
8	"Um… As an engineer, obviously, the job expectation is to like go into a company and like if you are a mechanical go into that, but for me, as industrial I think it is more like a business, more supply chain, more management."	1. Work demands 2. Job tasks 3. Individual perspective	1. Work demands	Participant eight identified one of the ten factors of job expectation when questioned about their specific job expectations. The focus was on work demands.
9	"Um… I would like to end up in project management at the moment I do not think I would accept a job less than a project manager."	1. High position 2. Individual expectation	1. Work demands 2. Advancement	Participant nine identified two of the ten factors of job expectation when questioned about their specific job

				expectations. Participant nine focused on work demands and advancement opportunities in the organisation.
10	"Um… What I would expect in a job is to be treated fairly um… and 'ja' that I would be treated fairly and not um… look down upon from the people that are higher than me in the job and also not ridiculed while I am doing my job."	1. Fair treatment 2. Opportunity to prove yourself 3. Individual perspective	1. Working conditions 2. Co-worker relationships	Participant ten identified two of the ten factors of job expectation when questioned about their specific job expectations. Interestingly, participant ten identified working conditions and co-worker relationships.

Table 4.3 presents in the first column the question that has been presented to the emerging engineers during the interview. In column two follows the verbatim answers of the participants. Column three shows the first step of the analysis. Column four presents the coding of the data and in the last column represents the researcher's analytic memos.

Furthermore, when the emerging engineers have been interviewed on their specific job expectations, factors developed from the data that correlates with the ten job expectation factors that were found through the literature review (Coetzee and Roythorne-Jacobs, 2011).

1. Participant one has mentioned four of the ten factors of job expectation; participant one has focused more on work and continuous learning.

2. Participant two has also revealed four of the ten factors of job expectation. However, participant two has focused more on co-worker relationships and expected that the organisation would be understanding and helpful.

3. Participant three has exposed three of the ten factors, participant three has mostly focused on remuneration and organisational benefits.

4. Participant four has stated four of the ten factors. However, this participant has focused on the work demands, job tasks, and work-related expectations.

5. Participant five has identified four of the ten factors of job expectations during the interview. Moreover, the participant five has focused on remuneration and organisational benefits.

6. Participant six has recognised four of the ten factors of job expectation when questioned about their specific job expectations. Participant six has also focused more on relationships within the organisation during the interview.

7. Participant seven has specified two of the ten factors of job expectation. This participant has focused on organisational expectations and work demands.

8. Participant eight has acknowledged one of the ten factors of job expectation; and the participant has also focused on work demands while being interviewed.

9. Participant nine has focused on work demands and expected advancement opportunities in the organisation during the interview questioning on specific job expectations.

10. Participant ten has recognised two of the ten factors. Interestingly, participant ten has also identified working conditions and co-worker relationships during the interview.

After the researcher has obtained the specific job expectations of emerging engineers, the next logical step has been to obtain the information on the different factors of job expectation. The first factor the researcher has focused on was security. To put more specifically, to determine the emerging engineers' perception on obtaining a job in the engineering industry (job security). The emerging engineers have been interviewed and asked how they feel about entering the industry in general. Moreover, in section 4.4, Figure 4.4 and Table 4.4 provides a clear view of the expectation of emerging engineers on entering into the industry.

4.4 Expectation of emerging engineers entering into the engineering industry

Figure 4.4 Emerging engineers' expectation on entering into the industry

50%   50%

■ Optimistic ■ Pesimistic
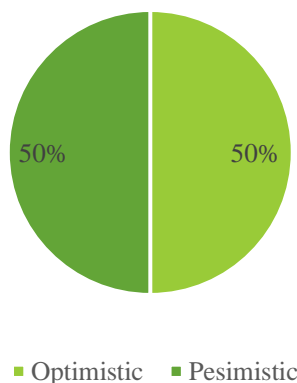
Figure 4.4 shows that 50% of the participants have been optimistic towards entering the engineering industry, while the other 50% have felt pessimistic expectation. Interestingly, 30% of female participants have been optimistic and 20% of the male participants. However, 30% of the male participants have felt pessimistic, and 20% of the female participants have been pessimistic.

After the analysis of the data one should ask why female participants have the more optimistic expectation towards entering the industry. Countless studies have inverstigated female engineers' dissatisfaction with the engineering industry and research has found that there is a lack of females in the industry (Hill, Corbett & St Rose, 2010); Wang, Eccles & Kenny, 2013). Table 4.4 shows the emerging engineers' expectation at entering the engineering industry and a more detailed explanation of emerging engineers' expectation of entering the industry.

		Table 4.4 Emerging engineers' expectation of entering the engineering industry			
	Participant	**Interview segment**	**Subcategories**	**Codes: factors of job expectations**	**Analytic memos/ questions to discuss**
What is your expectation on entering the engineering industry in general?	1	"Um… luckily I already have a job um I have a bursary at a company in Roodepoort um… For doing my, um… my normal degree and now my master's degree I also have a bursary um… so I do not have any expectation to get a job I already have one um… but um… in terms of expectations of the level of difficulty um… I think there is still a lot to learn and so when I um… When I get to the, to doing the job um… I think there is a lot of stuff I still have to learn and I did not learn previously um… that is implemented in the practice 'ja'."	1. Already have a job after graduating	1. Optimistic outlook	Participant one has an optimistic outlook on entering the engineering industry. Participant one stated that entering will not be difficult since participant one already has a job.
	2	"Not at all, I do not think it would be easy for some reason I think there will be a lot of expectations like I said previously, I hope that they will understand that you are just coming out of university and you still learning how um… the environment works of working and the transition from studying to working."	1. Don't expect it to be easy	1. Pessimistic outlook	Participant two has a pessimistic outlook on entering the engineering industry since participant two feels experience is needed.
	3	"Um… I think it would be a struggle to find a job in South Africa let's say for instance	1. Struggle 2. Have lower expectations	1. Pessimistic outlook	Participant three thinks entering the engineering

	but um… what most people do not understand is you are not just going to walk in into that position directly so… you also need to lower your expectations when it comes to your first job maybe like you are going to have to start at the bottom but 'ja' I think still it would be hard."	3. Start at the bottom 4. It will be hard		industry would be a struggle. Participant three also states that new employees need to work themselves up in the organisation.
4	"Um… (Laughs) I think um… I will also start at the bottom and build myself up um… and 'ja' not like a heavy expectation to like start in a very good position because you have to prove yourself before."	1. Start at the bottom 2. Build up in the organisation	1. Optimistic outlook	Participant four has an optimistic outlook on entering the engineering industry. However, participant four also understands that new employees must start at the bottom.
5	"Well I expect it to be very difficult but I also expect it to be extremely rewarding."	1. Very difficult 2. Extremely rewarding	1. Optimistic outlook	Participant five has an optimistic outlook on entering the engineering industry and states that it would be extremely rewarding.
6	"I think it's going to be a bit of a rollercoaster at first because I think that they expect me to do almost whatever they are doing in a specific industry or whatever workplace and obviously, a lot of things won't be as familiar to me and id have to quickly adapt so I think it's about the first two-three months it's going to be very um… I am going to be under a lot of pressure."	1. Going to be a rollercoaster	1. Pessimistic outlook	Participant six have a pessimistic outlook on entering the engineering industry, participant six states that are would be a rollercoaster.
7	"Um… A lot of trial and error that is what engineering is. But my expectation is actually not to be told that I am not cut out for a job because I am a chemical engineer or because I am only a junior engineer."	1. Wants opportunity to prove them	1. Optimistic outlook	Participant seven has an optimistic outlook on entering the engineering industry and stats that personal performance is essential to them.
8	"Um… 'Ja', I am a bit, I would not say scared, but I think it is really big because um… In the beginning like I think it is hard to find your feet like after graduating because um… We mostly hear like the workplace is not at all like the all the physics and stuff we learn in the first year, so I think for all of us its kind off like a hazard but	1. Hard to find your feet 2. Hurdle you should overcome	1. Pessimistic outlook	Participant eight has a pessimistic outlook on entering the engineering industry and states that it would be difficult to find your feet, however, participant eight states that it is a hurdle all

	it is like a hurdle we have to get over."			employees should overcome.
9	"I particularly think it would be difficult because um… of the large volume of us that has to enter the um… the industry but um… how can I state it… um… I think the experience in my regards they would rather take more Technikon engineers because they have practical experience, so I think because of the theoretical background we have a disadvantage."	1. It would be difficult 2. Large volume of emerging engineers 3. Technikon graduates have practical experience	1. Pessimistic outlook	Participant nine has a pessimistic outlook on entering the engineering industry since the large volume of graduates and that other student graduating from Technikons have practical experience.
10	"My expectation for that is um… I know it's going to be hard work and things but I expect that the people that employ me will also be there to assist me in the times that I struggle because I just finished what I studied and I'm going to start working that doesn't mean I will understand normally what they expect me to do in their workplace so… I would expect them to give me either a training course in what they do or pair me with someone that can help me when I struggle."	1. Going to be hard	1. Optimistic outlook	Participant ten have an optimistic outlook on entering the engineering industry since participant ten expects that their employer would be understanding and helpful.

Table 4.4, the first column, displays the question that has been asked during the interview with the emerging engineers. Column two are the verbatim quotations of the participants as they have provided during the interview. Column three shows the first step of the analysis. Column displays the data coding and the last column reveals the analytic memos of the researcher. During the interview, the researcher also wanted to determine if the emerging engineers feel optimistic or pessimistic on entering the engineering industry.

1. Participant one has held an optimistic outlook on entering the engineering industry. However, participant one has stated that entering the industry will not be difficult since they already have a job after graduating.

2. Participant two has conveyed a pessimistic viewpoint on entering the engineering industry since the participant felt to have a lack of experience.

3. Participant three has thought that entering the engineering industry would be a struggle, and has also stated that new employees need to work themselves up in the organisation.

4. Participant four has had an optimistic outlook on entering the engineering industry. However, participant four has also understood that new employees must start at the bottom.

5. Participant five has had an optimistic outlook towards entering the engineering industry and has stated that it would be advantageous.

6. Participant six has had a pessimistic outlook on entering the engineering industry; and has also stated that the industry would be a rollercoaster.

7. Participant seven has indicated an optimistic view on entering the engineering industry and for the participant self, personal performance is vital.

8. Participant eight has had a pessimistic outlook on entering the engineering industry and has felt that it would be difficult to find your feet in the industry. However, participant eight has also contributed that it is a hurdle all job seekers need to overcome in all industries.

9. Participant nine has had a pessimistic outlook on entering the engineering industry because of the large volume of graduates in this specific industry. This participant has mentioned that other students graduating from Technikons have the advantage of practical experience.

10. Participant ten has felt optimistic to enter into the engineering industry as the participant expects that the employer would be understanding and helpful.

The factors of emerging engineers' expectations on entering the engineering industry have been summarised in Table 4.4 and illustrated Figure 4.4. The next factor important factor that has been observed was the emerging engineers' expectation concerning remuneration. Remuneration is also one of the eight factors of job expectations and thus very important for investigation. Section 4.5 explains in-depth what emerging engineers expect with regard to remuneration and further explore the factor in detail in Figure 4.5 and Table 4.5.

4.5 Emerging engineers' remuneration expectation

Figure 4.5 Emerging engineers' remuneration expectation
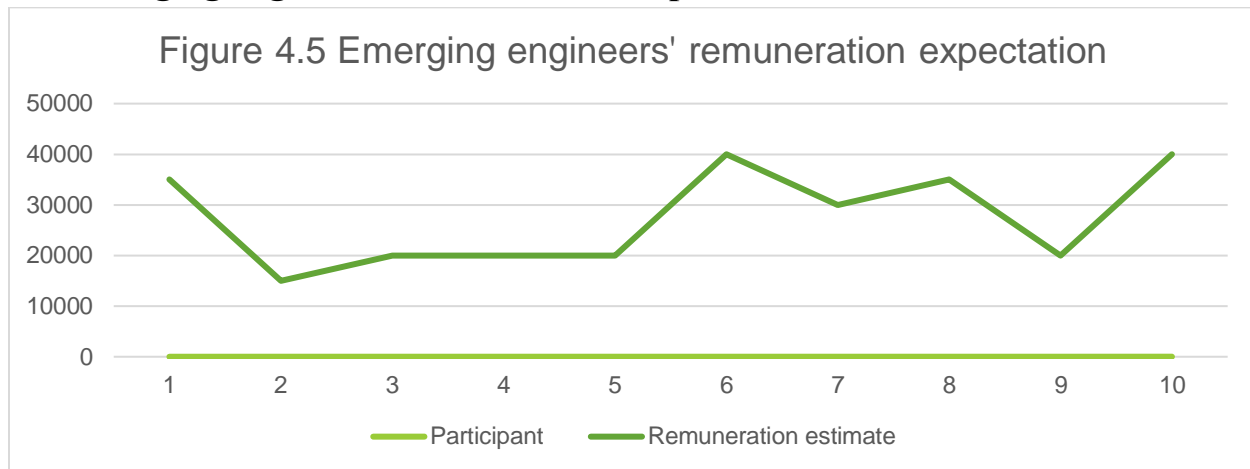
As illustrated in Figure 4.5, emerging engineers' have indicated high and low expectations towards remuneration anticipation. The highest expectation was R40 000 per month, and the lowest expectation was R15 000 per month. Interestingly, 40% of the participants that have expected high remuneration, have been male while only 10% of the participants that have expected a high remuneration, have been female. Furthermore, 40% of the participants that have expected a low remuneration have been female and only 10% of the participants that have expected a low remuneration, have been male. Additionally, this study has also identified the same results on female remuneration expectation, as many research results have verified that females expect lower remuneration and receives lower salaries (Canadian Woman's Foundation, 2015). Table 4.5 clearly illustrates emerging engineers' exact expectations towards remuneration.

	Table 4.5 Emerging engineers' remuneration expectation				
	Participant number	**Interview segment**	**Subcategories**	**Codes: factors of job expectations**	**Analytic memos/ questions to discuss**
What are your expectations concerning remuneration?	1	"My expectation before I did my masters um… it was plus minus twenty-five thousand before vat sorry tax, not vat but I think after my master's degree it would go up between thirty and thirty-five thousand 'ja'."	1. R25 000 2. R30 000-35000	1. Remuneration	Participant one expects a higher salary since participant one is busy with their master's degree.
	2	"(laughing) Um… like how much? Or? Um… well entering level so I would believe something just	1. R15 000	1. Remuneration	Participant two have a low salary expectation since they state it would be on entering the level of the organisation.

		around in fifteen thousand maybe not more entry level."		
	3	"Maybe, because it is a starting salary you do not have that much experience I do not know maybe like twenty thousand, I think it is reasonable."	1. R20 000	1. Remuneration	Participant three states that you need experience and it is a starting salary, so their expectation is just under the average of all the participants.
	4	"Um… I am not there for the money, so it does not matter for me so if I get a good um… the salary that will be a benefit. Um… probably twenty thousand (laughs)."	1. R20 000	1. Remuneration 2. Organisational benefit	Participant four states that they are not doing it for the money and a higher salary would only be a benefit from the organisation.
	5	"I do not really have any because I know like once you start off it is going to be very low like maybe between the fifth teen to twenty thousand per month and then as you climb the ladder it grows."	1. R15 000– R20 000	1. Remuneration 2. Advancement	Participant five does not have a high salary expectation. However, there is the expectation to climb the ladder.
	6	"Um… in terms of a figure? Um… I am hoping anything above thirty, between thirty and forty the first year and then above forty in the second year."	1. R30 000- R40 000 2. Above R40 000	1. Remuneration 2. Advancement	Participant six have a salary expectation above the average of all the participants, moreover, they expect advancement opportunities in the first year.
	7	"Definitely no less than thirty thousand."	1. R30 000	1. Remuneration	Participant seven have a salary expectation above average of all the participants
	8	"Um… I would say between like twenty-five and thirty-five."	1. R25 000- R35 000	1. Remuneration	Participant eight have a salary expectation around the average of all the participants
	9	"Um… Must I state a monetary value? Or? Okay, I think I would like to start off with a minimum of twenty thousand in a month and um… 'ja' build up every year I think."	1. R20 000	1. Remuneration 2. Advancement	Participant nine have a low salary expectation. Moreover, they expect advancement opportunities in the first year and every year after that.
	10	"I would say about forty a month."	1. R40 000	1. Remuneration	Participant ten have a very high salary expectation.

Table 4.5, the first column shows the question that was asked during the interview done with emerging engineers. Column two provides the verbatim quotation that the participants gave during the interview. Column three shows the first step of the analysis. The fourth column provides the

coding of the data and the last column reveals the researchers' analytic memos. Table 4.5 thus summarises the results for the emerging engineers' viewpoint about their remuneration expectations.

1. Participant one has expected a higher salary since the participant is currently busy with a masters' degree.

2. Participant two has had a low salary expectation as the participant has stated that one starts with a lower salary on the entry level of an organisation.

3. Participant three has stated that you need experience for a higher remuneration and that on entry one will receive a starting salary, thus, with regard to remuneration, the expectation is just below the average of all the participants.

4. Participant four has indicated that from the participants point of view, the participant is not doing it for the money and a higher salary would only be a benefit.

5. Participant five did not have a high salary expectation, but has expected advancement opportunities.

6. Participant six has had a salary expectation above the average of the other participants. Participant six has also expected advancement opportunities during the first year.

7. Participant seven has had a salary expectation above the average of the rest of the participants.

8. Participant eight has indicated a salary expectation more or less the same as the other participants.

9. Participant nine has had a low salary expectation, but has expected advancement opportunities for the first year and every year after that.

10. Participant ten has had a very high salary expectation; far above the average expectation of participants.

Section 4.5 clearly indicates the expectation of emerging engineers with regard to the payment they anticipate to receive on entering the engineering industry. Furthermore, it is interesting to investigate if emerging engineers expect other forms of compensations. Thus, section 4.6, explains emerging engineers' expectation regarding other forms of compensation such as organisational benefits.

4.6 Emerging engineers' organisational benefits expectation

Figure 4.6 Emerging engineers' expectation of organisational benefits
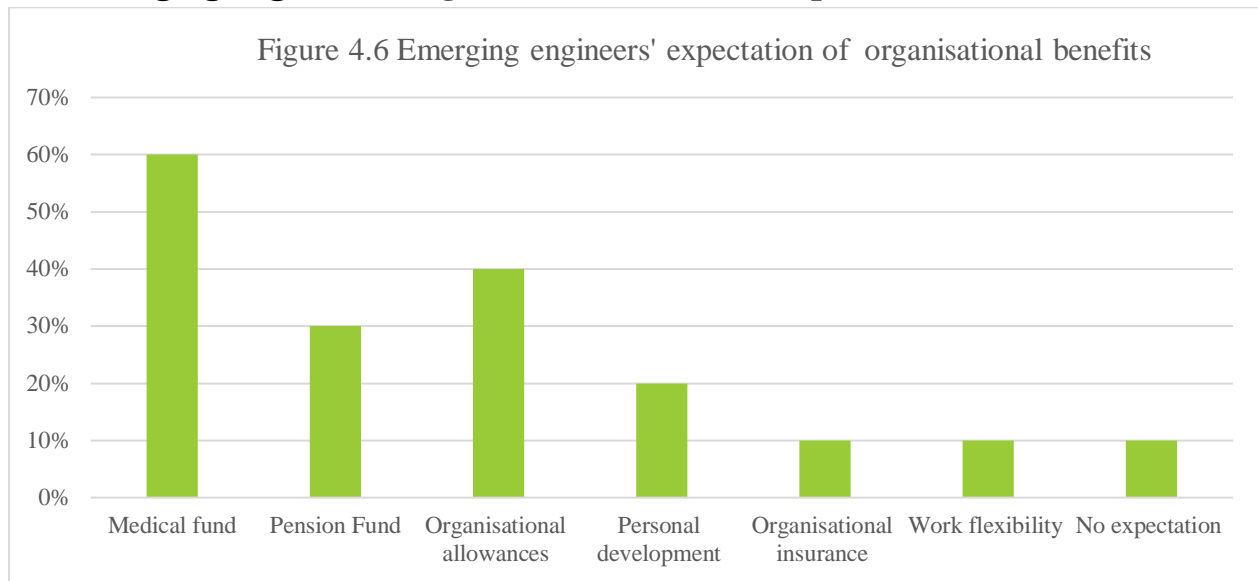
Figure 4.6 illustrates the type of organisational benefits that emerging engineers expect to receive on entering into the engineering industry.

Firstly, most of the participants have expected medical funds as an organisational benefit (see Figure 4.6). Furthermore, 60% of the participants have expected a medical fund from their organisation. Secondly, organisational allowances such as home-, travel-, car- and phone allowance and organisational expenses. Thus, 40% of participants have expected organisational allowances. Thirdly, 30% of participants have expected a pension fund as part of their organisational benefits. Fourthly, only 20% of participants have expected personal development opportunities from their employing organisations. In the fifth instance, a mere 10% of the participants have indicated organisational insurance and work flexibility as organisational benefit expectations. Lastly, 10% of the participants have had no expectation with regard to organisational benefits.

Table 4.6 summarises that emerging engineers mostly want medical funds (60%) and organisational allowances (40%) as organisational benefits. Interestingly, only five benefits have been expected that are very important in the long run for any employee, and emerging engineers have not seen the other critical organisational benefits as necessary at the time the study was done.

Table 4.6 summarises the type of organisational benefits that emerging engineers expect, following with a detailed explanation of the content below Table 4.6.

	Table 4.6 Emerging engineers' organisational benefits expectation			
	Participant number	**Interview segment**	**Subcategories**	**Codes: types of organisational benefits**	**Analytic memos/ questions to discuss**
	1	"at the organisation, I have a bursary it is a private company um… so I do not have any expectation of um… getting health plans or um… pension plans or something like that so I would take that out of my salary and get my own plans and pension and so um… so, for now, I do not have any expectations but one day if I maybe go and work for a big company um… like Eskom or I know they normally have pension plans and health care plans 'ja'."	1. No expectation of current organisation 2. Other organisations usually have pension and medical funds	1. Medical fund 2. Pension fund	Participant one does not have any expectation of organisational benefits at the organisation where they must work for six years. However, they identified two universal organisational benefits namely medical and pension fund.
	2	"Yes, like medical, car allowance, phone allowance… 'ja.'"	1. Medical 2. Car allowance 3. Phone allowance	1. Medical fund 2. Organisational allowances	Participant two expects medical fund and various allowances from the organisation.
	3	"Yes, like the medical they should provide you with a contract to have that also pension and 'ja.'"	1. Medical 2. Contract 3. Pension	1. Medical fund 2. Pension fund	Participant three identified two organisational benefits that included medical and pension fund.
	4	"Um… maybe like a medical fund or pension and like that."	1. Medical 2. Pension	1. Medical fund 2. Pension fund	Participant four identified two organisational benefits that included medical and pension fund.
Do you have any expectations of receiving other benefits?	5	"Um… Yeah, I, I would expect for a company like say you choose to further your studies, I would expect for a company to be willing to pay for that, give you time off to do your studies, um I would expect the opportunity to take part in um, things regarding the company to grow as an individual whether it be like expose or new projects, you know, that sort of thing."	1. Training 2. Study leave 3. Part of decision making	1. Professional development 2. Workplace flexibility	Participant five expects a flexible workplace and opportunities for professional development.
	6	"Um, I am hoping, maybe like an allowance, house allowance, or um… I think maybe transport especially from traveling from out of town I am hoping that	1. House allowance 2. Traveling allowance 3. Medical aid	1. Organisational allowances 2. Medical fund	Participant six identified and expects medical fund and various organisational allowances.

		transport that I would actually expect, not so much house allowance but mostly transport and perhaps medical um… medical aid."			
	7	"Um… Other benefits I assume company cars, or licenses to buy specific chemicals or stuff, um… Depending on the project I am working on, yes I will expect that they should give me a certain amount that I do not have to use out of my own salary for petrol cause plants are very far as well as chemical, a budget for chemicals."	1. Company car 2. Licences to buy specific chemicals 3. Petrol card 4. Budget for chemicals	1. Organisational allowances	Participant seven only expects organisational allowance of travel costs.
	8	"Um… I think it probably likes depends on the company like if they send you to different countries like say to go do experience like I know my uncle like started working at LG and all they sent him to Korea to um… 'ja" gain knowledge and see how stuff works there and come implement it here."	1. Traveling 2. Training	1. Organisational allowances 2. Professional development	Participant eight expects organisational allowances and professional development.
	9	"Definitely, I want medical benefits I think and insurance because of the um… the classified not the classified work but the type of field that you are in and the decisions you have to make for the company."	1. Medical 2. Insurance	1. Medical fund 2. Organisational insurance	Participant nine expects medical fund and insurance from the organisation.
	10	"I actually don't have any for more benefits just the job is actually what I see for now."	1. No expectation	1. No expectation	Participant ten has no organisational expectations.

Table 4.6, the first column provides the question asked during the interview with emerging engineers. Column two presents the participants' responses in verbatim quotations. Column three shows the first step of the analysis. The fourth column provides the coding of the data and in the last column reveals the researchers' analytic memos. Table 4.6 presents the results with regard to the organisational benefits expectation that emerging engineers have as they have indicated during the semi-structured interview sessions.

1. Participant one has indicated to have no expectation about organisational benefits at the organisation on entry as well as the subsequent six years. However, the participant has

identified two universal organisational benefits expectations; namely medical and pension funds.

2. Participant two has expected medical fund and various allowances from the organisation where the participant is to enter into a working agreement with.

3. Participant three has identified two organisational benefits, which included medical and pension funds.

4. Participant four has identified two organisational benefits, which included medical and pension funds.

5. Participant five has expected a flexible workplace and opportunities for professional development.

6. Participant six has identified and expected a medical fund and various organisational allowances.

7. Participant seven has only expected travel costs as a benefit.

8. Participant eight has expected organisational allowances and professional development.

9. Participant nine has expected medical fund and insurance from the organisation.

10. Participant ten has indicated no organisational benefit expectation.

Section 4.6 has set out the identified organisational benefits. To follow in section 4.7 is the expectation that emerging engineers have from their working conditions are outlined and explained in detail.

4.7 Emerging engineers' expectation regarding working conditions

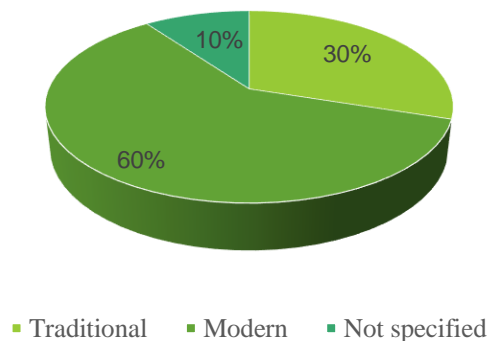Figure 4.7 Emerging engineers' working conditions expectancy

Figure 4.7 illustrates that 60% of participants have expect a modern working environment when they enter into the engineering industry, while a much less participants (30%) have mentioned that they expect a traditional working environment. Only 10% of the participants had not specify an expectation with regard to the working environment.

Furthermore, out of the 60% of the participants who have expected a modern working environment, 40% of the participants were male and 20% female. Also, in view of the 30% of participants who have expected a traditional working environment 20% of those participants were female and 10% male. The other 10% has involved a female who did not specify if she expected a traditional or modern working environment.

It is evident from Table 4.7 that 50% of the participants only identified organisational climate when interviewed on their expectation towards their working conditions. Additionally, 30% of the participant who was male, only identified organisational culture when interviewed on what they expected about their working conditions. Lastly, 20% of the participants have identified organisational culture and climate. This 20% has comprised of a male and female participant.

		Table 4.7 Emerging engineers' working conditions expectancy			
	Participant number	**Interview segment**	**Subcategories**	**Codes: traditional or modern workplace**	**Analytic memos/ questions to discuss**
What is your job expectation concerning working conditions?	1	"Um… its actually I know the people very well cause I have been um… I have known them before I got the bursary um… so they are very friendly um… it is a good it is a good, small environment to work in not a lot of people is not a huge company um… so I enjoy it very much I have personal relationships with a lot of the people. They are engineers that know what they are doing and they specialize in the field they work in um… and I have a lot to learn from them, and it is nice to know the people and um…such good um… um…	1. Friendly 2. Good environment 3. Personal relationships 4. High skilled co-workers 5. Specialized field 6. Learning environment	1. Modern workplace 2. Organisational culture	Participant one expects modern working conditions since life-long learning was mentioned, participant one also focused on organisational culture since people orientation was mentioned.

		relationships with them um… 'ja' to learn more and to better our relationship with the company when I am working 'ja.'"				
	2	"Um… That the people will be accepting and um… friendly and understanding and helpful."	1. Accepting co-workers 2. Friendly 3. Understanding 4. Helpful	1. Modern workplace 2. Organisational culture		Participant two expects modern working conditions since multi-cultural organisation learning was mentioned, participant two also focused on organisational culture since people orientation was mentioned.
	3	"I plan on being a plant manager or something like that so I um shadowed one so what I think is I will be running up and down like checking everything, and you obviously have to do like paperwork and stuff but most of the time be out in the field."	1. Busy working conditions 2. Administrative work 3. Out of the office work	1. Modern workplace 2. Organisational climate		Participant three expects modern working conditions since the competitive and dynamic environment was mentioned, participant three also focused on organisational climate since workplace factors were mentioned.
	4	"Um… I want to be like, it must be safe and secure, and it must not be, it must not be like harmful and unsafe to work there (laughs)."	1. Safe 2. Secure 3. No hazards environment	1. Organisational climate		Participant four focused on organisational climate since workplace factors were mentioned.
	5	"I want to say clean environment, safe, secure and in the sense where I do not feel scared to say hey, I have a new idea, and we put it forward."	1. Clean 2. Safe 3. Secure 4. Open minded environment	1. Modern workplace 2. Organisational climate 3. Organisational culture		Participant five expects modern working conditions since a dynamic environment was mentioned, participant five also focused on organisational climate since workplace characteristics were mentioned.
	6	"Um… Well ventilated, good lit room um… must be secure so I expect that there are security guards at the offices main the main entrances and secure parking as well and in a relatively good location that I will have to travel to each day."	1. Well ventilated 2. Good lighting 3. Secure 4. Security guards 5. Secure parking 6. Good location	1. Modern workplace 2. Organisational climate		Participant six expects modern working conditions since a dynamic environment was mentioned, participant six also focused a lot on organisational climate since workplace characteristics were mentioned.

	7	"to be honest, I know they are not going to be great at first, most jobs in engineering are sadly in the mines, that is where the money comes from so I am expecting a lot of sweat and dust and dirt and grime."	1. Sweat 2. Dust 3. Dirt 4. Grime	1. Traditional workplace 2. Organisational climate	Participant seven expects a traditional engineering work environment; participant seven mostly focused on organisational climate.
	8	"Um… I think it will be good, professional like that is what I like because engineers are like a kind of like straightforward people um… but 'ja' you cannot stereotype much (laughs) cause we all differentiate a bit."	1. Good environment 2. Professional environment	1. Traditional workplace 2. Organisational culture	Participant eight expects a traditional, professional workplace and participant eight focused on organisational culture.
	9	"I would like to have fixed hours I do not want raging hours, I would like to work from let's say eight to five and the conditions I feel office environment, I would not like to work in like a mining environment and such."	1. Fixed working hours 2. Office environment	1. Traditional workplace 2. Organisational climate	Participant nine expects a traditional working environment and climate.
	10	"Um… Working conditions I would say I also want them to be fair, be safe working conditions I know we work hours and hours on end that is expected from us, but I would also expect them to give us time to relax between jobs and relax between projects that we have to do."	1. Fair 2. Safe 3. Relaxation time 4. Not straining working hours	1. Modern workplace 2. Organisational climate 3. Organisational culture	Participant ten expects a modern workplace and participant ten focused on both organisational culture and climate.

Table 4.7 presents in its first column the question asked during the interview with the emerging engineers. Column two provides the answers in verbatim quotation, which the participants have given during the interviews. Column three shows the first step of the analysis. The fourth column presents the coding of the data and the last column reveals the researchers' analytic memos. Table 4.7 thus represents the results of the emerging engineers' expectation of working conditions as they have responded when they were interviewed.

1. Participant one has expected modern working conditions and has mentioned organisational culture.

2. Participant two has expected modern working conditions and has also identified organisational culture.

3. Participant three has expected modern working conditions and has also concentrated much on organisational climate.

4. Participant four has focused on organisational climate since workplace factors were mentioned.

5. Participant five has expected modern working conditions and has named organisational climate.

6. Participant six has expected modern working conditions and focused a lot on organisational climate.

7. Participant seven has expected a traditional engineering work environment, and has mostly focused on the organisational climate.

8. Participant eight has expected a traditional, professional workplace and has focused on organisational culture.

9. Participant nine has expected a traditional working environment and climate.

10. Participant ten has expected a modern workplace and has mentioned both organisational culture and climate.

In section 4.8 the expected working hours of emerging engineers has been investigated and is illustrated in Figure 4.8 and summarised in Table 4.8.

4.8 Emerging engineers' expectation regarding working hours

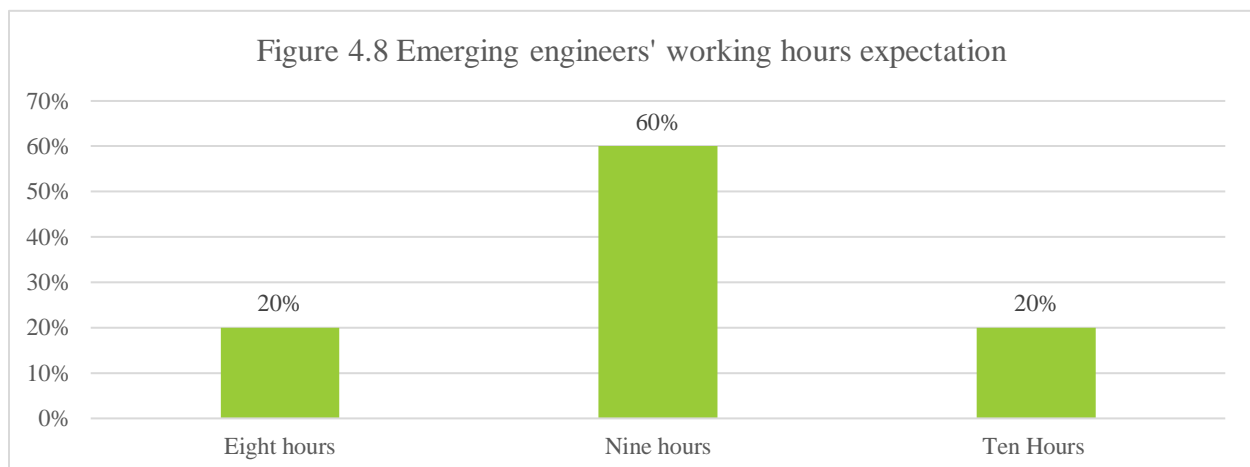Figure 4.8 Emerging engineers' working hours expectation

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Figure 4.8 illustrates that emerging engineers expect to be working long hours as 60% of participants has indicated the expectation of a nine-hour work day. Furthermore, 20% of the participants have the expectancy to work ten hours a day while the other 20% of the participants have indicated an expectancy of an eight-hour work day. It is evident in Table 4.8 that 50% of the emerging engineers have indicated that they expect to work unpaid overtime, while 40% of the other emerging engineers did not mention overtime. Only 10% of the participants have expected to be offered flexitime.

	Table 4.8 Emerging engineers working hours' expectation			
	Participant number	Interview segment	Subcategories	Codes: Industry working hours	Analytic memos/ questions to discuss
What do you expect your weekly working hours will be?	1	"Um… The working hours are um… From eight in the morning till five in the afternoon but normally when you are doing a project um… there would be times you are going to have to work overtime there's no extra payment for overtime but if there's a deadline for a project um… you are going to work overtime to finish the project in time."	1. Eight to five 2. Overtime	1. Nine hours per day 2. Unpaid overtime	According to the Basic Conditions of Employment Act. Organisations and employers may not require an employee to work more than: 1. 45 hours per week 2. 9 hours a day for five days or less in a week 3. 8 hours a day for five days or more in a week The organisation or employer can agree regarding extended working hours with the employee; the agreement may include: 1. 12 consecutive hours (including meal interval) Not exceeding: 1. 45 hours per week 2. 10 hours overtime a week 3. 5 days a week
	2	"Um… from eight to five most probably."	1. Eight to five	1. Nine hours a day	
	3	"I would rather work like let's say eight to four or something like that."	1. Eight to four	1. Nine hours a day	
	4	"Um… Eight to Five and maybe like extra hours in the weekend and so."	1. Eight to five 2. Overtime	1. Nine hours a day 2. Unpaid overtime	
	5	"I would say like you go to work maybe eight hours and afterward maybe work three to four hours at home."	1. Eight hours 2. Overtime	1. Nine hours a day 2. Unpaid overtime	
	6	"Um… Let's sat eight to one and then from two till about half-past four, so 'ja.'"	1. Eight to one and from two till about half past four	1. Eight and a half hours a day 2. One hour lunch break	
	7	"I expect them to be unnatural, I expect them to be very early in the morning or very late at night because its plant control, its monitoring the plant, making sure everything is balanced, everything is running, so I do expect them to be at least eight hours a day but not from eight up until the afternoon, I expect it to be at like four am for eight hours	1. Unnatural working hours 2. Eight hours a day	1. Eight hours a day 2. Flexitime	

		running or in intervals adding up to eight hours."			
	8	"Um… I would say eight to six, but as engineers, we all know we cannot stop thinking so probably at home, or you will end up doing more work, or you will stay later just like finish projects."	1. Eight to six 2. Overtime	1. Ten hours a day 2. Unpaid overtime	
	9	"(Laughs) 'Ja' that would be between eight and five no longer."	1. Eight to five	1. Nine hours a day	
	10	"I would expect my weekly working hours would start about from about six and end about eight with as well overtime on the weekends."	1. Six till eight 2. Overtime	1. Ten hours a day 2. Unpaid overtime	

Table 4.8, the first column shows the question that was asked during the interview done with the emerging engineers. Column two presents the answers of the participants verbatim. Column three shows the first step of the analysis. The fourth column outlines the coding of the data. The last column represents the researcher's analytic memos. Thus, Table 4.8 displays the results of the interview with the emerging engineers about their expectation with regard to working hours.

1. Participant one has expected a nine-hour working day.
2. Participant two has expects a nine-hour working day.
3. Participant three has expects a nine-hour working day.
4. Participant four has expects a nine-hour working day.
5. Participant five has expects a nine-hour working day.
6. Participant six has expects an eight-hour working day.
7. Participant seven has expected an eight-hour working day.
8. Participant eight has expects a ten-hour working day.
9. Participant nine has expected a nine-hour working day.
10. Participant ten has expected a ten-hour working day.

The next factors that were investigated with regard to emerging engineers' job expectations, included work demand and job tasks. In addition, the emerging engineers' work demands, and job tasks were analysed by applying eight types of organisational stressors. These stressors were: work relationship, job insecurity, pay and benefits, work-life imbalance, control, aspects of the job, overload and resource, as well as communication (Coetzee & Shreuder, 2011). Additionally, the

findings on what emerging engineers have indicated they expect concerning work demands and job task are explained in section 4.9.

4.9 Emerging engineers' expectation regarding work demands and job tasks

The eight occupational stressors of Scheuder and Coetzee (2011) have been applied to analyse and code the information obtained in Table 4.9 and Figure 4.9.

Occupational stressors

1. Work relationships

Unsupportive work relationships, separation, and biased treatment can be a source of stress. To the contrary, good work relationships can help employees deal with stress and demands.

2. Work-life imbalance

Work demands and job task overload interfere with individuals' personal and home lives, the interference can cause a lot of strain and stress.

3. Overload

When employees have too much work for the allocated time, this will cause stress and strain and will lead to burnout or overload.

4. Job insecurity

The overall concern that employees have, is that they might lose their job. Furthermore, when the work demands and job tasks are very demanding and challenging some employees may feel inadequate and start to be concerned about their future in the organisation.

5. Control

The stressor control refers to the lack of influence and decision making that employees have in the organisation, and interdependence can lead to stress and strain. Moreover, when the employees have little control over how job tasks and work demands are performed and organised it may lead to strain and stress.

6. Resources and communication

Employees need the proper training, equipment, and resources to complete their work demands and job tasks efficiently.

7. Pay and benefits

Finances influence the lifestyle and self-worth of the employee. When employees receive sufficient remuneration for their job tasks and work demands they will experience less stress.

8. Aspects of the job

Embodies that the fundamental nature of the job, the job tasks or work demands may cause strain and stress experienced by employees.

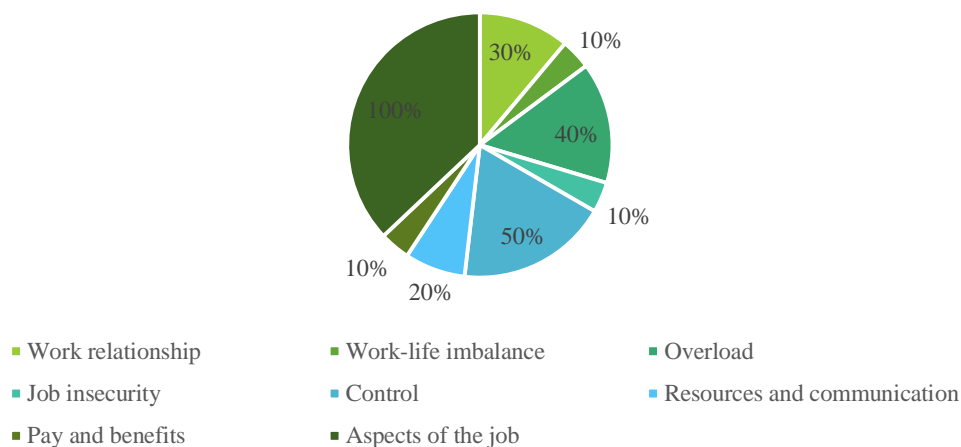Figure 4.9 Occupational stressors under emerging engineers

Figure 4.9 represents the results of emerging engineers' expectation of their work demands or job tasks. Moreover, their expectations have been analysed through the application of the eight occupational stressors. The occupational stressor with a 100% mention rate was 'aspects of the job' which means that the fundamental nature of the job has to be represented or embodied. Half of the participants (50%) have mentioned 'control' an expectation. Control mostly refers to the lack of influence the employees have in the organisation. The emerging engineers have also mentioned that they expect 'overload' and 40% of the participants have indicated an expectation of too much work for the allocated time. This will cause stress and strain and lead to burnout or overload. Fourthly, 30% of the participants has mentioned the working relationship when interviewed about their expectation about work demands and job tasks. A mere 20% of participants have mentioned resources and communication as an expectation. Lastly, three of the eight occupational stressors scored only a 10% mention by the participants. These stressors were work-life imbalance, job security, as well as pay and remuneration. Table 4.9 presents a more in-depth view of the emerging engineers' expectancy towards their job demands or work tasks.

	Participant number	Interview segment	Subcategories	Codes: Occupational stressors	Analytic memos/ questions to discuss
What is your expectation concerning work demands/ job tasks?	1	"In practice, there are certain projects handed out to certain employee's Um… So… Every project you have, there's new um… complications or new stuff you have to learn Um… to do the task or to do the project Um… So… In every project, there's new stuff to learn, new stuff to find out and you have to grow in that. So yes, I think	1. Challenging demands 2. Improving KSA's 3. Help from others 4. Exciting jobs/tasks	1. Work relationships 2. Resources and communication 3. Pay and benefits 4. Aspects of the job	Participant one identified four of the eight occupational stressors. However, participant one is optimistic towards future job demand. In the work relationship and resources and communication, help is expected from others. Moreover, in pay and benefits there

Table 4.9 Emerging engineers' job demands expectations

		it is not simple not every task is simple there are projects that are really difficult, and you have to get a lot of help to finish it. Um… but that is the cool thing about engineering is your growing every day and your learning more, so it is really exciting job it is not a boring job, and you are learning more every day."			is an expectation of continuous learning, and finally, in aspects of the job, the expectation is challenging and exciting job demands.
	2	"I would like to believe if I'm entering level that it would be manageable and not too high expectation too much of a high expectation for me, so I would just believe it would be other people that are already doing it are asking me to help them and just better what they're already doing so I can learn the process of doing what they are doing at the end."	1. Assisting other engineers 2. Improving systems and processes 3. Learn the process	1. Work relationship 2. Aspects of the job 3. Control 4. Resources and communication	Participant two identified four of the eight occupational stressors. Interestingly, participant two identified a loss of control concerning job demands. With work relationship participant two mentioned that it would be an assisting relationship. Furthermore, with resources and communication participant two also identified continuous learning and with aspects of the job participant two stated improving systems and process in the organisation is going to be the primary focus.
	3	"Obviously, you are going to either improve or design new plants, and you are going to have to if someone else wants to design maybe a plant or if you are going to work like in a bank um… if they give you ideas, you are going to have to analyse everything that might go wrong and the counter for that, so…"	1. Improve plants 2. Design new plants 3. Analyse ideas 4. Problem identification	1. Aspects of the job 2. Work relationship 3. Control	Participant three identified three of the eight occupational stressors. Participant three stated that control is going to be an essential part of the job, the working relationship is going to be helping other employees in the organisation and with aspects of the job, creativity plays an important role.
	4	"Um… it depends on, in which way I go into the chemical engineering and then it will probably be something with the process like a manager there or something like that."	1. Process management	1. Control 2. Aspects of the job	Participant four identified two of the eight occupational stressors. With control participant, four is expecting a managerial position, and with aspects of

				the job participant, four identified process management as the primary focus.
5	"Demands… Um… I think it is going to be very demanding, I also feel like the pressure will be felt and you will be confined to do the tasks you have no idea what to do with but I think you have to work through it and engineer solution."	1. Very demanding 2. High pressure 3. Solving problems	1. Overload 2. Aspects of the job 3. Control	Participant five identified three of the eight occupational stressors. The participant fives main concern is overload focusing on demanding and high-pressure job tasks. In aspects of the job participant, five focused on problem-solving and with this statement participant five identified a control position.
6	"Um… Concerns are that if I am nor able to deliver immediately that I might actually end up being revoked and basically put on the road um… just to kind of have enough time to adapt and because I think whatever they'd want to be able to work with I'll need time obviously to research to become familiar with so I'm just hoping that it's not really time demanding that they expect you know they expect the work within one day or so um… so 'ja.'"	1. Time management 2. Retrenchment 3. Demanding work 4. Reasonable time expectation	1. Work-life imbalance 2. Overload 3. Job insecurity 4. Aspects of the job	Participant six also identified four of the eight occupational stressors. Participant six mostly focused on the negative side of job demands, work-life imbalance, overload and job insecurity are the most prominent concerns. Participant six stated that job demands would be time-consuming and very demanding. Participant is also expecting to have job insecurity. With aspects of the job participant six identified research as a job task or work demand.
7	"From what I have heard impossible, from what I have heard from other engineers they ask the impossible from you in the smallest amount of time, and you just have to somehow make it work (laugh)."	1. Impossible work 2. Minimum time	1. Overload 2. Aspects of the job	Participant seven identified two of the eight occupational stressors; participant seven mentioned these activities when answering the interview question about working hours "its plant control, its monitoring the plant, making sure everything is balanced, everything is running," this falls into aspects of the job. Participant seven also identified overload

				when stating that work demands or job tasks are going to be impossible.
8	"Um… As an industrial engineer, I am not like completely sure exactly what we are going to do, but I know like if I work in businesses and supply chains I will probably like work at Nestle where they um… 'ja' where things are processed, and my work is to ensure that um it is as effective and productive as possible."	1. Business-related tasks 2. Supply chain management 3. Improving effectiveness 4. Improving productivity	1. Aspects of the job 2. Control	Participant eight identified two of the eight occupational stressors. Under aspects of the job supply chain management and improvement of effectiveness and productivity was the primary focus and with stating these aspects of the job participant also identifies the expectation of being in a control position.
9	"Um… Well, they teach us that we are going to optimize systems so I think we are mainly going to deal with systems so basically if I would guess it would be manufacturing environment and such."	1. Optimize systems 2. Manufacturing environment	1. Aspects of the job	Participant nine identified only one of the eight occupational stressors, aspects of the job stating that system optimization will be the primary focus.
10	"Um… Work demands are um… What I see what a work demand is they want to do the work I was assigned to do and also some side projects they want me so if they want me to keep something on, so 'ja'."	1. Do the work demanded	1. Aspects of the job 2. Overload	Participant ten identified two of the eight occupational stressors. Participant ten mentioned aspects of the job will be doing what is demanded of them and stated that while working there would be expected to do other projects which link with job overload.

Table 4.9, the first column provides the question asked during the interview executed with emerging engineers. Column two presents the verbatim answers of the participants. Column three displays the first step of the analysis. Column fourth shows the coding of the data. The last column represents the researcher's analytic memos. Thus, Table 4.9 summarises the results of the emerging engineers about their expectation of work demands and job tasks as they have provided during the semi-structured interviews.

1. Participant one has mentioned to be optimistic towards future job tasks and work demands. In the work relationship and resources and communication, help is expected from others in

the organisation. Moreover, in pay and benefits there is an expectation of continuous learning. Finally, in the factor: aspects of the job, the participant has conveyed the expectation of challenging and exciting job tasks and work demands.

2. Participant two has identified a loss of control with regard to work demands and job tasks. With work relationship, this participant has mentioned that it would be an assisting and mentoring relationship. Furthermore, with resources and communication, the participant has also identified continuous learning and with *aspects of the job* the participant has stated that to improve systems and processes in the organisation would be the primary focus.

3. Participant three has stated that it is expected that control will make out an essential part of the job, as well as the working relationship. This participant has further indicated that creativity plays an important role with regard to the factor *aspects of the job*.

4. Participant four has indicated to expect a managerial position, which falls under control. In addition, with regard to *aspects of the job*, the participant has identified process management as the core focus.

5. Participant five has stated the main concern to be overload and has focused specifically on demanding and high-pressure job tasks and work demands. In *aspects of the job*, participant five has focused on problem-solving by which control has been identified explicitly.

6. Participant six has mostly focused on the negative side of job tasks and work demands. Furthermore, work-life imbalance, overload and job insecurity was for this participant very significant concerns. Moreover, the participant has stated that job tasks and work demands would be time-consuming and very demanding. Furthermore, participant five has stated an expectation of job insecurity. Participant five has mentioned that with regard to *aspects of the job*, that research would make out part of the job task.

7. Participant seven has mentioned the following to be job tasks and work demands with regard to working hours: "it's plant control; it is monitoring the plant, making sure everything is balanced, everything is running". These factors form part of *aspects the job*. Additionally, participant seven has also identified overload and stated that work demands and job tasks are going to be impossible.

8. Participant eight has mentioned under *aspects of the job* the following: supply chain management and improvement of effectiveness, as well as productivity. The participant has also indicated to expect a control position.

9. Participant nine has stated with regard to *aspects of the job*, that system optimisation would be the primary focus.

10. Participant ten has mentioned, pertaining to *aspects of the job*, that when an employee of the organisation, the participant will execute the work that is demanded and has stated that while working at the organisation it is expected that the employer   would require from the employees to do other projects as well. The indication to other projects link with the factor: overload.

Figure 4.9 and Table 4.9 presented a clear summary of the expectation that emerging engineers have with regard to their work demands or job tasks. Moreover, the researcher thought it would be beneficial for the study to investigate emerging engineers' expectation of work relationships. Section 4.10 presents the results with regard to emerging engineers' expectation on their relationships with co-workers or supervisors. These results are also illustrated in Figure 4.10 and summarised in Table 4.10.

4.10 Emerging engineers' expectation of work relationships

Figure 4.10 Emerging engineers' expectation regarding work relatonships
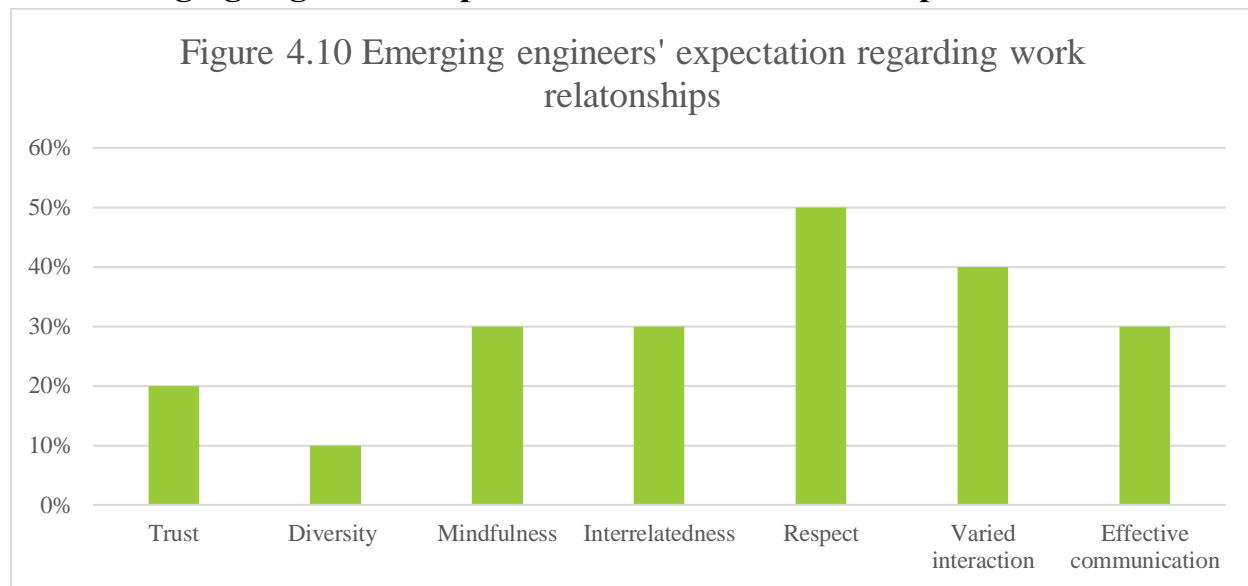
Seven characteristics of a good work relationship have been applied in the analysis of the research findings. Tallia, Lanham, McDaniel, and Crabtree (2006) have provided these seven characteristics of a good working relationship. A short description of each of the seven characteristics of a good working relationship follows below.

Good relationship

1. Trust

Trust is the foundation of a good relationship. Moreover, when an individual trust their co-workers and supervisors they form a strong tie that helps the individual in their work and trust allows for more efficient communication.

2. Diversity

This characteristic usually includes individuals who are open and welcoming to diversity. Individuals who are open to diversity have good relationships since they are more acceptable towards people who are different individuals and varied ideas. This allows them to have various points of view when decision-making takes place.

3. Mindfulness

This characteristic refers to an individual who should take responsibility for their words and actions. Additionally, in mindful relationships, individuals are open to new and creative ideas. Furthermore, mindful organisations motivate their employees to give their ideas without fear of ridicule, disapproval or punishment, and such organisation always invests time in finding new ways to learn and improve continuously.

4. Interrelatedness

Occurs when individuals are sensitive to the task at hand and understand how their work affects other individuals in the organisation. Also, individuals with interrelatedness are aware of how every individual contributes to the goals of the organisation. Consequently, organisations that demonstrate this characteristic can deal with unexpected events more efficiently.

5. Respectful

Relationships are characterised with respect, display understanding, truthfulness and sensitivity. Furthermore, respect is especially crucial in challenging circumstances, as it can help individuals focus on problem-solving.

6. Varied interaction

This is a characteristic that refers to different relationships in organisations and can be described as social or task related. Social relationships are usually personal and based on events that exist outside of the organisation, and task-related relationships are focused on professional matters. Additionally, in successful organisations, a combination of social and task related relationships is required. Thus, and organisations should encourage both relationships.

7. Effective communication

Effective communication can be defined as rich or lean. Rich communication, such as face-to-face interaction or telephone conversations, are ideal for messages with possibly unclear connotations or emotional matters. Additionally, lean communication, such as e-mails or memorandums, are ideal for more repetitive messages. In successful organisations, individuals appreciate that both rich and lean communication are needed, and they know when to use each strategy.

Figure 4.10, illustrates the analysis of the interview responses about the emerging engineers on their co-workers or supervisory relationships according to the seven characteristics of a successful work relationships (Tallia *et al.*; 2006). Firstly, respect has been the characteristic that most of the emerging engineers have expected and 50% of the participants have mentioned it as a characteristic. Secondly, some participants (40%) have also expected varied interactions between employees and employers. Thirdly and the most interesting, a mere 30% of the participants have mentioned three of the seven characteristics, namely: mindfulness; interrelatedness; and effective communication. Fourthly, only 20% of the participants have mentioned trust when interviewed about their expectation regarding their co-worker or supervisory relationship. Lastly, of the smallest number of the participants (10%) have mentioned diversity as a characteristic to be expected, although the participants will be working in a highly diversified environment. Table 4.10 presents for a more detailed view of what emerging engineers expect from their work relationships.

	Participant	Interview segment	Subcategories	Codes: seven characteristics of how to make work relationships work	Analytic memos/ questions to discuss
What do you expect from the supervisory relationship and or co-worker relationships?	**Table 4.10 Expectation of emerging engineers regarding supervisory and co-worker relationships**				
	1	"I think you have to have a very good relationship with him; you are going to have I think a personal relationship with the person because you are working a lot together, you have to understand each other. You have to have good communication um… and that is	1. Good relationship 2. Personal relationship 3. Good communication	1. Effective communication 2. Varied interaction	Participant one identified two of the seven characteristics to make a work relationship work. Effective communication and varied interaction. Under effective communication participant states that employees should be able to understand each other and under varied interaction participant one states that employees should have a professional as well as a

	what we have there, and that is why it is so enjoyable."			personal relationship since employees work together a lot.
2	"Again, that they would be very understanding and helpful."	1. Understanding 2. Helpful	1. Interrelatedness 2. Mindfulness	Participant two also identified two of the seven characteristics on how to make a work relationship work. Under interrelatedness participant two states the expectation of understanding and under mindfulness there is an expectation of helpfulness.
3	"I prefer them to give you your work and let you do it yourself because that is how you explore and because if he is just like standing there in your back, then you are not going to learn."	1. Not over the shoulder supervision	1. Trust	Participant three only identified one of the seven characteristics on how to make a work relationship work. Trust, however, participant three identified that there should be trust between supervisor and employee. Focusing on the trust a supervisor should have when distributing tasks.
4	"It should be like a good relationship because if it is bad, it is not going to be nice to go to work (laughs)."	1. Good relationship	1. Varied interaction	Participant four also identified only one of the seven characteristics on how to make a work relationship work, it is essential for participant one to have varied interactions with co-workers, not only a professional relationship, a personal relationship is also expected.
5	"Mutual respect, um… consideration for each other's feelings and helping each other because I feel like we all work for the same organisation, you basically need to you know, work together to better it."	1. Mutual respect 2. Consideration 3. Helpful 4. Teamwork	1. Respect 2. Interrelatedness 3. Mindfulness 4. Diversity	Participant five identified the most characteristics of all the participants. They mentioned four of the seven characteristics on how to make a work relationship work. Respect between supervisor and co-workers, under interrelatedness there should be a consideration for each other's work, under mindfulness participant five expects help from the organisation and employees and diversity participant five expects to do teamwork.
6	"Um… Firstly that they respect obviously respect each other maybe that um… We will have a chance that I can give feedback so a meeting every	1. Respect 2. Feedback 3. Acknowledgement	1. Respect 2. Effective communication	Participant six also identified two of the seven characteristics on how to make a work relationship work. Respect for co-workers and management and efficient

	month or once a week where I can express how I am feeling and that they actually take me seriously and actually you know acknowledge what I am telling them."			communication like feedback is expected.
7	"I would like to expect them to respect me, to actually see me as a human and not just a computer slave but the sad reality that I have learned from other engineers is that it is not that way, that you are seen as a slave to a company."	1. Respect 2. Humanisation	1. Respect 2. Varied interaction	Participant seven also identified two of the seven characteristics on how to make a work relationship work. Respect for each other and under varied interaction, not just seen in a professional light but a personal light as well.
8	"Um… I know I like people, I like talking to people so 'ja' I kind of like expecting them to be um… accessible like 'toegangklik' I do not really know what a good English word for that is but um… 'toegangklik' understanding but also like we must understand it is a professional industry, so there's not really too much place for being friends when there is work that needs to be done."	1. Accessible 2. Understanding 3. Professional	1. Respect 2. Mindfulness 3. Interrelatedness	Participant eight identified three of the seven characteristics on how to make a work relationship work. Under respect, participant eight want to be treated as a professional, with interrelatedness the expectation of understanding is mentioned and under mindfulness participant eight wants the organisation to be accessible and helpful.
9	"Trust, mutual um… respect and um… I do my part, and he does his part do not try to do my job for me (laughs) 'ja.'"	1. Trust 2. Mutual respect	1. Trust 2. Respect	Participant nine also identified two of the seven characteristics on how to make a work relationship work. The expectation of trust between employees and the organisation is identified and mutual respect between higherups and co-workers.
10	"I would expect actually a very good co-worker bond, I 'ja', a co-worker bond that there won't be any trouble concerning what we have if we have a quarrel we try to sort it out instead of just	1. Good relationship 2. No conflict 3. Friendship	1. Varied interaction 2. Effective communication	Participant ten also identified two of the seven characteristics on how to make a work relationship work. Under varied interaction participant, ten expects to have a personal as well as a professional bond with co-workers and the expectation of effective

		being angry at each other or anything we just try to work out anything that's problems I would like a friendship relationship with my co-workers."			communication is mentioned to avoid any conflict.

Table 4.10, the first column outlines the question that was asked during the interview with the emerging engineers. Column two presents the verbatim answers that was obtained from the participants. Column three shows the first step of the analysis. Column four illustrates the coding of the data. The last column represents the researcher's analytic memos. Table 4.10 is in essence a summary of the results about the expectation of emerging engineers' on their work relationships.

1. Participant one has mentioned effective communication and varied interaction. Under effective communication the participant has stated that employees should be able to understand each other. The participant has mentioned and under varied interaction that employees should have a professional and a personal relationship due to the fact that they work together a lot.

2. Participant two has identified interrelatedness. In this instance, the participant indicated that emerging engineers expect the organisation to show understanding, and under mindfulness, the organisation should show helpfulness.

3. Participant three has stated that there should be trust between supervisors and employees. The participant has specifically focused on the trust of a supervisor when allocating tasks.

4. Participant four has mentioned varied interactions with co-workers. The participant has mentioned that emerging engineers do not only want a professional relationship but also expect a personal relationship.

5. Participant five has mentioned respect between supervisors and co-workers. Regarding interrelatedness, the participant has indicated that there should be a consideration for each other's work, under mindfulness the participant has indicated the expectation of help from the organisation and employees, and under diversity participant five has shown the expectation of teamwork.

6. Participant six has mentioned respect between co-workers and supervisors and under effective communication the participant has stated feedback as an expectation.

7. Participant seven has mentioned respect for each other and regarding varied interaction indicated that both a professional relationship and a personal relationship to be an expectancy.

8. Participant eight has mentioned respect. The participant has indicated the expectation to be treated as a professional, and with regard to interrelatedness, the expectation of understanding. Furthermore, with regard to mindfulness, participant eight has mentioned the expectation that the organisation should be accessible and helpful.

9. Participant nine has stated trust between employees and the organisation and mutual respect between higher line managers and co-workers.

10. Participant ten has mentioned varied interaction. This participant has indicated the expectation of a personal as well as a professional bond with co-workers and has an expectation of effective communication to resolve any conflict.

This section has presented the expectation of emerging engineers regarding their work relationships. Section 4.11 investigates and discusses emerging engineers' expectation towards advancement opportunities. Figure 4.11 illustrates these expectations further and Table 4.11 summarises the results in more detail. The participants have had a fifty-fifty expectation of advancement opportunities.

4.11 Emerging engineers' advancement opportunities expectation

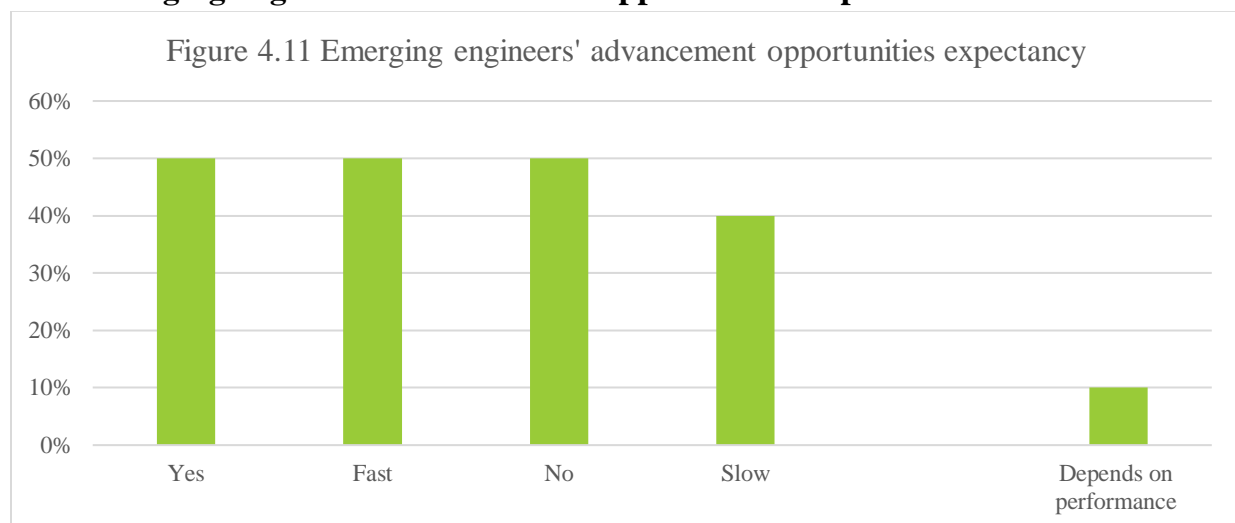Figure 4.11 Emerging engineers' advancement opportunities expectancy

Table 4.11 clearly illustrates the emerging engineers' expectancy from their advancement

opportunities in the industry. It is evident that 50% of the participants expect fast advancement opportunities and 50% expect slow advancement opportunities. However, only 10% of participants have mentioned that advancement opportunities depend on personal performance. Table 4.11 presents further detail about the expectation of emerging engineers regarding advancement opportunities.

	Participant number	Interview segment	Subcategories	Codes: timeframe	Analytic memos/ questions to discuss
Table 4.11 Emerging engineers' expectancy for advancement opportunities					
	1	"Ja, um… At the small company, I am going to work next year; I do not expect any early advancements, um… but 'ja' I have to work back for six years before I can move to another company so if I go to a bigger company let's say Vodacom, Telkom um… something like that then 'ja' I think there I would expect early advancements um… because I am doing my masters now um… I would expect to move even a bit faster than I would with just a normal bachelors' degree."	1. Have to work back six years 2. Expect to advance fast	1. Yes 2. Fast 3. No timeframe	Participant one does not expect advancement opportunities after completing their masters' degree. Participant one must work back six years at a small company. However, participant one mentions that if an engineer works for a large organisation that advancement opportunities will come fast.
Do you expect early advancement opportunities?	2	"Yeah, I believe it is a very good field where you can get early advancement not much, but I believe if you do your work correctly you could advance in a year or something to a new position."	1. Expect early advancement opportunities 2. Expect to work hard for the advancement opportunities 3. One year till promotion	1. One year 2. Yes 3. Fast	Participant two expects fast advancement opportunities, participant two expects advancement after one year.
	3	"Maybe in like two or three years only then, because you need to first build experience before you can even think of promotions."	1. Two to three years 2. Build experience	1. No 2. Two to three years 3. Slow	Participant three does not expect early advancement opportunities and state that advancement will come after two to three years of work since experience needs to be built.
	4	"Um… Maybe it depends on like on in which industry and how the industry grows so… it all depends on that."	1. Depends on industry 2. No expectation	1. No 2. Slow	Participant four did not expect fast advancement opportunities and mentioned that industry stability plays a big part.
	5	"How early is early? The first three years, but not like	1. First three years	1. Three years 2. Slow	Participant five also expects slow

	extreme advancement but just like a little bit, like being given the opportunity to prove yourself."	2. Small advancement 3. Build experience	3. No	career growth and states that advancement would take three years. Participant five also mentions that experience is needed to obtain career growth.
6	"Um… I think it depends on how I perform so, I feel like if I am performing well enough, then I would I will probably expect it but if I feel like okay I am not exactly on the path to where they are right now I would not really blame them if I do not get inserted."	1. Depends on performance	1. No	Participant six does not expect early advancement opportunities and state that advancement opportunities depend on personal performance.
7	"No, in engineering no."	1. No expectation	1. No 2. Slow	Participant seven does not expect early advancement opportunities and mentions that in engineering advancement is not fast.
8	"Um… I would say so because on university I let myself do structures and all that, so I think in more from a business perspective and working with people environment um… I am kind of a step forward behind the rest of the people that's why we are sitting here in an office (laughs)."	1. Assumes current student structures gives advantage	1. Yes 2. Fast	Participant eight does expect early advancement opportunities and mentions that extramural activities will give them an advantage in the business environment.
9	"Definitely, I want to um… basically, in the first six months, I want to see that I can grow in the company otherwise I do not want to be in that company."	1. Expect fast advancement opportunities 2. The first six months 3. Want to be at a company where advancement opportunities are available	1. Yes 2. Fast 3. Six months	Participant nine expects early advancement opportunities and state that after six months' advancement is expected. Participant nine also states that they want to be employed by an organisation that takes career development seriously.
10	"Um… In the first couple of months, I am working for the company, I would not expect that, but maybe after a few months I would say after about six months working at the company I would more or less expect one."	1. Six months 2. Has to build experience	1. Yes 2. Fast 3. Six months	Participant ten expects early advancement opportunities; participant ten states that after six months

					advancement is expected.

Table 4.11, the first column provides the question that was asked during the interview with emerging engineers. Column two presents the quotation (which is verbatim) of the participants. Column three shows the first step of the analysis. The fourth column is the coding of the data. The last column presents the researcher's analytic memos. Table 4.11 represents the results of the emerging engineers when interviewed about their expectation of advancement opportunities.

1. Participant one has indicated to not expect early advancement opportunities after the completion of the masters' degree since participant one has to work back six years at a small company. However, participant one has mentioned that if an engineer works for a large organisation, advancement opportunities will be quicker.

2. Participant two has indicated an expectancy of fast advancement opportunities. This participant has shown to expect advancement after one year in the organisation.

3. Participant three has mentioned to not expect early advancement opportunities and has stated that advancement will come after two to three years of work since experience needs to be built up.

4. Participant four has shown to not expect fast advancement opportunities and has mentioned that industry stability plays a big part in advancement opportunities.

5. Participant five has expected slow career growth and has states that advancement would take three years. Participant five has also mentioned that experience is needed to receive advancement opportunities.

6. Participant six has indicated to not expect early advancement opportunities and has stated that advancement opportunities depend on personal performance.

7. Participant seven has mentioned to not expect early advancement opportunities and has stated that in engineering, advancement is not immediate.

8. Participant eight has stated to expect early advancement opportunities and has mentioned that extracurricular activities will give them an advantage in the industry.

9. Participant nine has expressed to expect very early advancement opportunities, namely after about six months. The participant has also stated that it is hoped for them to be employed by an organisation that takes career development seriously.

10. Participant ten has mentioned to expect very early advancement opportunities, of which the first increase or progress is expected aftersix months.

This section presented and discussed the expectation of emerging engineers with regard to advancement opportunities. Section 4.12, investigates the emerging engineers' preparedness for entering into the engineering industry, which is supported with Figure 4.12 and a summary that outline information from the interviews in Table 4.12.

4.12 Preparedness to enter the engineering industry

Figure 4.12 Emerging engineers' expectation on being prepared for the engineering industry

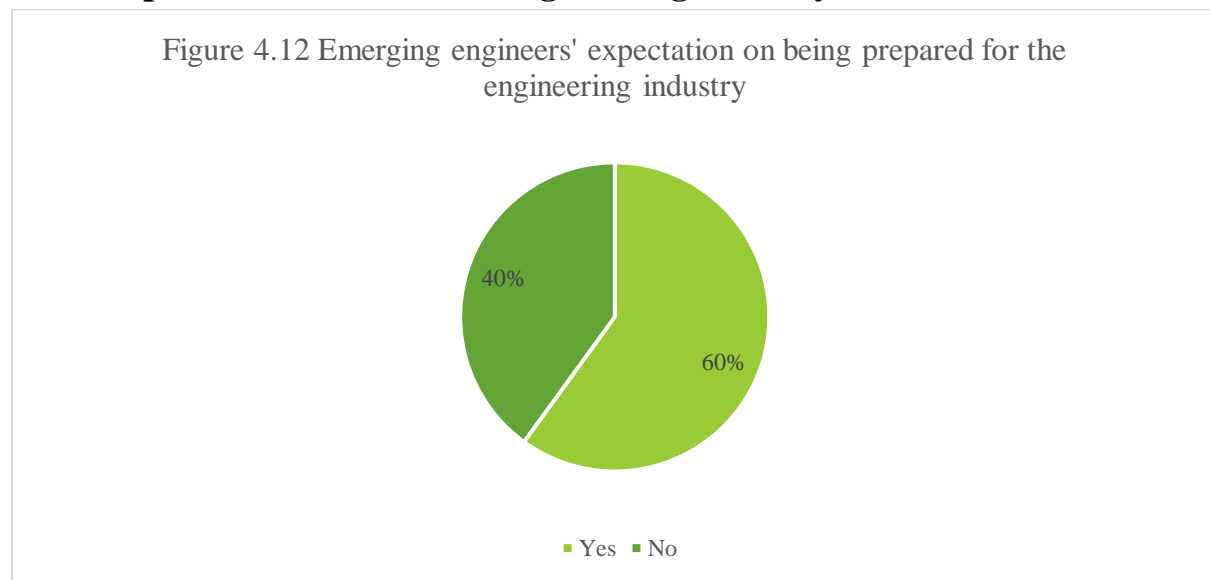Figure 4.12 illustrates emerging engineers' expectancy to feel prepared to enter into the engineering industry. Furthermore, 60% of the participants have indicated to be confident and feel prepared towards the industry, while 40% of participants have mentioned to not feel prepared. Table 4.12 reveals a more detail view of emerging engineers' expectation with regard to their preparedness to enter into the engineering industry.

Table 4.12 Emerging engineers' preparedness to enter into the industry				
Participant number	**Interview segment**	**Subcategories**	**Codes: Yes or no**	**Analytic memos/ questions to discuss**
Do you feel prepared for entering the engineering industry?				
1	"Um… When I did my Bing computer electronic degree Um… The field I am going into is telecommunication, and that is what the company does um… after doing my degree um… I did not feel ready yet um… to not all of the knowledge I learned, I could have implemented into the practice so, and that is why I decided to do my masters um… What I think is, I am specializing in telecommunications now, so after this, I learned a lot already, so I think um… next year that because it is a two-year course, next year when I finish my master I would have learned so much more in um… the specialized course and in telecommunications, so I already feel more ready than I have, I think it differs from, in which direction you go, if you go into telecommunications it wasn't a lot of subjects in the course that covered telecommunications, we only had one subject but if you go maybe into control systems or into electrical like at Eskom or something there were more subjects on that so… That is why um… I decided to do my masters, not only why I decided but that was one of the main reasons."	1. Doing masters to be more prepared 2. Yes	1. Yes 2. Improving KSA's	Participant one states that they will feel prepared for entering the engineering industry when improving their knowledge, skills, and abilities by completing their master's degree.
2	"Um at the moment I would say I am not, I do not feel ready, cause I have a lot to learn and a lot of subjects that will help me with what I will do someday, so at the moment no, I would not say I am ready."	1. No 2. Still, have a lot to learn	1. No 2. Still, needs to improve KSA's	Participant two states that they will feel prepared for entering the engineering industry when they complete improving their knowledge, skills, and abilities by completing their engineering degree.
3	"I feel with this course I will be with just the honours I will be prepared but maybe later on when I start working, and I feel okay maybe I need a little more experience then I will do studies with the work like masters."	1. Yes 2. Will make use of life-long learning	1. Yes 2. Life-long learning	Participant three feels prepared for entering the engineering industry since their current degree includes the honours degree and participant three believes in life-long learning.
4	"I think so yes because it is a very good qualification to have and they teach us the necessary skills we need to in (laughs) that	1. Yes 2. Good qualification	1. Yes 2. Good qualification 3. Improving KSA's	Participant four states that they will feel prepared for entering the engineering industry since it is a good qualification provided by

		we need in the industry (laughs)."	3. Is obtaining the necessary KSAs			the university and the qualification improves their knowledge, skills, and abilities through completing their degree.
	5	"(Laughs) No."	1. No	1. No		Participant five does not feel prepared for entering the engineering industry.
	6	"I think there is a bit of uncertainty I think that is a factor that will always be there because I want to see if um… the most pride, take the most pride in what I do so, and there's so much in four years it is still even if they cramp it up to you still doesn't know everything thou so 'ja.'"	1. Yes 2. Will make use of long-life learning	1. Yes 2. Life-long learning		Participant six feels prepared for entering the engineering industry and accepts the uncertainties that come with it. Participant six also believe in life-long learning.
	7	"Currently I want to say yes but, I know the South African engineering industry is very complex at the moment and it is very upside-down and corrupt, and sadly there are a lot of people that are in the engineering community that does not belong there."	1. Yes	1. Yes		Participant seven feel prepared for entering the engineering industry. However, they feel there are many engineering professionals in the industry that does not belong there.
	8	"'ja' I think so not like there's always two parts firstly the personal part you as yourself like how are you going to accept it and adapt, and then there's also the work part, but I think um… If your more like willing to adapt than your better with adapting to a different environment and working with different kinds of people from all diversities, the work in a sense it's going to be not easier but it's going to be better, it's going to be nicer for you to go to work and interact in the workplace."	1. Yes 2. Feels it is a personal decision	1. Yes 2. Personal decision		Participant eight feels prepared for entering the engineering industry, and they state it is a personal mindset.
	9	"No… (laughs) No I feel the what they teaching us basically at university doesn't really prepare us for what's out there because when we do vacation jobs, and things our, the reports I've thus far give in, is ridicules they just write it off they say no that is not up to our standards."	1. No 2. Need more practical knowledge	1. No 2. Needs KSA's		Participant nine does not feel prepared to enter the engineering industry and states that they need more knowledge, skills, and abilities.

	10	"Um… At the moment, not yet well I am still a first year so at the moment not yet but at the time when it comes to my decision I would say I would feel ready for it."	1. No 2. After graduating	1. No 2. Improving KSA's	Participant ten states that they will feel prepared for entering the engineering industry when they completed improving their knowledge, skills, and abilities through completing their degree.

Table 4.12, the first column presents the question that was asked during the interview done with the emerging engineers. Column two shows the verbatim answers of the participants. Column three illustrates the first step of the analysis. Column four shows the coding of the data. The last column represents the researcher's analytic memos. Thus, Table 4.12 presents the results of the interviews with the emerging engineers about their expectancy to be prepared to enter into the engineering industry.

1. Participant one has stated that being a student, it is expected that the prospective engineers will feel prepared for entering the engineering industry after the students have completed improving their knowledge, skills, and abilities through their masters' degree.

2. Participant two has stated that emerging engineers will feel prepared for entering the engineering industry when they have completed improving their knowledge, skills, and abilities by completing their engineering degree.

3. Participant three has indicated that emerging engineers' already feels prepared for entering the engineering industry since their current degree includes an honours degree. This participant believes in life-long learning.

4. Participant four has stated that emerging engineers feel prepared for entering the engineering industry as engineering is a proper qualification provided by the university and the qualification improves their knowledge, skills, and abilities.

5. Participant five has indicated to not feel prepared for entering into the engineering industry.

6. Participant six has mentioned to feel prepared for entering into the engineering industry and to accept the associated uncertainties. Participant six has also indicated to believe in life-long learning.

7. Participant seven has stated to be prepared for entering into the engineering industry. However, the participant mentioned that emerging engineers feel there are many engineering professionals in the industry that does not belong there.

8. Participant eight mentioned to feel prepared for entering the engineering industry, and is of opinion that emerging engineers mostly find it as a personal mindset.

9. Participant nine has indicated to not feel prepared to enter into the engineering industry and has stated that emerging engineers need more knowledge, skills, and abilities.

10. Participant ten has stated that emerging engineers will feel better prepared to enter into the engineering industry when they have completed improving their knowledge, skills, and abilities through obtaining their degree.

The above discussion has answered, analysed and discussed all the interview questions with regard to the emerging engineers' preparedness toward entering the engineering industry. The next section reports with a conclusion of the findings.

4.13   Conclusion

In conclusion, as the information has provided above, it is evident that emerging engineers define job expectations as an individual's work demands, organisational expectation, working conditions, organisational benefits, remuneration, and co-worker relationship. According to the ten factors of job expectation (Coetzee & Roythorne-Jacobs, 2011), 60% of the factors have been mentioned by the particcipants, which means that the emerging engineers mostly understand the term job expectation.

Moreover, the specific job expectations that emerging engineers have identified include: work demands; organisational expectation; advancement opportunities; supervisory relationship; working conditions; co-worker relationship; as well as remuneration and organisational benefits. Interestingly, according to the ten factors of job expectations 80% of these factors have been mentioned when the emerging engineers were interviewed about their specific job expectations.

This shows a 20% adding of job expectation factors since the question to emerging engineers to just define job expectations.

Furthermore, when the emerging engineers have been interviewed in detail about the job expectation factors, it is clear from the results that 50% of the participants are positive towards entering into the engineering industry while the other 50% are negative. On average, remuneration has been indicated for the emerging engineer to be R27 500 per month, the top three organisational benefits that participants have indicated to expect are a medical fund, organisational allowances, and a pension fund. Additionally, 60% of the participants have stated to expect modern working conditions as well as an average working day to be nine-hours. Also, when the participants have been interviewed regarding the work demands and job tasks, the top three categories they have mentioned during the interviews included: aspects of the job; control; and overload. The emerging engineers have also identified several characteristics for a good work relationship, of which the top three characteristics are; respect, varied interactions, mindfulness, interrelatedness and effective communication. Additionally, 50% of the participants have stated to expect fast advancement opportunities, while 60% of the participants have mentioned to feel prepared to enter into the engineering industry.

As the results have been completely investigated and presented in Chapter Four, the following chapter provides concluding remarks on the findings with reference to each research objective. In addition, recommendations are made for the refinement of future studies.

Chapter 5: Conclusions and Recommendations

5.1 Introduction

A lack of engineering professionals in South Africa emphasised the importance of this research, as well as understanding the challenges associated with job expectations of emerging engineers. In general, the engineering industry is one of the most challenging industries to fill vacancies since employers feel applicants lack technical skills and experience (Steyn, 2015). As Seggie (2012) has reported, 74% of organisations in South Africa have already shown to struggle to fill their engineering vacancies. Over a 13-year period (1998-2010) on average, only one in every seven enrolled engineers has graduated. According to the abovementioned information, 86% of enrolled students have not graduated. Moreover, enrolment at universities indicated that only 16% of engineers have graduated, which is far lower than the global average of 25% (Seggie, 2012). Additionally, the Engineering Council of South Africa (ECSA, 2015) has reported that there are 16 423 professional engineers, 5 156 professional engineering technologists, 1 165 professional certified engineers and 4 598 professional engineering technicians registered. Likewise, ECSA (2015) has published that South Africa has one engineering professional per 2 012 of the population. Thus, the primary goal of this study has been to determine what emerging engineers' job expectations are. To achieve this goal the following objectives were set in Chapter One and concluded in Chapter Two and Chapter Four.

5.2 Objectives

The first objective was to conceptualise job expectations by way of a literature review. This objective was achieved in Chapter two of this study. The second objective was to identify the different factors that contributed to job expectations and was achieved in Chapter two. The third objective was to identify how emerging engineers understand the term job expectations. This objective was achieved in Chapter four. The fourth objective was to compare the job expectation literature with the data that was collected from the participants. This objective was accomplished in Chapter four. Multiple kinds of literature supported the statements of the participants (i.e. emerging engineers). The literature that was applied for the comparison was the ten factors of job expectations, the eight occupational stressors and the seven characteristics of a good work

relationship. The fifth objective was to identify what expectations emerging engineers have held regarding job expectation factors. This objective was achieved in Chapter Four. The final objective was to draw conclusions from the findings and to make recommendations concerning the job expectations of emerging engineers. The purpose of this final chapter is thus to discuss the conclusions and formulate recommendations regarding what emerging engineers expect from the engineering industry and to identify aspects of future research.

5.3 Conclusions

The conclusions are discussed with reference to the literature review and the proposed description and themes as represented in the qualitative narrative (interviews). These conclusions have been made based on the interpretation of the meaning of the data. The discussions were described in Chapter Two and Chapter Four, respectively.

5.3.1 Conclusions regarding the literature study

Expectations have been defined and explored in the literature review since it is the main focus of this study. The term expectations have been defined as the set of assumptions, desires, wants, needs, and anticipated behaviour and beliefs about future events from an individual's perspective. As this study has focused on emerging engineers' job expectations, it was necessary to explore Victor Vrooms expectancy theory as this theory provided an in-depth perspective on expectations. The expectancy theory states that individuals are most motivated when they expect that they will receive the desired reward. On the contrary, the theory states that individuals are least motivated when they do not want the reward or if they do not expect that their hard work will result in any reward. Additionally, Victor Vroom's expectancy theory has provided important information when studying emerging engineers' job expectations. Job expectations can be defined as the long-term point of views on characteristics of work. Job expectations represent a subjective view of a future career. Also, the researcher has identified ten factors of job expectation in the reviewed literature. These ten job expectation factors include *work demands, security, organisational expectation, advancement, co-worker relationship, remuneration, supervision, working hours, organisational benefits and working conditions*. The expectancy theory also supports the underlying motivation for expectations. Motivation can be defined as the willingness to apply high levels of effort toward goals, conditioned by the effort's ability to satisfy the individuals need. Herzberg two-factor theory

has also been investigated, and the theory provided five factors that are strong determinants of job satisfaction. These factors include *achievement, recognition, work itself, responsibility, and advancement*. Furthermore, Maslow's hierarchy of needs theory has been examined, and the theory states that an individual must be in good health, a safe environment, reliable and meaningful relationships and be sure to have confidence before optimal performance can be achieved. Moreover, motivation leads to job satisfaction. Job satisfaction has been defined as a set of factors in the organisation's climate and culture that causes a feeling of satisfaction. Five models can be utilised to investigate the causes of job satisfaction. These five models are: *need fulfillment; discrepancies; value attainment; equity; and disposition models*. Moreover, another model of job enrichment that has been identified, includes the job characteristics model (JCM). This model uses five key job characteristics namely: *skill variety; task identity; task significance; autonomy; and feedbac*k. These characteristics are used to enrich or satisfy jobs, which leads to an increase in employee engagement or work engagement and can be associated with *employee involvement, enthusiasm, captivation, passion, dedication, commitment, devotion, and energy*. Employee engagement or work engagement can also be explained as a level of voluntary effort that employees express towards the organisation. Additionally, there are eight strategies to improve employee and work engagement: (1) Create a business case for engaging employees; (2) Measure employee engagement and act on survey results; (3) Hold managers and supervisors accountable for employee engagement; (4) Connect employees with the future; (5) Go beyond a remuneration mindset to a total reward mindset; (6) Include employees and managers in reward design launch; (7) Use engagement metrics when criticising performance; and (8) Communicate the value of employee engagement initiatives to the employees. Employee engagement guide employees to show organisational citizenship behaviour. Organisational citizenship behaviour (OCB) refers to the employees' efforts and behaviour towards the organisation. The organisation does not necesserily directly reward these efforts and behaviour, although employee efforts and behaviour do improve the organisation's effectiveness significantly. Furthermore, if employees are satisfied and engaged, the happy-productive theory comes into play. The happy-productive worker theory essentially states that when individuals are not satisfied with their jobs or their employers, it could result in absenteeism, in employees that produce less, and/or work of which the quality deteriorate. Job expectations and job satisfaction play an important role in the happy-productive worker theory since when individuals expect *job security, sufficient remuneration, flexible working hours,*

positive job climate and culture and meaning full work and their expectation is satisfied; there will be an increase in production, job retention and overall job satisfaction. Knowledge, skills, and abilities also needed some clarifying, as this is the service component which the emerging engineers would be 'selling' to organisations, and the engineering industry have its expectations based on employees' knowledge, skills abd abilities. Knowledge, skills and abilities are the mandatory attributes to perform a job. Education and training usually provide the expected knowledge, skills and abilities for each industry. Also provided in Chapter Two, was a brief explanation of Engineering as it is the industry in which this research takes place. Engineering has been defined as the application of knowledge based on mathematical and natural sciences using identification and innovation to develop solutions to apply the resources and forces of nature for the benefit of society. Finally, emerging engineers have been defined as individuals who are studying in the field of engineering and who are planning to graduate and follow a career in the engineering industry.

5.3.2 Conclusions from the interviews

Table 5.1 Biographical information				
Participant	**Sex**	**Age**	**Language**	**Study field**
One	Male	23	Afrikaans	Telecommunication
Two	Male	22	Afrikaans	Industrial engineering
Three	Female	19	Afrikaans	Chemical engineering
Four	Female	19	Afrikaans	Chemical engineering
Five	Female	22	English	Industrial engineering
Six	Male	21	English	Industrial engineering
Seven	Female	19	Afrikaans	Chemical engineering
Eight	Male	20	Afrikaans	Industrial engineering
Nine	Female	20	Afrikaans	Industrial engineering
Ten	Male	19	Afrikaans	Computer and electrical engineering

Firstly, the primary objective in section 1.5.1 has been to identify how emerging engineers understand the term job expectations. This objective was achieved in Chapter Four, section 4.2.

The researcher has discovered that emerging engineers defined job expectations as an individual's work demands, organisational expectations, working conditions, organisational benefits, remuneration, and co-worker relationships.

Secondly, another objective was to identify what main components of job expectations the emerging engineers expected. This objective was reached in Chapter Four, section 4.3. The researcher has discovered that emerging engineers specifically expected work demands, organisational expectations, advancement opportunities, supervisory relationships, working conditions, co-worker relationships, remuneration and organisational benefits to play a role in their specific job expectations. Interestingly, according to the ten factors of job expectations (Coetzee & Roythorne-Jacobs, 2011), 80% of these factors were mentioned when the emerging engineers have been interviewed about their specific job expectations. This is a 20% increase of the job expectation factors compared to when emerging engineers were asked to define the term job expectations.

Thirdly, a further objective was to obtain information on emerging engineers' expectation on entering the engineering industry in general. This objective has been accomplished in section 4.4. The researcher has found that 50% of the participants have felt positive towards entering the industry and the other 50% have felt negative. The reasons that have been provided for not feeling prepared for entering into the industry were the inexperience of the emerging engineers, a lack of job opportunities, an unpredictable industry and an overflow of graduates.

Fourthly, in section 1.4, the research questions focused on the expectations of emerging engineers' with regard to their: (1) remuneration; (2) organisational benefits; (3) working conditions; (4) working hours; (5) work demands/job task; (6) work relationships; and (7) advancement opportunities.

1. In Chapter Four, section 4.5, the emerging engineers' job expectations concerning their remuneration have been identified and explained. In section 4.5 the average remuneration expectation has been estimated at R27 500 per month.

2. Furthermore, in section 4.6, the researcher has answered the question in section 1.4 with regard to emerging engineers' job expectation towards their organisational benefits. The

researcher has found in Chapter Four, section 4.6 that the most mentioned organisational benefits that the emerging engineers have expected were a medical fund, organisational allowances, and a pension fund.

3. Additionally, in Chapter Four, section 4.6, the researcher has answered the research question in section, 1.4 which has focused on emerging engineers' job expectation towards their working conditions. The researcher has identified that 60% of the emerging engineers have expected modern working conditions.

4. Also, in section 1.4, the research questions are concerned with emerging engineers' job expectation towards their working hours. This question has been answered in section 4.8, and the researcher has found that emerging engineers have expected, in average, a working day to be nine hours long.

5. Furthermore, in Chapter Four, section 4.9, the job expectation in section 1.4 concerned with emerging engineers' work demands\job tasks were answered. Moreover, in Chapter Four, section 4.9, three categories of occupational stressors were identified namely: aspects of the job; control; and overload.

6. Also in Chapter Four, section 4.10, the job expectation in section 1.4 regarding emerging engineers' work relationships were answered. The emerging engineers have identified several characteristics for a good work relationship. The top characteristics included: respect; varied interactions; mindfulness; interrelatedness; and effective communication.

7. Likewise, in Chapter Four section 4.11, the job expectation in section 1.4 that dealt with emerging engineers' expectation on advancement opportunities were answered. Half of the participants (50%) have expected fast advancement opportunities while the other 50% expected slow advancement opportunities.

Fifthly, in Chapter Four, section 4.12, the job expectation in section 1.4 about the emerging engineers' feeling of preparedness were answered. Moreover, 60% of the participants have stated that they feel prepared for entering the engineering industry.

5.4 Recommendations regarding the interviews

- The study can be improved with more participants. Thus it is recommended that this study is done in a quantitative research form as well.

- The study can be improved by including the engineering field in the demographic section of the interview or questionnaire. In this way, expectations to a specific engineering field can be determined and comparisons with other engineering fields can also be made**.**

5.5 Recommendations for the engineering industry

- Engineering organisations should review this study to ensure their business practices match the expectations of emerging engineers to ensure that these organisations retain their future employees.

- Engineering organisations can also use this study to research their employees' job expectations and job satisfaction according to the ten factors of job expectations.

5.6 Recommendations for Human Resource Managers

- Human resource practitioners could interpret the results of this study, especially if the human resource practitioner needs to recruit emerging engineers.

- Human resource practitioners can also use information from this study to determine how emerging engineers understand job expectations.

5.7 Recommendations for emerging engineers

- Emerging engineers could look at this study to obtain more information on their peers' job expectations.

- This study can also help emerging engineers to prepare themselves with more literature with regard to job expectations in order to understand what the concept entails within the specific work industry.

5.8 Recommendations for universities and educational institutions

- Universities and educational institutions would benefit from the results of this study since the findings can assist in preparing emerging engineers for the industry.

- Universities and educational institutions can also duplicate this study to determine how other occupations perceive job expectations.

5.9 Recommendations for future research

Based on this research, the following aspects also need to be researched:

- Compare job expectations of emerging engineers with engineering practitioners;
- Research that focus on defining the term job expectations in full detail;
- Research on reviewing the ten job expectations factors, due to the repetition of KSA's, it could be considered to add them to the ten factors of job expectations;
- Research on the diversity of engineering practitioners in South Africa; and
- Research on the working conditions within the different engineering fields in South Africa.

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Appendix 1 – Consent from

Interview Consent Form   Ethics number: EMSMHW 16/10/27 – 01/04

Research project title: Exploring emerging engineering professionals' perspectives on job expectations

Research investigator: J.M. Viljoen

Research Participants name: _____

The interview will take 30 to 45 minutes. We don't anticipate that there are any risks associated with your participation, however you have the right to stop the interview or withdraw from the research at any time.

Thank you for agreeing to be interviewed as part of the above research project.

This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you therefore read the accompanying information and then sign this form to certify that you approve the following:

- the interview will be recorded and a transcript will be produced
- the transcript of the interview will be analysed by J.M. Viljoen as research investigator
- access to the interview transcript will be limited to J.M. Viljoen and academic colleagues and researchers with whom he might collaborate as part of the research process
- any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed
- the actual recording will be destroyed after the transcript is produced
- any variation of the conditions above will only occur with your further explicit approval

Quotation Agreement

I also understand that my words may be quoted directly. With regards to being quoted, please mark next to any of the statements that you agree with:

- ☐ I wish to review the notes, transcripts, or other data collected during the research pertaining to my participation.
- ☐ I agree to be quoted directly.

☐ I agree to be quoted directly if my name is not published and a made-up name is used.

☐ I agree that the researchers may publish documents that contain quotations by me.

All or part of the content of your interview may be used;

☐ In academic papers and articles

☐ In an archive of the project as noted above

By signing this form, I agree that;

1. I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time;
1. The transcribed interview or extracts from it may be used as described above;
2. I have read the Information sheet;
3. I don't expect to receive any benefit or payment for my participation;
4. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Participants Signature   Date

_____ _____

Researchers Signature   Date

_____ _____

Appendix 2 – Interview guide

What does the term job expectations mean to you?

Do you have any specific job expectations?

What is your expectation on entering the engineering industry in general?

What are your expectations concerning remuneration?

Do you have any expectations on receiving other benefits?

What is your job expectation concerning working conditions?

What do you expect your weekly working hours will be?

What is your expectation concerning work demands/ job tasks?

What do you expect from the supervisory relationship and or co-worker relationships?

Do you expect early advancement opportunities?

Do you feel prepared for entering the engineering industry?

Appendix 3 – Certificate of language editing

CERTIFICATE OF PROOFREADING AND LANGUAGE EDITING

This certificate serves to confirm that Elmari Snoer has proof read and edited the dissertation for the degree *Master of Commerce* in *Human Resource Management* at the Potchefstroom Campus of the North-West University.

Author: JM Viljoen

Exploring emerging engineering professionals' perspectives on job expectations

The language editing focused on, and included:

- Grammer;
- Spelling; and
- Style.

Any concerns or questions can be forwarded to elmari.bester@gmail.com

Date of service completion: 22 December 2017

CM SNOER

(Elmari Snoer)