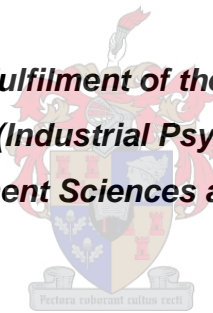


**The relationships between the HEXACO personality  
dimensions and organisational citizenship behaviours  
within the civil engineering sector**

**By**

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*Thesis presented in partial fulfilment of the requirements for the degree  
of Master of Commerce (Industrial Psychology) in the Faculty of  
Economic and Management Sciences at Stellenbosch University*



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## DECLARATION

Through the submission of this thesis, I hereby declare that the following study contains my own work and that I have provided recognition for all the sources consulted, not only in the thesis but also within the reference list provided. I declare that all additional wording, i.e. those without reference, is my own, and that no portion of this thesis has been obtained from the internet and utilised without stating the required acknowledgment. I recognise that if any portion of this declaration is discovered to be dishonest, no marks will be received for this thesis and that plagiarism charges may be brought before the Central Disciplinary Committee of the University.

27 August 2014

Signed: Evette Brink

## ABSTRACT

The construction industry is a large, diverse and complex industry. In recent times, this industry has experienced a long-lasting period of inactivity. One sector that forms part of the construction industry is the civil engineering sector. This sector is the largest contributor to the income of the industry as a whole. Recent reports indicate that the construction companies within this industry are experiencing many challenges in both the internal and external environments.

A preliminary discussion with a number of engineers indicated that these individuals felt as if they were required to do more than what was expected of them in terms of their job requirements. These expectations not only include being expected to voluntarily work overtime and to be tolerant of non-ideal site conditions, but also to informally develop the interpersonal skills necessary to minimise conflict and to motivate and support each other. The majority of the participating companies admitted to having a lack of such voluntary behaviour, namely organisational citizenship behaviour (OCB), amongst their engineers on site. It is for this reason that the core objective of the study was to develop and empirically study a structural model that explains the antecedents that contribute the most to the variance in OCB amongst civil engineers on various sites within South African engineering companies. During the preliminary discussion and subsequent literature review, the main antecedent found was personality.

A quantitative research method with an ex post facto correlation design was utilised, where primary data was collected from a sample of 119 site employees of a number of South African construction companies. The self-administered questionnaire consisted of four sections, three of which were an amalgamation of the three valid and reliable measuring instruments that reflect the central focus of the structural model, i.e. personality, job satisfaction and organisational citizenship behaviour.

The collected data was then analysed by means of Partial Least Squares Structural Equation Modelling. The results of the study indicate that certain personality characteristics do contribute to the occurrence of organisational citizenship behaviour amongst site employees. Within the areas of personality and job satisfaction theories, this research adds to the existing literature on OCB. In order to assist South African industrial psychologists within this industry, managerial implications and suggested interventions pertaining to the research findings are provided.

## OPSOMMING

Die konstruksiebedryf is 'n groot, diverse en komplekse bedryf. Gedurende die afgelope tydperk, het hierdie bedryf 'n voortdurende tydperk van onaktiwiteit ervaar. Een sektor wat deel vorm van die konstruksiebedryf is die siviele ingenieurswese sektor. Hierdie sektor is die grootste bydraer tot die inkomste van die bedryf as 'n geheel. Onlangse verslae dui daarop dat konstruksie maatskappye in die bedryf baie uitdagings in beide die interne en eksterne omgewings ervaar.

'n Voorlopige bespreking met 'n aantal ingenieurs het daarop gedui dat hierdie individue voel asof dit van hulle verwag word om vrywillig oortyd te werk asook verdraagsaam te wees van die nie-ideale werksterreine en omstandighede. Hulle voel dat die informele ontwikkeling van die interpersoonlike vaardighede wat nodig is om konflik te verminder, asook mekaar te motiveer en ondersteun, ook vrywillig verwag word. Die meerderheid van die deelnemende maatskappye het bevestig dat daar 'n gebrek is aan vrywillige gedrag, naamlik organisatoriese burgerskap, onder die ingenieurs op die werksterrein. Dit is vir hierdie spesifieke rede dat die kern doel van hierdie studie was om 'n strukturele model te ontwikkel en empiries te bestudeer wat die geskiedenis uiteensit wat die tot die wisseling in OCB onder siviele ingenieurs op verskillende werksterreine in die Suid-Afrikaanse ingenieurs maatskappye. Tydens die voorlopige besprekings en die daaropvolgende literatuuroorsig was persoonlikheid die kern voorafgaande kenmerk.

'n Kwantitatiewe navorsingsmetode met 'n ex post facto korrelasie-ontwerp is gebruik, waar primêre data vanuit 'n steekproef van 119 werknemers van 'n aantal Suid-Afrikaanse konstruksie maatskappye versamel is. Die selftoegepaste vraelys het bestaan uit vier afdelings, waarvan drie 'n samesmelting was van die drie geldige en betroubare meetinstrumente wat die sentrale fokus van die strukturele model, naamlik persoonlikheid, werksbevreëding en organisatoriese burgerskaps-gedrag weerspieël.

Die ingesamelde data is deur middel van Parsiële Kleinste Kwadrate Struktuurvergelykingmodellering ontleed. Die resultate van die studie het getoon dat sekere persoonlikheidseienskappe bydra tot die voorkoms van organisatoriese burgerskaps gedrag onder terreinwerknemers. Binne die gebiede van die persoonlikheid- en werkstevredenheid-teorieë, dra hierdie navorsing by tot die bestaande literatuur oor OCB. Ten einde Suid-Afrikaanse bedryfsielkundiges binne hierdie bedryf te help, is bestuurs-implikasies en voorgestelde ingrypings met betrekking tot die navorsing voorskaf.

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*“Through hard work, perseverance and a faith in God, you can live your dreams.”*

*- Dr Benjamin Carson*

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## CHAPTER 1 BACKGROUND TO THE STUDY

### 1.1 Introduction: A Challenge Facing the Construction Industry

In recent times, high-performing employees form the foundation of the success of an organisation through the achievement of a sustainable competitive advantage (Oehley & Theron, 2010; Samuel & Chipunza 2009). One industry in which such a competitive advantage is essential is the construction industry. The construction sector is a relatively big, diverse and complex industry. The complexity and magnitude of the industry are worsened by the large number of individuals employed in the sector, together with the substantial differences in the size and number of organisations. Central to the industry's complexity are the large differences in the internal company structures, in the training and development requirements, in the networks and company relationships, in the outlines for the rules and procedures of each sub sector, and in the training and development culture (CETA, 2008).

The construction industry is estimated to contain more than 35 000 organisations, 95% of which are referred to as micro-enterprises. This sector is seen as one of the largest sectors in South Africa, where it has an estimated 330 120 employees (CETA, 2008).

Since the completion of the 2010 FIFA World Cup stadiums, the construction industry has experienced a continual period of inactivity thus resulting in the sector undergoing an industry-specific recession. The main contributor to this state of idleness is the decreased expenditure by the private and public sector in order to handle the financial stress of the recession. The situation is made worse by the increased labour unrest, which ultimately results in a decrease in foreign investments. This lack of investment, however, should be short lived due to South Africa's inclusion in the BRICS group of countries (De Jager, 2013).

Central to the success of the construction industry is government or state funded projects. In the 2013 budget speech, Pravin Gordhan announced a R827 billion injection into the construction industry over the next three years in order to stimulate movement in the sector (De Jager, 2013).

The largest contributor to the income of the construction industry is the construction of civil engineering structures. The nominal turnover for the civil engineering sector has fluctuated through the years, where it increased from R8.6 billion to R58 billion between 2000 and 2008. In 2010 the nominal turnover decreased drastically to R32 billion as a result of the completion of the World Cup stadiums and the global recession. It is widely believed that this

sector is slowly but surely climbing out of the industry recession, where it is estimated that the civil engineering sector had a nominal turnover of R50 billion in 2013 (Venter, 2013).

The employment within the sector, however, has not been able to recover as quickly. In 2009, the civil engineering sector employed 174 927 individuals. Since the start of the economic downturn in the industry the number of employees plummeted to 98 837, which was recorded at the beginning of 2012. By the end of the third quarter of 2012, there was a slow increase to 105 522 employees in the industry (Venter, 2013).

In February 2013, the construction industry came under a lot of scrutiny when it came to light that the Competition Commission was investigating a number of the largest engineering companies for price fixing of government tenders. This tender-rigging scandal has been ongoing for decades and only surfaced recently. The investigation, which is still in progress, could have a long-lasting negative impact on the industry as a whole (Pauw, 2013).

The entire process could continue for up to eight years. Incentives were offered to encourage the construction companies to come forward, in an attempt to speed up the legal process. By April 2013, approximately 300 incidents of collusion, amounting to more than R47 billion, had been admitted to by the various guilty parties. In June 2013, the Competition Commission reached settlements with fifteen companies, where the settlement amounts added up to more than R4.6 billion. Only three companies refused to come forward and subsequently will be investigated and prosecuted for their involvement (Greve, 2013; Anonymous, 2013).

Another large problem facing the civil engineering sector at the moment is the foreseen annual labour negotiations. It is said that the labour unrest that hit the mining sector from 2012 to date will be reflected within the civil engineering sector. A Bargaining Council for the Civil Engineering Industry was set up recently and has been registered. It is predicted that the negotiations will be challenging, and may result in a stop-start flow of projects (Venter, 2013).

One of the departments in each engineering company that is vital to its success is that of the site engineers. These engineers are sent to all corners of the country and, in some cases, overseas in order to oversee a particular project from start to finish. Due to the problems that the engineering organisations are facing and will be challenged with, it becomes vital to have the best employees. The site engineers most likely will be at the centre of the wage negotiations, where they will be the ones trying to get the employees to remain motivated and maintain a peaceful environment on site. Labour views the site engineers as the

company representatives on site and therefore look to them for assistance (R. Jacobsz, personal communication, 23 June 2013).

A preliminary discussion was held in order to determine the problem areas within a number of companies and thus the industry as a whole. A number of individuals at various organisational levels were consulted regarding the position of the site engineer. Each engineer has a number of foremen to manage, who then directly manage the lower levels of labour. After the conclusion of the discussion, it became clear that the site engineers are required to go beyond their formal job requirements on a daily basis (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

Not only are civil site engineers informally required to work more than the stipulated 45 hours per week, they are also required to update their skills and knowledge about all aspects of engineering and construction, not just in their current operations. They are informally expected to complete the stipulated daily operations with no daily time restraints, thus often having to work additional hours to accomplish the project on time. More often than not, the site engineers indicate their dedication and commitment to the organisation's rules, policies and procedures through the voluntary fulfilment of the aforementioned informal requirements (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

During the upcoming predicted troubling times for the civil engineering industry, the site engineers, who are the organisation's representatives, will be required to be up to date with the company's overall performance, and will need to be motivated enough to defend the company's practices. It is important to note that many of the larger organisations within the industry will be criticised due to the choices made in the past. Without the faith, persistence and commitment of their engineers, the companies may struggle even more (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

The site engineers have been put in a position that requires them to be tolerant of the challenges facing the companies. In addition to the typical non-ideal informal requirements of the job, these employees will be faced with labour wage negotiations, which, as stipulated, may result in the stop-start flow of projects. They will soon realise that complaining about the situation will not resolve it any quicker, and thus will persist and tolerate any unrest and

delays on site (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

In addition, a problem area that was reported was communication problems amongst the site engineers. More importantly, the manner in which these individuals interact with one another, including their respect for and assistance of one another, was identified as a core problem that, as a result, manifests across the sites. Communication is essential among all levels within the organisation, especially on site, and especially when it comes to the labour wage negotiations. A lack of communication in these negotiations can have detrimental effects on the project at hand (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

These communication problems refer to interactions that are not only with regards to the one-on-one conversations they have with each other, but also incorporate the behaviour that the site engineers show towards their co-workers, which is, in turn, reflected towards the labour, and vice versa. During the discussions, it became clear that the engineers are expected to assist one another as a crucial aspect of the success of the project at hand. A clear example of such an interaction typically is finding a cost-effective solution to a site problem. The site engineers will find a solution that is the best from an engineering perspective, but the foremen will assist in making it a more cost-effective, and thus viable, option. Moreover, the informal mentoring of new site engineers by the senior engineers is apparent on all project sites, hence indicating the voluntary assistance of co-workers in an attempt to improve overall site performance. Although apparent in a few individuals, this voluntary behaviour is not widespread across the sites (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

In terms of motivating and supporting co-workers and subordinates, site engineers find that it is essential to be able to identify the strong points of the employees at any level, including the foremen, and motivate them to improve these strengths. Although positive motivation is recognised as important, it is often found that the site engineers lack the ability to motivate the workforce. This is mainly because they have not been taught the necessary interpersonal skills in order to support and motivate their subordinates (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

Courteous behaviour, for example taking others into consideration, is often not possible due to the vast number of parties involved. This, however, does not mean that decisions are made without consulting the relevant parties, although it rather comes down to choosing the lesser of the two evils. It therefore is important to note that the complete avoidance of a conflict is unfeasible, and thus the ability of the engineer to handle a conflict situation is crucial (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

As mentioned, a site engineer's job on site during wage negotiations is to motivate subordinates and to maintain a peaceful working environment. This is not possible if the engineers lack the ability to motivate their co-workers and subordinates. In addition, a peaceful working environment is not possible if there is continuous mistreatment of company employees. It therefore falls on the organisation to turn to its site representatives, i.e. the site engineers, to display the appropriate behaviour so that their example can trickle down and be reflected across all levels on site (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

Furthermore, the engineers reported that, in their opinion, personality plays a crucial role in the interaction amongst staff members and in their subsequent behaviours on site. They felt that personality clashes ultimately would lead to interpersonal conflicts, and, as a result, the voluntary civil, helpful and courteous interaction amongst engineers would suffer. In addition, it was reported that a negative attitude from individuals typically results in an unwillingness to complete these informal requirements (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013; A. Smith, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

The initial discussion with the civil engineers indicated that these individuals felt that they were required to do more than what was expected of them in terms of their job requirements. It became clear that the civil engineers on site felt pressure from the organisation to do whatever it takes to complete the project on time. This not only includes being expected to voluntarily work overtime and to be tolerant of the non-ideal site conditions, but also informally to develop the interpersonal skills necessary to minimise conflict and to motivate and support each other. The majority of the participating companies admitted to having a lack of such voluntary behaviour amongst their engineers on site. As a result of this revelation, they have attempted to rectify the situation by including some of these 'informal roles' within their value system. Although such voluntary behaviour is encouraged as part of



the company value system, there still is a lack of such behaviour on site (S. Strauss, personal communication, 17 September 2013; L. Bornman, personal communication, 7 February 2014; N. Sukdeo, personal communication, 6 March 2014).

## 1.2 Problem Statement

Although the civil engineering sector of the construction industry is on its way to a full blown recovery, certain challenges still are looming. If these challenges are not handled effectively, they could have detrimental effects on the companies involved. One such challenge is the current labour unrest within the country (De Jager, 2013). It became evident through the preliminary discussion that an engineering company requires employees, especially engineers, who will voluntarily behave and interact in a particular manner in order to achieve the end result, i.e. the completion of a project (R. Jacobsz, personal communication, 7 May 2013; L. M. da Silva, personal communication, 7 May 2013). This is even more necessary during the current and future challenges facing these companies. It therefore can be concluded that one of the main challenges in the construction industry is the lack of informal discretionary behaviours displayed by site engineers.

It is important to note that the work behaviour of employees is not random, but rather is determined systematically, yet complexly, by a nomological network of latent variables that portray the employees and their perception of the work environment (Theron, 2011). This therefore makes the study of such discretionary behaviour crucial to the survival of any organisation, especially one that is continuously faced with industry-related challenges. These engineering organisations therefore need to encourage a culture of organisational citizenship behaviour, in which the voluntary fulfilment of the informal job roles is considered the norm. It is for this reason that the current study focuses on the alleged lack of organisational citizenship behaviour (OCB) amongst site engineers. In addition, the study aims to determine why differences exist in the OCB displayed by various civil engineers on various sites within various organisations.

## 1.3 Research-initiating Question

The problem statement, viz. that OCB is the focus area of the study, gives rise to the following research-initiating question:

*Why is there variance in organisational citizenship behaviour amongst site engineers?*

#### 1.4 Objectives and Research Methodology of the Study

The detailed research objectives of the current study were as follows:

- Investigate the current level of organisational citizenship behaviour amongst site engineers.
- Identify the most significant antecedents that contribute the most to the variance in OCB amongst site engineers within a number of South African engineering companies.
- Develop and empirically investigate a structural model portraying the relationship between the crucial antecedents and OCB.
- Emphasise the managerial implications of the research findings and thereafter recommend interventions that would enhance the levels of organisational citizenship behaviour in employees within the South African civil engineering sector.

A number of steps were taken in the methodology in order to achieve the aforementioned objectives. Firstly, a thorough literature review was conducted in order to clearly define organisational citizenship behaviour, and thereafter identify its most prominent antecedents. Secondly, an exploratory, quantitative investigation was launched and, data was collected through the use of an eleven paged self-administered survey.

Six of the top, most well-known construction companies operating within the South African civil engineering sector participated in this study. Since confidentiality and anonymity were guaranteed, the identity of these companies shall remain unknown.

Purposive sampling was utilised, and the sample consisted of approximately 119 individuals. The survey consisted of four sections, three of which were valid and reliable measuring instruments that assessed the relative latent variables, viz. organisational citizenship behaviour, job satisfaction and personality. The primary data received from the participants remained anonymous and confidential throughout the study. It was analysed in an attempt to test the specific hypotheses formulated from the literature review.

## **1.5 Delimitations of the Study**

The main objective of this study was to explore and identify the most salient factors affecting organisational citizenship behaviour. It is important to note that this study did not focus on all these factors, but only on the most prominent relationships between OCB and its antecedents. In addition, only the main and certain mediator effects between the variables were looked at. As a result, this study did not aim to test moderator effects.

## **1.6 Outline of the Research Study**

Chapter 1 has provided an outline of the current challenges facing the construction industry. The main problem recognised by civil engineers who work on site was identified and discussed, viz. the lack of organisational citizenship behaviour. This provided the foundation for the study, on the basis of which the research problem and clear objectives could be delineated.

Chapter 2 involves a thorough analysis of the existing literature in order to clearly define the latent variables, organisational citizenship behaviour and its most prominent antecedents. Thereafter, a theoretical structural model was compiled in order to graphically depict the identified relationships.

Chapter 3 discusses the research methodology used to empirically test the structural model, which is explained by the substantive research hypotheses. It includes all aspects of methodology from the research design, the sample, the measuring instruments and their psychometric properties, ethical considerations and statistical analyses.

Chapter 4 presents the presentation and reporting of the results, starting with the validation of the measurement model, and ending with the evaluating of the structural model through the use of path coefficients. In addition, the levels of organisational citizenship behaviour, job satisfaction and personality are reported on.

The final chapter includes a discussion of the theoretical and practical implications of the current study. In addition, the limitations of the study and recommendations for future research are delineated.

## 1.7 Glossary

**Construction company:** Company that specialises in the contracting and construction of infrastructure development. Most of the larger construction companies have a multidisciplinary approach, with numerous divisions and/or subsidiaries.

**Civil engineers:** Individuals who have completed a degree or diploma in Civil Engineering, i.e. they are civil engineers by profession. It is important to note that a qualified civil engineer can be found within various disciplines and positions in a given company.

**Construction industry:** A relatively large, diverse and complex industry comprised of a large number of construction companies who all provide a multidisciplinary approach (CETA, 2008).

- **Civil engineering sector:** The largest contributor to the income of the construction industry. It involves the construction of civil engineering structures (Venter, 2013).

**Organisational citizenship behaviour (OCB):** Behaviour that is voluntary and does not form part of a company's formal reward system. Overall, it enhances organisational performance (Biswas, 2010).

- **Altruism:** Altruism involves helping behaviours by individuals in face-to-face situations (Ehtiyar, Alan & Omuris, 2010; Organ, Podsakoff & MacKenzie, 2006).
- **Courtesy:** Courtesy involves behaviours with the sole purpose of avoiding occupational conflicts with colleagues. It includes being polite and taking others into consideration (Chien, 2009; Ehtiyar et al. 2010; Organ et al., 2006).
- **Civic virtue:** Civic virtue refers to the behaviours that show the employee's concern for the wellbeing of the organisation (Chien, 2009; Ehtiyar et al., 2010; Organ et al., 2006; Podsakoff, Podsakoff, Whiting, & Blume, 2009).
- **Compliance:** Compliance, commonly referred to as conscientiousness, entails the behaviours that go above and beyond the minimum job requirements of the organisation (Chien, 2009; Ehtiyar et al., 2010; Organ et al., 2006; Podsakoff et al., 2009).
- **Sportsmanship:** Sportsmanship is defined as the employee's tolerance of non-ideal organisational situations without complaints and exaggerations of frivolous matters (Biswas, 2010; Chien, 2009; Ehtiyar et al., 2010; Organ et al., 2006; Podsakoff et al., 2009).

**HEXACO Personality Model:** A more recent personality structure model, based on the Five Factor Model and the Big Five Personality Factors. It includes a sixth personality factor, namely honesty-humility (Ashton & Lee, 2010).

- **Honesty-humility:** Forms the foundation on which the HEXACO structure is built. This factor consists of four facets, namely sincerity, fairness, greed avoidance and modesty (Ashton & Lee, 2010).
- **Emotionality:** Is a factor, similar to the Big Five Emotional Stability, but that is characterised by fearfulness, anxiety, dependence and sentimentality (Ashton & Lee, 2010).
- **Extraversion:** Extraversion is a personality factor that is typically characterised by sociability, liveliness and cheerfulness on the one hand and passivity and being reserved on the other (Ashton & Lee, 2010).
- **Agreeableness:** This factor is usually described as being friendly, tolerant and agreeable on the one hand, and volatile, ill-tempered and quarrelsome on the other (Ashton & Lee, 2010).
- **Conscientiousness:** This factor is typically characterised in terms of organisation, diligence and caution. It therefore can be regarded as nearly identical to the corresponding Big Five dimension (Ashton & Lee, 2010).
- **Openness to experience:** This is a controversial factor that does not incorporate specific facets like mental ability or intelligence, but it does, however, include intellectual curiosity and inquisitiveness (Ashton & Lee, 2010).

**Job satisfaction:** Job satisfaction refers to the attitudinal and affective response occurring because of the interaction between employee values regarding the job and the rewards obtained from this job (Chih, Yang & Chang, 2012; Swaminathan & Jawahar, 2013; Ziegler, Schlett, Casel & Diehl, 2012).

**Gratitude:** Gratitude refers to the positive emotional reaction as a result of receiving a benefit like a gift, kindness, support or a favour (McCullough, Emmons, Kilpatrick & Larson, 2001; Spence, Brown, Keeping & Lian, 2013).

## CHAPTER 2 LITERATURE REVIEW

### 2.1 Introduction

This chapter aims to provide a thorough analysis of the existing literature in order to define the latent variables of interest, namely organisational citizenship behaviour and its most prominent antecedents. All the salient factors were analysed, and the most prominent factors were identified through a process of elimination. A clear and concise description of each variable of interest is provided. In addition, the specific relationships between OCB and its prominent antecedents were hypothesised through the use of existing empirical evidence and additional theoretical arguments. Thereafter, a theoretical structural model is provided in order to graphically depict the identified relationships.

### 2.2 Organisational Citizenship Behaviour

OCB is a considerably new concept that represents a deep-rooted voluntary human behaviour from which no rewards are expected. The idea and labelling of OCB was first introduced by Dennis Organ and his colleagues in the 1980s and the theory has expanded since then (Smith, Organ & Near, 1983). In the past thirty years, this voluntary work behaviour has received a large amount of scholarly interest, in which the majority of the researchers have made use of Organ's OCB terminology (Lemoine, Parsons & Kansara, 2014; LePine, Erez & Johnson, 2002).

The initial idea of OCB stems from an individual's inclination to cooperate (Organ, 1990). Organ (1988, p. 4) therefore proposed the following definition of OCB:

Individual behaviour that is discretionary, not directly or explicitly recognized by the formal reward system and that in the aggregate promotes the effective functioning of the organization.

The above definition contains three critical parts that are essential to this concept. Firstly, OCB is considered to be an employee's personal decision to perform discretionary conduct. Secondly, OCB means going the extra mile for someone else or for a purpose that is not defined in the job description. Lastly, OCB is considered to improve overall organisational

effectiveness. In previous research, OCB has been referred to as a multi-dimensional construct. It is believed that elevated levels of OCB would lead to an efficient organisation that could attract new employees, raw materials and, at the same time, create a reputable image for itself (Biswas, 2010; Chien, 2009).

Organ (1988) explained that OCB not only relates to the attracting and retaining of the ideal employees, but also can have a positive impact on the company's reputation and image. A company's positive reputation would ultimately be reflected in better customer perceptions of company services and/or products, thus further benefiting the organisation (Chien, 2009; Organ, 1988, 1990).

In addition, OCB has been seen as an individual's contributions to the preservation and development of the social and psychological context that upholds job performance. As mentioned, these behaviours do not form part of the job requirements and their absence will not result in any punishment or negative outcomes for the individual. It therefore can be concluded that the root to OCB is the concept of volunteering (Biswas, 2010; Ehtiyar et al., 2010).

OCB is considered to be a tool that guarantees organisational congruence and success. It is widely believed that the development of such citizenship behaviours would ultimately result in enhanced organisational performance. There are three ways in which OCB positively influences an organisation's success. Firstly, it enhances cooperation and communication amongst all employees within the organisation. Secondly, it enhances the employees' sense of responsibility by means of taking the organisation into consideration at all times and making the necessary sacrifices. When employees have an enhanced feeling of responsibility, it becomes easier for the organisation to achieve its stated goals and objectives. Finally, OCB enhances the employees' positive attitudes which, in turn, results in a more positive, reduced-stress working environment (Ehtiyar et al., 2010).

### **2.2.1 Dimensionality of OCB**

Smith et al. (1983) initially considered two dimensions, namely altruism and general compliance, which they considered to enhance organisational effectiveness in their own unique ways. Altruism involves helping behaviours amongst individuals in face-to-face situations. Examples include, helping others who have been ill or who have excessive workloads, offering to do things that are not required, and the voluntary orientation of new employees. There is no direct connection between individual helping behaviour and a

particular improvement for the organisation. Helping behaviour will only be beneficial to the organisation over time, when there is an accumulation of employees displaying such behaviour. Generalised compliance signifies employees displaying behaviours that are considered to be those of the ideal worker, for example, being punctual.

At a later date, Organ reviewed the above dimensions, and decided to take out general compliance and include other dimensions of OCB, resulting in the development of the five-factor model. These five dimensions are altruism, courtesy, conscientiousness, civic virtue, and sportsmanship (LePine et al., 2002).

Altruism is defined in the same way as before, viz. helping a co-worker with a particular job task or problem. It therefore involves choosing to help colleagues as well as to assist new employees during own work time. It is important to note that this choice does not incorporate an expectation of reciprocal behaviour. Examples of altruistic behaviour within the work context include assisting co-workers in using equipment, accomplishing work duties, organising presentations, understanding a computer program or finding information (Ehtiyar et al., 2010; Organ et al., 2006).

Courtesy involves behaviours with the sole purpose of avoiding occupational conflicts with colleagues. This dimension aims to prevent any predicaments from occurring. Such behaviours include being polite and taking others into consideration before implementing new plans, notifying the organisation in the event of being late or absent, or informing co-workers of potential delays in and barriers to the accomplishment of work-related projects (Chien, 2009; Ehtiyar et al. 2010; Organ et al., 2006).

Civic virtue, also known as loyal boosterism, refers to the behaviours that show the employee's concern for the wellbeing of the organisation. Such behaviours include attending meetings that are not compulsory, staying up to date with the organisation's performance and can even go as far as to defend organisational policies and practices when they are questioned by someone outside the organisation. Civic virtue therefore ultimately relates to an employee's maximum commitment to the organisation. Additional examples of civic virtue include participating in organisational policy development, attending company events or monitoring company strengths, weaknesses, opportunities and threats (Chien, 2009; Ehtiyar et al., 2010; Organ et al., 2006; Podsakoff et al., 2009).

Compliance, commonly referred to as conscientiousness, entails the behaviours that go above and beyond the minimum job requirements of the organisation. Such behaviours show that employees accept and obey the organisation's rules, regulations and procedures. Examples of conscientious behaviour include being punctual, spending more time at work



than what is necessary, completing assignments before they are due or taking on more responsibilities in order to improve organisational performance (Chien, 2009; Ehtiyar et al., 2010; Organ et al., 2006; Podsakoff et al., 2009).

The last dimension, sportsmanship, is defined as the employee's tolerance of non-ideal organisational situations without complaint or exaggeration of frivolous matters. This dimension can further be defined as an employee's ability to go with the flow even if the changes within the organisation are not approved of. If the organisation can effectively reduce the number of complaints that need to be handled, i.e. improve sportsmanship, organisational energy and time can be saved. It therefore can be regarded as the pillar of OCB, because it entails tolerating any inconveniences within the workplace. Examples of sportsmanship behaviours include ceasing to complain about working overtime, not moving a project deadline and not whining about unavoidable inconveniences (Biswas, 2010; Chien, 2009; Ehtiyar et al., 2010; Organ et al., 2006; Podsakoff et al., 2009).

All of the above dimensions of OCB have different justifications for the relationship. Altruism can improve the overall work system when the employee utilises spare time to assist a co-worker on an urgent task. When an employee displays civic virtue, for example providing cost-saving solutions, he/she directly influences organisational efficiency. Conscientious employees and those who avoid negative behaviours tend to abide by the organisational procedures and continue with consistent work programmes, which, in turn, increase the consistency of performance, thus making the work unit more efficient (Chien, 2009).

This framework has been used in most research studies focused on OCB for three reasons. The first, is that it is a framework that has been in existence the longest with subsequent fruitful publications with respect to OCB being published by Organ and his colleagues. Secondly, Podsakoff and his associates created a measure for the five dimensions and conducted fruitful research through the use of this measure. Lastly, many OCB researchers believe that with time, the behavioural dimensions will become advantageous with regard to all organisational situations (LePine et al., 2002).

It is believed that each behavioural dimension of OCB overlaps with another. It is for this reason that many researchers believe that the dimensions should be amalgamated into separate subgroups namely, organisational citizenship behaviour toward individuals (OCBI) and organisational citizenship behaviour toward the organisation (OCBO) (LePine et al., 2002; Podsakoff, Podsakoff, Mackenzie, Maynes & Spoelma, 2014). Each of these subgroups contains at least two of the original OCB dimensions of altruism, civic virtue, conscientiousness, courtesy and sportsmanship. OCBI and OCBO are considered to be OCB in its prosocial form, where both maintain the social environment at work (Chiaburu,

Oh, Berry, Li & Gardner, 2011). Table 2.1 indicates the various dimensions that fall under each subgroup.

**Table 2.1**  
***Organ's Dimensions Captured in the OCBI/OCBO Subgroups***

OCB-Individual	OCB-Organisation
<ul style="list-style-type: none"> <li>• Altruism</li> <li>• Courtesy</li> <li>• Peacekeeping</li> <li>• Cheerleading</li> <li>• Interpersonal helping/facilitation/harmony</li> </ul>	<ul style="list-style-type: none"> <li>• Conscientiousness/compliance</li> <li>• Sportsmanship</li> <li>• Civic virtue</li> <li>• Organisational loyalty</li> <li>• Individual initiative</li> </ul>

(Engelbrecht, 2011; Podsakoff et al., 2014; Williams & Anderson, 1991)

A more recent addition to the conceptualisation of OCB is change-oriented citizenship (OCB-CH). OCB-CH is OCB in its proactive form, where it aims to alter and enhance specific parts of the organisation by means of positive modifications (LePine et al., 2002; Podsakoff, Podsakoff, Mackenzie, Maynes & Spoelma, 2014). In the case of site engineers, these individuals are expected to follow strict rules of procedure in order to make sure that the project gets done. These procedures cover everything from ordering concrete to reporting injuries on site to determining how a structure needs to be constructed. These procedures therefore prevent the engineers from coming up with any innovative ways to actively change and enhance the way things are done on site. Should an engineer come up with an innovative method, e.g. engage in change oriented behaviour, it is usually specific to the particular project at hand. Due to the project-specific nature of these methods, there is a decreased likelihood that such methods will be utilised on other company projects. As a result, these methods will not change the way that the organisation operates as a whole. It therefore becomes evident that this proactive form of citizenship is not relevant to site engineers and, as a result, will not be included in this study.

In terms of the OCBI and OCBO sub-groups, there is a lack of availability of a measuring instrument that clearly assesses and distinguishes amongst all the dimensions of each subgroup. There are, however, tests that distinguish between the sub-groups as a whole. This, unfortunately, is not relevant to the current study because the problem situation of the

engineers on site, as noted in the preliminary discussion, contains aspects of the original five dimensions of OCB, i.e. it can be explained effectively through the use of the definitions of each dimension. The use of the overall or aggregated scores of OCBI and OCBO would be an oversimplification of the situation at hand, and, as a result, a loss of detail will occur. It is for these reasons that the original five OCB dimensions will be utilised in the current study.

### **2.2.2 Antecedents of OCB**

Similar to other workplace behaviours, OCB can be seen as being determined by multiple factors, i.e. there is no single and distinct cause of OCB. Workplace behaviours like performance, absenteeism and turnover have multiple causal factors. It therefore becomes apparent that the same rationale should be used in relation to OCB (Chien, 2009).

Previous research conducted by a number of prominent OCB researchers has mainly focused on employee attitudes and dispositions as the main antecedents of OCB. In recent years, other constructs have been researched on both the organisational and individual levels in order to determine additional antecedents (Akinbode, 2011; Bourdage, Lee, Lee & Shin, 2012; Chiaburu et al., 2011; Chih et al., 2012; Elanain, 2007; Konovsky & Organ 1996; LePine et al., 2002; McNeely & Meglino, 1994; Najari, Ahmadi & Habibitabar, 2011; Organ & Lingl, 1995; Organ & Ryan, 1995; Singh & Singh, 2009; Swaminathan & Jawahar, 2013; Ziegler et al., 2012). The most common constructs used in these studies are job satisfaction and personality characteristics, which are attitudinal and dispositional factors respectively (Chien, 2009). In addition, another salient attitudinal factor that has recently come to light is gratitude (Dalal, 2005; Spence et al., 2013). The study therefore will focus on personality, job satisfaction and gratitude as the most salient antecedents of OCB, thus concluding that both the attitudinal and dispositional antecedents of OCB will be examined, and consequently discussed.

### **2.3 HEXACO Personality Factors**

Dispositional antecedents refer to the personality traits and personal qualities that an individual possesses, which will influence that individual's likelihood of displaying OCB. There has been increasing evidence showing that personality factors contribute to an individual's overall performance. Furthermore, these factors, i.e. individual differences, have been linked to an individual's tendency to exhibit OCB. It therefore can be said that, due to

personality characteristics, some individuals will be more inclined than others to exhibit such behaviour (Elanain, 2007; Engelbrecht, 2011).

Contradictory results have been found with regard to the relationship between personality and OCB, where some researchers have arrived at the conclusion that there is a strong relationship between the two variables, and other researchers have not. As a result of all the contradictory information, there still are disputes with regard to whether individual differences are predictors of OCB. Although such information exists, the overwhelming amount of research on the subject provides an indication that this should not be ignored, but rather studied further (Chiaburu et al., 2011; Elanain, 2007). Furthermore, this study will not incorporate the traditional Five Factor Model (FFM), but will rather make use of a more recent personality structure model, namely HEXACO. A clear explanation as to why this model will be used is provided in the following text.

The Five Factor Model (FFM) was developed on the basis of lexical investigations and the analyses of personality questionnaires in the 1980s and 1990s. This model was widely accepted because of its meaningful explanation of the personality traits that it encompasses. The FFM is accountable for the increased interest in personality in the field of industrial psychology. The five personality factors of the FFM are known as extraversion, agreeableness, conscientiousness, emotional stability and openness to experience (Ashton & Lee, 2005, 2008).

The Big Five personality model includes five factors namely, extraversion, agreeableness, conscientiousness, emotional stability, and intellect/imagination. The FFM is commonly referred to as the Big Five. Even though these two models are virtually identical, certain differences do exist. Firstly, the intellect/imagination factor of the Big Five includes an intellectual ability component that is not included in the corresponding FFM factor, namely openness to experience. The latter factor incorporates a wide range of traits, most of which were related to imagination. Secondly, the agreeableness factor of the Big Five is not as broadly delineated as its corresponding FFM factor. The two variations of agreeableness both include certain traits like kindness and cooperation, but the FFM factor includes traits of straightforwardness and modesty which do not form part of the Big Five agreeableness (Ashton & Lee, 2005, 2008).

Further lexical research in a number of languages, other than English, was conducted on the personality structures. These studies led to unexpected findings, viz. that the Big Five was not the main extensively-duplicated space forming the core of the field of personality dispositions. The results indicated that there was a sixth factor that was replicated in a

variety of languages. These six factors have become known as HEXACO, i.e. honesty–humility (H), emotionality (E), extraversion (X), agreeableness (A), conscientiousness (C), and openness to experience (O) (Ashton & Lee, 2005, 2008).

Three of the HEXACO factors correspond to the extraversion, conscientiousness, and intellect/imagination factors of the Big Five. Agreeableness and emotionality are rotated variants of the agreeableness and emotional stability factors of the Big Five. HEXACO agreeableness can be seen as a blend between the Big Five agreeableness and emotional stability, where there is the gentleness component that is blended with the even temper of emotional stability. Furthermore, emotionality contains a blend of the same two components, where it includes vulnerability that is associated with low emotional stability and the Big Five agreeableness sentimentality element. The sixth factor, viz. honesty-humility, can be described as including traits like sincerity and fairness on the one hand and conceit and greed on the other (Ashton & Lee, 2005, 2008).

Since the revelation of HEXACO, a new form of measurement has been introduced, namely the HEXACO-PI. This personality inventory aims to measure each personality factor and its corresponding facets. It is important to note that, before continuing with the explanation of the HEXACO factors, empirical evidence exists indicating that all five traits of the FFM are positively correlated with OCB in general. Some of the traits have indicated incremental validity for the two forms of OCB (Ashton & Lee, 2005, 2008; Engelbrecht, 2011).

### **2.3.1 Honesty-humility**

The newest personality factor, namely honesty-humility, is said to be the sixth largest factor in various lexical investigations of personality structure. This factor was initially named honesty, but was later changed in an attempt to capture and reflect the extensiveness of the content. Honesty-humility (HH) forms the foundation on which the HEXACO structure is built and therefore signifies the moving away from the Big Five and the FFM. This factor draws upon the FFM factor of agreeableness, which includes two crucial constructs, namely honesty and humility. It therefore can be concluded that the FFM agreeableness factor is a close match to the HH factor. This factor consists of four facets, namely sincerity, fairness, greed avoidance and modesty, all of which are included in the HEXACO-PI (Ashton & Lee, 2010; Lee & Ashton, 2012).

Sincerity evaluates the inclination to be genuine or sincere in interpersonal relationships. This facet ranges between high and low sincerity, i.e. the manipulation of others for personal

gain on the one hand and the reluctance to manipulate others on the other. Fairness evaluates the inclination to evade fraud and corruption. On the low end, the individuals may be inclined to deceive and steal for personal gain, whereas on the high end, individuals avoid the exploiting of others. Thirdly, greed avoidance evaluates the inclination to be indifferent to being wealthy, having luxury possessions and a high social rank. The final facet of modesty evaluates the inclination to be modest and humble, i.e. individuals high on this trait tend to have a self-perception of being ordinary without the slightest sense of entitlement (Ashton & Lee, 2010; Lee & Ashton, 2012).

### **2.3.2 Emotionality**

All research on personality structure has resulted in finding a factor that is characterised by fearfulness, anxiety, dependence and sentimentality. It has commonly been referred to as the Big Five emotional stability, but more recent lexical studies have found that this factor has certain differences from the emotional stability component. It is important to note that this factor does not encompass irritability and temperament, which are both central to the low end of emotional stability. Furthermore, this factor encompasses sentimentality and sensitivity at the positive end and courage and toughness at the negative end, which differs from the low emotional stability dimension. It therefore can be concluded that the name emotionality can better define the factor than the emotional stability dimension (Ashton & Lee, 2010; Lee & Ashton, 2012).

Like all other HEXACO factors, emotionality encompasses four facets that are included in the HEXACO-PI. Firstly, fearfulness evaluates the inclination to experience fear, i.e. those on the low end are typically brave and insensitive to bodily pain, whereas those on the opposite end tend to evade physical injury. Secondly, anxiety evaluates the inclination to be concerned in a number of situations. Individuals who possess a low level of anxiety tend to experience minimal stress when faced with challenges, whereas those with a high level typically are preoccupied with the slightest difficulty (Ashton & Lee, 2010; Lee & Ashton, 2012).

Dependence evaluates the inclination to require emotional care from others. This facet ranges from being self-confident and capable of solving problems without assistance from others to needing others to provide support and comfort in times of difficulties. Finally, sentimentality evaluates the inclination to perceive strong affective ties with others, i.e. those on the low end typically are unemotional when responding to others' concerns, whereas

those on the opposite end are empathetic towards others (Ashton & Lee, 2010; Lee & Ashton, 2012).

### **2.3.3 Extraversion**

Extraversion is a personality factor that is typically characterised by sociability, liveliness and cheerfulness on the one hand and passivity and being reserved on the other. It is important to note that certain elements that make up the Big Five extraversion dimension are not found within this factor, but rather are considered to form part of the emotionality factor, for example bravery and self-confidence. Extraversion has been conceptualised to include certain facets that are found within the HEXACO-PI (Ashton & Lee, 2010; Lee & Ashton, 2012).

Expressiveness evaluates the inclination in an individual's social style to be excitable and intense. This facet ranges from low to high, i.e. not speaking in an enthusiastic or energetic way to being more likely to take over the conversation and have a dramatic style of communication. Secondly, social boldness evaluates an individual's ease or confidence within a range of social contexts. Individuals who possess a low level of social boldness feel shy or uncomfortable in, for example, leadership positions, whereas those with a high level are inclined to approach unfamiliar people or to speak their mind (Ashton & Lee, 2010; Lee & Ashton, 2012).

Sociability evaluates the inclination to like social interactions, i.e. the individuals either choose unsociable activities with minimal conversation or they prefer conversing, visiting and partying with others. Finally, liveliness evaluates the level of energy and passion, where those who possess high levels of this trait are typically more optimistic and exuberant (Ashton & Lee, 2010; Lee & Ashton, 2012).

### **2.3.4 Agreeableness**

This factor is usually described as being friendly, tolerant and agreeable on the one hand, and volatile, ill-tempered and quarrelsome on the other. As mentioned, this factor differs from the corresponding Big Five factor mainly in terms of its content. From the provided differences, the HEXACO-PI includes four facets that form part of this dimension (Ashton & Lee, 2010; Lee & Ashton, 2012).

Firstly, forgiveness evaluates the inclination to trust and like another individual who has previously instigated harm. Those low on this facet are more likely to resent individuals who

have hurt them, while others high on this facet are generally prepared to trust them again and to rebuild the relationship. Gentleness evaluates the inclination to be mild and compassionate when communicating with others. This facet ranges from low to high, i.e. from making critical assessments of others to being unwilling to severely judge others (Ashton & Lee, 2010; Lee & Ashton, 2012).

Thirdly, flexibility evaluates the inclination to compromise and liaise with others, i.e. the individuals can either be stubborn and argumentative, or they can avert quarrels by taking others' suggestions into consideration, regardless of how irrational they are. Finally, patience evaluates the inclination to stay composed instead of getting angry. It ranges from high to low, where those with low levels of patience are more likely to have a low threshold when it comes to expressing anger and, in contrast, those with higher levels of patience have a higher threshold with regard to anger expression (Ashton & Lee, 2010; Lee & Ashton, 2012).

### **2.3.5 Conscientiousness**

Conscientiousness is typically characterised in terms of organisation, diligence and caution. It therefore can be seen to be nearly identical to the corresponding Big Five dimension. It is important to note that the traditional Big Five conscientiousness dimension typically includes honesty, sincerity and a moral conscious, but these traits now form part of the honesty-humility factor. Conscientiousness has been conceptualised in such a way to include certain facets that are found within the HEXACO-PI (Ashton & Lee, 2010; Lee & Ashton, 2012).

Organisation evaluates the inclination to pursue tidiness, especially in the current environment, i.e. this facet ranges from being messy to orderly and the preference for structured task procedures. Secondly, diligence evaluates the inclination to exert high levels of effort. Low diligent individuals lack discipline and are not inspired to achieve, whereas highly diligent individuals work hard, exert effort and possess a work ethic (Ashton & Lee, 2010; Lee & Ashton, 2012).

Perfectionism evaluates the inclination to be thorough and detail oriented, i.e. individuals can range from being negligent and making errors to carefully looking for faults and areas for improvements. Finally, prudence evaluates the inclination to think carefully and to restrain impulses. Individuals with low levels of prudence are more likely to act on impulse without thinking about the outcomes, whereas those with higher levels of prudence look at all the options and are more self-assured (Ashton & Lee, 2010; Lee & Ashton, 2012).



### **2.3.6 Openness to experience**

The final factor, which is commonly referred to as intellect/imagination, is regarded as a controversial factor, mainly because of the nature of its shared content across a number of lexical studies. The imagination facet incorporates traits like innovation and creativity, which is a strongly shared component of this factor. In contrast, some other components, like the intellect facet, are not consistently defined across lexical studies (Ashton & Lee, 2010; Lee & Ashton, 2012).

The openness to experience dimension of HEXACO does not incorporate specific parts of the intellect facet, namely mental ability or intelligence, whereas aspects like intellectual curiosity and inquisitiveness, are included. There are four facets of openness to experience that are included in the HEXACO-PI. Aesthetics evaluates an individual's appreciation of natural and artistic beauty, ranging from no appreciation to complete enjoyment of a number of art forms and natural splendour. Secondly, inquisitiveness evaluates the inclination to look for information concerning the natural and social world, i.e. the individual can either have minimal inquisitiveness or is very interested in the natural and social world (Ashton & Lee, 2010; Lee & Ashton, 2012).

Creativity evaluates the inclination to be innovative and experimental, where individuals who have high levels of creativity are more inclined to engage in creative problem resolution and show themselves through art. Finally, unconventionality evaluates the inclination to accept the unfamiliar. Individuals who possess a low level of unconventionality evade strange or nonconforming individuals, whereas those with a high level are open to ideas that may be perceived as eccentric or drastic (Ashton & Lee, 2010; Lee & Ashton, 2012).

## **2.4 Job Satisfaction**

Job satisfaction refers to the attitudinal and affective response occurring because of the interactions among employee values regarding the job and the rewards obtained from this job. In other words, it is the employee's feeling of pleasure as a result of the gains received from the job. Job satisfaction can be viewed as a bipolar continuum, ranging from a negative to a positive attitude. In terms of the organisational context, job satisfaction is seen as essential because it influences employee behaviour, which, in turn, will have an impact on the overall performance and effectiveness of the organisation (Chih et al., 2012; Swaminathan & Jawahar, 2013; Ziegler et al., 2012).

## 2.5 Gratitude

There are a number of definitions for gratitude, but central to all these definitions is the positive emotional reaction, which is the result of receiving a benefit like a gift, kindness, support or favour. Such an emotional response has been hypothesised to be the behavioural tendency to be altruistic. Gratitude has been described as a positive moral affect, which does not mean that these emotions of gratitude themselves are moral, but that they rather encourage or are as a result of moral actions, i.e. the behaviours that are driven by an interest in the welfare of a society as a whole or of another individual (McCullough et al., 2001; Spence et al., 2013).

Consistent with the appraisal theories, emotions are viewed as subjective feelings together with physical changes that are stimulated by a particular event or cause, which, in turn, results in an action inclination to perform a particular behaviour. This is consistent with the theories surrounding gratitude, where it is seen as a recognisable emotion that is triggered by an event and the attributions the individual assigns to that event (Spence et al., 2013).

Gratitude usually occurs when individuals are recipients of prosocial actions and comprises three particular moral functions, namely as a moral barometer, a moral motive and as a moral reinforcer. Firstly, gratitude as a moral barometer means that it is an affective instrument that monitors and is sensitive to a specific kind of change in an individual's interpersonal relationships, i.e. receiving a benefit from another individual that increases the individual's wellbeing. This barometer makes gratitude reliant on social-cognitive input. Research has provided empirical evidence that, in terms of this social-cognitive input, an individual will most likely be grateful when:

- An exceptionally valuable benefit has been received
- High effort and cost have been exerted on the individual's behalf
- The effort exerted on the individual's behalf is purposeful and not accidental
- The effort exerted on the individual's behalf is gratuitous, i.e. it does not occur as a result of an existing relationship between the benefactor and beneficiary (McCullough et al., 2001).

Secondly, gratitude is not only the typical emotion that individuals experience when they perceive that someone has behaved in a manner that enhances their wellbeing, but is also seen to possess motivational significance, i.e. encouraging grateful individuals to act prosocially. As a result, gratitude can be seen as a possible motivational tool that underlies reciprocal altruism. It is important to note that these motives are distinct from inequity and

indebtedness, where the latter is typically experienced as an unpleasant emotion (McCullough et al., 2001).

Thirdly, expressing gratitude to someone who has acted in a prosocial manner, typically results in the benefactor exerting more effort to behave in a moral manner in the future, thus indicating that gratitude is an adaptive emotion to express. When the beneficiary acknowledges this behaviour, e.g. thanking the individual, the benefactor is reinforced for his/her altruistic behaviour (McCullough et al., 2001).

### **2.5.1 Gratitude as a mediator**

In order for mediation to occur, two conditions are required (Ilies, Fulmer, Spitzmuller & Johnson, 2009). Firstly, empirical evidence for the direct relationship between gratitude and certain personality characteristics must exist. Gratitude includes individual differences, i.e. dispositional traits, in the experience of a positively grateful emotion. Gratitude is considered to be comprised of varying levels of positive and negative affect. These two forms of affect, i.e. positive affect (PA) and negative affect (NA), are included in the descriptions of the FFM personality characteristics of extraversion and neuroticism respectively. Additional empirical evidence states that gratitude is seen to have a positive relationship with extraversion and a negative relationship with neuroticism. The HEXACO personality factor of extraversion is seen to correspond with the FFM extraversion factor, and therefore the empirical evidence for the linkage between the FFM extraversion and gratitude can be extended to that of the HEXACO extraversion. Similarly, the HEXACO emotionality factor is a rotated variant of the Big Five emotional stability, i.e. there are some changes, but it displays overall isomorphic relations with these factors, thus providing support for the linkage between the FFM neuroticism and gratitude to be extended to that of the HEXACO emotionality (Spence et al., 2013; Wood, Joseph & Maltby, 2008).

In addition to the above two central personality characteristics, the FFM agreeableness is positively correlated with gratitude. This can effectively be explained through the prosocial nature of agreeableness. As mentioned before, the HEXACO agreeableness is a rotated variant of the agreeableness factor of the Big Five (McCullough et al., 2001; Wood et al., 2008).

Secondly, a direct association is required between gratitude and OCB. There is very little research that can empirically explain how experiencing gratitude can result in individuals displaying helpful behaviour, as well as explain how gratitude indirectly relates to

performance on the job. As mentioned, central to gratitude is PA and NA. Research has indicated that PA increases the probability of the occurrence of OCB, whereas NA increases the probability that counterproductive work behaviour will occur. Furthermore, gratitude, by definition, will result in the creation of particular behavioural tendencies to act in a prosocial and altruistic manner. It has been shown that OCB will occur because of an individual's positive feelings towards the benefactor. One study has shown that the gratitude and OCB relationship is only applicable to the relationships among employees, and thus, by extension, the altruism and courtesy dimensions of OCB (Dalal, 2005; Spence et al., 2013).

Gratitude will not be included in this study for two reasons. Firstly, the lack of empirical evidence linking OCB and gratitude makes the use of gratitude as a mediator questionable. This is mainly because more research is necessary in order to determine the exact relationship between gratitude and the OCB dimensions, as well as the relationship between gratitude and the HEXACO personality factors. These therefore are separate studies that need to be conducted before one effectively can utilise gratitude as a mediator between the HEXACO personality factors and OCB dimensions.

Secondly, during the preliminary discussion with the site engineers, it became clear that certain aspects of the positive gratitude emotion were not present on site. When questioned about the use of emotions on site, the site engineers said that it was preferable to reduce the overall emotions shared on site as emotions tend to cloud judgement which, more often than not, has a negative impact especially when a subordinate needs to be disciplined by an engineer. It is in their opinion that boundaries need to exist between the site engineers and their subordinates, thus maintaining a formal supervisor-subordinate relationship. This boundary is important because the subordinates tend to take criticism personally and not objectively, which ultimately results in friction and conflict in the future.

Positive emotions and bonding does occur between the engineers and their subordinates on site because it is impossible to avoid this due to the nature of the work, i.e. working far away from home with minimal contact with family. The challenge lies in the fact that the engineers must try to keep an arm's-length type of relationship in these difficult conditions purely to try to ensure that the work can progress smoothly. As a result, the construction industry, as far as site engineers are concerned, has become a very serious, impassive industry that has no room for error. This is true especially in recent times because the construction industry is experiencing particular challenges, as mentioned earlier, and, as a result, projects have become scarce. It therefore becomes essential that the organisation turns a profit on every project in order to survive. When something goes wrong there have to be immediate consequences for those responsible, and for this to happen smoothly there have to be solid

boundaries. In conclusion, the nature of the job for site engineers prevents the use of gratitude on site. It is for this reason that gratitude will not be included in the current study (L. M. da Silva, personal communication, 7 May 2013; G. van Zyl, personal communication, 7 May 2013).

## **2.6 HEXACO Personality Factors and OCB**

Personality plays a part in discretionary behaviours or behaviours that are displayed in settings that have few external restraints. Due to the fact that personality reflects an individual's enduring inclination to think, feel and behave in a particular manner, and that OCB is discretionary, one can conclude that a strong relationship exists between OCB and personality characteristics. In addition, personality potentially can produce OCB within the vocational setting via a number of simultaneous and interconnected processes. Firstly, personality differences may have an impact on how individuals are motivated, thus indicating that motivation could be the tool through which personality produces OCB (Elanain, 2007; Chiaburu et al., 2011; Najari et al., 2011).

Moreover, personality features may influence how individuals perceive situations and the probability that they will respond in an interpersonally facilitative way. For example, individuals low in emotional stability is more likely to perceive situations in a negative way. These individuals could perceive a co-worker's OCB as intimidating to the status hierarchy, and therefore would withhold helpful behaviour. Finally, personality, which is commonly related to efficiency, diligence and reliability, is a facet of human behaviour that both organises and guides other behaviours (Najari et al., 2011).

Previous research provides support for the argument that a significant relationship exists between personality and OCB. Chiaburu et al. (2011) concluded that all five traits of the five factor model positively and significantly correlate with organisational citizenship behaviour as a whole. The top two personality predictors of OCB were conscientiousness and agreeableness, closely followed by openness to experience. In addition, Najari et al. (2011) came to the same conclusion, namely that personality and OCB are directly, positively and significantly related.

### 2.6.1 Honesty-humility and OCB

In terms of the connection between HH and OCB, very little empirical research has been done. Although the latter may be true, it is possible to argue that, because this study aims to look beyond the FFM, HH must be significantly related to OCB, especially with regard to its five dimensions. There are two reasons, each drawing on the other, for the inclusion of this factor. Firstly, Chiaburu et al. (2011) described HH as the inclination to be genuine and just when consulting with others, i.e. effectively cooperating with others even if there is a possibility of exploitation. This description led to the conclusion that HH should be included in further studies regarding OCB, especially because it was their belief that this factor, by definition, would be significantly related to citizenship behaviours.

Secondly, HH has been described as being very similar to the FFM agreeableness. In most studies regarding the relationship between individual differences and OCB, this FFM factor has been found to be a crucial antecedent of OCB (Chiaburu et al., 2011). These study conclusions are mentioned later in the report. Due to the similarities found between the HH factor and the FFM agreeableness factor, one can argue that as a result of the FFM agreeableness being related to OCB, HH by extension should be related to OCB.

In recent HEXACO-related studies, the HH factor, along with the agreeableness and emotionality factors, has been described as a predisposition that underlies general altruistic behaviours on the one hand, and antagonistic behaviours on the other. These behaviours have commonly been referred to as prosocial and antisocial tendencies respectively. In more general terms, the adjectives used to describe altruistic behaviours include sympathy, soft-heartedness and generosity. The most recent study conducted by Hilbig, Glöckner and Zettler (2014), provided empirical evidence that honesty-humility is positively and significantly related to prosocial and cooperative behaviours. This therefore suggests that a positive relationship between HH and OCB does exist.

In addition, an altruistic orientation can be defined more strictly as the tendency to avoid the exploitation of others, i.e. being fair and unassuming, not to have an intense response to any perception of exploitation, i.e. being patient and forgiving, as well as not becoming detached or unemotional. As a result of such studies, the three mentioned personality factors, viz. HH, agreeableness and emotionality, have been shown to be the strongest predictors of the altruistic orientation (Ashton & Lee, 2007). In terms of the work-related context, one therefore can deduce that being fair-minded, modest and empathetic will result in increased levels of altruistic behaviours.

These three tendencies fall under the HH factor, and, as a result, one can propose the following:

*Hypothesis 1: Honesty-humility has a significant positive effect on altruism*

To date, there has been very little to no research on the HEXACO factors, and thus by extension, the HH and OCB relationship. As a result, there is very little information and evidence relating to the relationship between HH and the remainder of the OCB dimensions. This, however, does not mean that such a relationship does not exist. By definition, this personality factor should be related to the remaining OCB dimensions.

As mentioned, courteous individuals are those individuals who display specific behaviours in an effort to avoid interpersonal conflict in, for example, the work environment. This factor has been shown to be related to the FFM agreeableness, which is explained further later in the report. Due to the fact that the HH factor draws upon certain elements of the FFM agreeableness, it is possible to argue that, by extension, HH should be related to the courtesy dimension too. Individuals high on the HH factor avoid the exploitation of others and tend to cooperate more with their co-workers.

It therefore can be argued that avoiding the exploitation of others will allow the individual to avoid conflict (i.e. courtesy). In addition, the individual's ability to cooperate with others will assist in the development of interpersonal relationships, which allows the individual to communicate in such a way that is fair and sincere. As a result, the individual will be less likely to be involved in interpersonal conflicts, and more likely to cooperate in such a way that will result in fewer conflicts arising and in the creation of congruence amongst co-workers. From this argument the following is proposed:

*Hypothesis 2: Honesty-humility has a significant positive effect on courtesy*

Due to the fact that little to no research has been done to date in terms of the relationship between HH and the remaining OCB dimensions, it becomes difficult to include such connections. Furthermore, the facets making up the HH personality factor do not

successfully explain the remaining dimensions, namely compliance, civic virtue and sportsmanship. These relationships therefore cannot be included in the current study.

### **2.6.2 Emotionality and OCB**

Most research conducted on the relationship between the Big Five emotional stability factor and OCB has focused mainly on the lower end of the factor, namely neuroticism. Smith et al. (1983) stated that there was a minute relationship between neuroticism and the OCB dimensions.

In contrast, Hertz and Donovan (2000) found that the Big Five emotional stability significantly predicted the interpersonal component of OCB ( $\rho_V = .16$ ). Small and Diefendorff (2006) utilised this evidence as justification to further investigate this relationship. They arrived at the conclusion that not only was emotional stability a predictor of OCB, but also that it had one of the strongest relationships with OCB. Chiaburu et al. (2011) found that emotional stability provided incremental validity in the prediction of the OCB dimensions over and above the two typical predictors, namely conscientiousness and agreeableness. In addition, Najari et al. (2011) concluded that a positive and significant relationship exists between certain OCB dimensions and emotional stability.

Singh and Singh (2009) provide further evidence that neuroticism is not only negatively related to OCB, but is specifically and significantly negatively associated with altruism, courtesy and sportsmanship, the latter having the strongest relationship.

Individuals who display low levels of neuroticism, i.e. higher levels of emotional stability, are more inclined to be calm when faced with stressful contexts or difficulties. These individuals are typically self-confident. In addition, they are inclined to be more secure as well as less anxious and angry. Emotional stability is a crucial personality determinant of social conduct, and therefore can be said to be central to the occurrence of the interpersonal dimensions of OCB (Singh & Singh, 2009). It is important to note that the HEXACO emotionality is a rotated variant of the Big Five emotional stability, i.e. there are some changes, but overall it displays isomorphic relations with these factors.

In terms of the relationship between emotionality and the OCB dimensions, the definition of the factor in question together with the descriptions of its facets, should provide the reasoning for the inclusion of emotionality. When considering the facets and the aforementioned explanation of emotional stability, it becomes apparent that both similarities and dissimilarities exist between the emotionality facets and the Big Five emotional stability.



This provides the additional justification required in order to include emotionality in the current study.

In general, the emotionality factor consists of inclinations applicable to altruistic behaviour. It thus can be inferred that emotionality is yet another construct that underlies altruism. These inclinations include empathetic concerns and emotional connections with others to whom the individual is close. In addition, it includes the tendencies to exhibit harm-avoiding and assistance-seeking behaviours related to the investment in the close others. These two tendencies, however, do not always present themselves explicitly but are operationalised in the HEXACO-PI as the fearfulness and dependence facets of emotionality. Moreover, high levels of emotionality have been linked to decreased opportunities to exploit others for personal gain (Ashton & Lee, 2007; Bourdage et al., 2012).

As mentioned, researchers have concluded that emotionality underlies altruistic behaviours. When considering the various facets of emotionality, it becomes evident that there is only one that comprehensively explains this conclusion. By definition, the sentimentality facet of emotionality includes the two inclinations central to the displaying of altruism, namely empathetic concern and affective attachment. Both of these tendencies will lead to better interpersonal relationships between the individuals and their co-workers, which will result in an increased likelihood of these individuals assisting others with work-related problems. From this argument the following is proposed:

*Hypothesis 3: Emotionality has a significant positive effect on altruism*

Central to courteous behaviour is being polite and taking others into consideration in order to avoid conflict. In addition to the relationship found between the Big Five emotional stability and courtesy, it is possible to deduce that a relationship exists between emotionality and courtesy. Being empathetic towards others allows an individual not only to respect the others' concerns, i.e. displaying polite behaviour, but also to consider the emotions and needs of those individuals. This argument thus links the sentimentality facet of emotionality to the courtesy dimension of OCB, therefore proposing the following:

*Hypothesis 4: Emotionality has a significant positive effect on courtesy*

As mentioned, Singh and Singh (2009) found a strong negative relationship between sportsmanship and neuroticism. By definition, sportsmanship is only displayed by an individual who possesses a high tolerance for non-ideal situations. An individual who has a low level of anxiety typically will be more tolerant of challenges that may occur within the work context because of the lower stress levels that the individual is experiencing. This therefore offers theoretical support for the empirical evidence provided, thus the following is proposed:

*Hypothesis 5: Emotionality has a significant negative effect on sportsmanship*

No evidence exists to date in terms of the relationships between the remaining OCB dimensions, namely civic virtue and compliance, and emotionality. As a result these relationships are not included in the current study.

### **2.6.3 Extraversion and OCB**

Research examining the relationship between extraversion and OCB has yielded contradictory results. Firstly, Organ and Konovsky (1989) investigated the impact that a mood trait, viz. the positive affectivity (PA) component of extraversion, has on OCB. They reached the conclusion that PA provided no incremental validity over and above cognition when explaining the OCB variance. This conclusion, however, was proven incorrect when Chiaburu et al. (2011) found that extraversion provided incremental validity over the two essential personality determinants of OCB, i.e. conscientiousness and agreeableness. Najari et al. (2011) provided further evidence that a strong positive correlation exists between extraversion and the aggregated OCB. Furthermore, a study conducted by Kiffin-Petersen, Jordan and Soutar (2011) reached the conclusion that extraversion has direct moderate relationships with the interpersonal dimensions of OCB.

Singh and Singh (2009) found that extraversion was related to all of the OCB dimensions except for sportsmanship. The explanation provided for these relationships is that highly extraverted individuals not only have exceptional social skills but also have higher job performance. It is important to note that all the aforementioned studies were based on the extraversion factor of the FFM. The HEXACO extraversion is seen to correspond with the

FFM extraversion factor, and therefore the empirical evidence of the linkage between the FFM extraversion and OCB can be extended to that of the HEXACO extraversion.

The characteristics, i.e. the facets, of extraversion provide a foundation on which OCB can develop. OCB is less likely to occur in an employee who is not sociable and who wants to be alone. In addition, individuals who are extraverted tend to have more positive and optimistic perceptions of others, as demonstrated by the liveliness facet of extraversion. As mentioned previously, individuals who have a negative outlook on life tend to be more threatened by other individuals and thus are less likely to display OCB, especially with regards to the two interpersonal dimensions, namely altruism and courtesy (Ashton & Lee, 2010; Najari et al., 2011). One can extend this argument by saying the opposite may also be true, i.e. an optimistic individual is more likely to display OCB.

In addition, extraverted individuals' social skills allow them to make friends, i.e. develop interpersonal relationships, more easily thus resulting in more assisting and courteous behaviours towards others. An alternative explanation is that employees who have a high level of extraversion tend to express their abilities by assisting others, which in turn may result in a higher degree of altruism. In a similar way, highly extraverted individuals are more likely to utilise their higher levels of sociability to talk to others in an attempt to be considerate and courteous when implementing new organisational plans. These arguments are supported by the empirical evidence found by Singh and Singh (2009) thus resulting in the following:

*Hypothesis 6: Extraversion has a significant positive effect on altruism*

*Hypothesis 7: Extraversion has a significant positive effect on courtesy*

By definition, civic virtue entails the individual's concern for the organisation. These behaviours include defending the organisation and its policies when they are challenged by others. Extraverted individuals who have high levels of the social boldness facet are more likely to defend the organisation because they are not afraid to speak their minds whether it is towards people they know or unfamiliar strangers. The following is therefore proposed:

*Hypothesis 8: Extraversion has a significant positive effect on civic virtue*

The compliance dimension of OCB is typically characterised by going the extra mile for the organisation. An individual who is optimistic, passionate and enthusiastic by nature also is more likely to display such behaviour towards the job. Such an individual can be characterised as possessing a high level of the liveliness facet of extraversion. These individuals tend to have higher levels of job performance because they are more likely to exceed the expectations of the organisation due to their lively nature, thus proposing the following:

*Hypothesis 9: Extraversion has a significant positive effect on compliance*

No evidence exists to date in terms of the relationship between sportsmanship and extraversion. Sportsmanship entails an individual's higher levels of tolerance towards challenging situations as well as the individual's ability to refrain from complaining. None of the extraversion facets, namely expressiveness, social boldness, sociability and liveliness, can successfully explain this OCB dimension. As a result this relationship is not included in the current study.

#### **2.6.4 Agreeableness and OCB**

From all the studies attempting to link personality and OCB, agreeableness has been found, time and again, as one of the main contributors to the development of OCB (Lingh, 1995; Organ and Ryan, 1995; Elanain, 2007). The relationships found vary in the strength of the relationship itself. In earlier studies Organ and Lingl (1995) hypothesised that agreeableness is responsible for variances in OCB. This hypothesis, however, was not supported by the empirical results. In addition, later that same year, Organ and Ryan (1995) were able to find a weak relationship between agreeableness and OCB. Konovsky and Organ (1996) came to the conclusion that there was a relationship, albeit a weak one, between agreeableness and the courtesy component of OCB. This finding further indicates that agreeableness can explain variance in OCB.

More recent studies, conducted by Elanain (2007) and Chiaburu et al. (2011), have identified three essential personality characteristics that are related to OCB, one of which is agreeableness. These studies provide additional evidence that such a relationship does exist. Najari et al. (2011) provided further proof that agreeableness contributed to the

displaying of OCB in general. Furthermore, Singh and Singh (2009) concluded that agreeableness is positively and significantly related to altruism, courtesy, conscientiousness and sportsmanship. It was argued that an agreeable individual not only displays high interpersonal competence but is also able to cooperate effectively when combined effort is required.

Chiaburu et al. (2011) and Bourdage et al. (2012) provided empirical evidence that agreeableness has a positive and significant relationship with OCB in terms of its organisational dimensions, thus providing further evidence of the relationships between agreeableness and conscientiousness as well as agreeableness and sportsmanship. It is important to note, however, that all the aforementioned studies were based on the agreeableness factor of the FFM. As mentioned before, the HEXACO agreeableness is a rotated variant of the agreeableness factor of the Big Five.

In the latest HEXACO-related studies, the agreeableness, HH and emotionality factors have been described as a predisposition that underlies general altruistic behaviours. As stated previously, the adjectives used to describe altruistic behaviours include sympathy, soft heartedness and generosity. Moreover, an altruistic orientation can be defined more narrowly as the inclination to avoid the mistreatment of others, not to have an intense response to any perception of exploitation as well as not to become detached. As a result of such studies, the three mentioned personality factors have been revealed as the strongest predictors of the altruistic orientation (Ashton & Lee, 2007).

Furthermore, the definitions of this factor as well as its facets provide additional justification for why agreeableness will be used in this study, i.e. all the facets mentioned are related to interpersonal relationships. Flexibility can be seen as being related to the courtesy dimension of OCB because flexibility does not only involve avoiding conflict but also includes taking others into consideration. Secondly, patience should be linked to altruism, where being patient is necessary in order to assist others, as is courtesy, where having a high threshold for expressing anger can assist in avoiding conflict. In addition, gentleness and forgiveness will assist in the development of meaningful interpersonal relationships, within which both the courteous and altruistic dimensions of OCB can occur. From these explanations, the following is proposed:

*Hypothesis 10: Agreeableness has a significant positive effect on altruism*

*Hypothesis 11: Agreeableness has a significant positive effect on courtesy*

The Compliance dimension of OCB is typically characterised by the individual taking on more responsibilities and doing more than what is required on the job. An individual displaying such behaviour may typically be seen as an ideal employee. Past research has indicated that agreeable individuals are more likely to display conscientious behaviour, where agreeableness is seen as one of the main contributors to the occurrence of this dimension, thus resulting on the following:

*Hypothesis 12: Agreeableness has a significant positive effect on compliance*

Sportsmanship entails an employee's ability to go with the flow when decisions are made and to refrain from complaining about them. The flexibility facet of agreeableness assists the individual in averting quarrels and rather going with the flow, regardless of how irrational the situation may be. Patience will allow the individual to have a higher tolerance for challenging situations, and thus results in fewer complaints made by that individual. Due to this argument and the empirical evidence provided, the following is proposed:

*Hypothesis 13: Agreeableness has a significant positive effect on sportsmanship*

### **2.6.5 Conscientiousness and OCB**

Although conscientiousness is, by definition, a factor that would be expected to be mostly related to the civic virtue, conscientiousness and sportsmanship dimensions of OCB, studies have shown that this factor also may be central to the occurrence of altruism and courtesy. Initially, Organ and Lingl (1995), Organ and Ryan (1995) and Konovsky and Organ (1996) found that conscientiousness had a strong, reliable connection to OCB, especially with regard to the organisational component of compliance, i.e. conscientiousness.

More recent studies conducted by Elanain (2007) and Chiaburu et al. (2011) arrived at the conclusion that not only did conscientiousness contribute to the overall occurrence of OCB, but also significantly contributed to the occurrence of specific OCB dimensions. In both studies, this factor was the strongest predictor of the interpersonal dimensions of OCB, namely altruism and courtesy. Chiaburu et al. (2011) found a correlation of .21 between conscientiousness and the altruistic dimension of OCB, which was higher than that of

agreeableness which showed a moderate relationship with a correlation of .18. Furthermore, Najari et al. (2011) provided empirical evidence that conscientiousness and aggregated OCB are positively related.

Akinbode (2011) found that the conscientiousness personality factor is positively and significantly related to the civic virtue and conscientiousness dimensions of OCB. In addition, Singh and Singh (2009) concluded that this personality factor is a significant contributor to all dimensions of OCB besides altruism. This is further supported by Bourdage et al. (2012) who provided similar results and were also able to prove the connection between altruism and conscientiousness.

It is important to note that all the aforementioned studies were based on the conscientiousness factor of the FFM. The HEXACO conscientiousness is seen to correspond with the FFM conscientiousness factor, and therefore the empirical evidence of the linkage between the FFM conscientiousness and OCB can be extended to that of the HEXACO conscientiousness. One thus can hypothesise that, due to the fact that the FFM conscientiousness is significantly related to all five dimensions of OCB, the HEXACO conscientiousness factor will be related to the same dimensions of OCB, therefore proposing the following:

*Hypothesis 14: Conscientiousness has a significant positive effect on altruism*

*Hypothesis 15: Conscientiousness has a significant positive effect on courtesy*

Theoretically, these relationships between the OCB dimensions and this personality factor should exist, especially with regard to civic virtue, compliance and sportsmanship. Firstly, civic virtue entails one's concern for the organisation, where staying up to date with the organisation's performance is key. A diligent, organised, and detail-oriented individual is more likely to remain updated with organisational concerns, thus indicating that such a relationship should exist.

Secondly, the compliance, i.e. conscientiousness, dimension corresponds to the personality dimension of the same name, where the individual is organised, diligent, detail-oriented and prudent. These are all the characteristics necessary for the displaying of this OCB dimension. Finally, sportsmanship is concerned with tolerance of non-ideal situations and refraining from complaining. Prudent individuals are more likely to think before they act and

to restrain from acting on impulse, therefore resulting in the individual refraining from complaining unless it is absolutely necessary. This therefore provides an indication that such a relationship should exist between sportsmanship and conscientiousness. From these explanations, it is possible to propose the following:

*Hypothesis 16: Conscientiousness has a significant positive effect on civic virtue*

*Hypothesis 17: Conscientiousness has a significant positive effect on compliance*

*Hypothesis 18: Conscientiousness has a significant positive effect on sportsmanship*

## **2.6.6 Openness to experience and OCB**

Very few researchers have placed emphasis on the relationship between openness to experience and OCB. From the provided definitions of the facets, one would expect that openness to experience would be related to sportsmanship. Previous research found no significant connection between openness to experience and being able to work effectively with others. A recent study conducted by Najari et al. (2011) found that openness to experience was positively and significantly related to the aggregated OCB.

Elanain (2007) and Chiaburu et al. (2011) came to unexpected conclusions, as they found that openness to experience not only relates to OCB as a whole, but also to specific OCB dimensions. Chiaburu et al. (2011) found that the correlations between this personality factor and the OCB dimensions were either stronger or equal to that of agreeableness and conscientiousness, i.e. the main OCB predictors. This therefore proves that openness to experience provides incremental validity over and above agreeableness and conscientiousness. Elanain (2007) came to the conclusion that openness to experience was positively and significantly related to altruism and civic virtue. It therefore becomes crucial to include this factor in the study on the basis that it has a significant, albeit moderate, relationship with the OCB dimensions as found by Chiaburu et al. (2011) and Elanain (2007).

The HEXACO openness to experience draws on both the corresponding FFM factor and the Big Five intellect/imagination. As mentioned, the FFM openness to experience only includes traits involving imagination, whereas the Big Five intellect/imagination includes intellect as well. The HEXACO openness to experience includes facets of both, but the intellectual facets are kept to a minimum, with some being included and others not. Although this factor



incorporates certain intellectual components found within the Big Five intellect/imagination, it can be seen as an extension of the corresponding FFM factor, upon which the above-mentioned evidence is based.

Furthermore, a recent empirical study has provided evidence for the relationship between the HEXACO openness to experience and altruism. Bourdage et al. (2012) came to the conclusion that openness to experience was positively and significantly related to pro-social, altruistic behaviours. However unexpected, one cannot ignore the compelling evidence provided by recent research on the relationship between openness to experience and altruism as well as openness to experience and civic virtue. In terms of the relationship between civic virtue and openness to experience, there is one personality facet that clearly indicates that such a relationship exists, namely inquisitiveness (Elanain, 2007; Chiaburu, 2011). As mentioned, civic virtue entails an individual keeping up to date with the organisation's performance as well as with the external world, i.e. the strengths, weaknesses, opportunities and threats facing the organisation. Inquisitive Individuals are more likely to search actively for information on the natural and social world, thus providing a further indication of the existence of the relationship between openness to experience and civic virtue. As a result of this argument, the HEXACO openness to experience will be included in the study, thus resulting in the following hypotheses:

*Hypothesis 19: Openness to experience has a significant positive effect on altruism*

*Hypothesis 20: Openness to experience has a significant positive effect on civic virtue*

## **2.7 Job Satisfaction as a Mediator**

Organ and Ryan (1995) suggested that certain dispositional traits may be correlated with OCB through their influences on job attitudes. When considering this line of logic, it becomes clear that job satisfaction may in fact mediate the relationship between certain personality traits, namely conscientiousness and agreeableness, and OCB. Both these personality factors predispose an individual to act in a manner that will result in greater job satisfaction, which thus results in the motivation to reciprocate through the use of OCBs. By nature, highly agreeable and conscientious individuals enjoy pleasant and rewarding work environments, thus resulting in enhanced job satisfaction (Organ & Lingl, 1995).

In order for mediation to occur, two conditions are required (Ilies et al., 2009). Firstly, empirical evidence for the direct relationship between job satisfaction and these personality characteristics must exist. Substantive research results, including those of Organ and Lingl (1995), provide empirical support for this relationship.

Secondly, a direct association between job satisfaction and OCB is required. Job satisfaction is considered to be the most well-known and best predictor of OCB. It is the one antecedent that has been consistent from the beginning of research on OCB. When employees are satisfied with the outcomes and pay at work, they are more likely to have enhanced levels of OCB towards fellow employees as well as towards the organisation, i.e. increased job satisfaction stimulates OCBs (Chien, 2009; Chih et al., 2012; Organ, 1990). This argument concerning the relationship between job satisfaction and OCB is supported by research conducted by Organ and Ryan (1995), LePine et al. (2002), Chih et al. (2012), Ziegler et al. (2012), and Swaminathan and Jawahar (2013) who all concluded that a moderate, significant and positive correlation exists between the two constructs. In addition, significant relationships have been found between job satisfaction and two OCB dimensions, namely altruism and courtesy (McNeely & Meglino, 1994; Organ & Ryan, 1995; Swaminathan & Jawahar, 2013).

This relationship between these OCB dimensions and job satisfaction can be explained by two separate arguments. The first regards the relationship as instigated by one or more other variables that simultaneously influence job satisfaction and altruistic and courteous behaviours. The foundation for this argument lies within social exchange theory, where the individuals try to reciprocate those who value and benefit them. In other words, employees who perceive that the organisation is caring for their welfare will experience increased job satisfaction and, as a result, will reciprocate through the display of altruistic and courteous behaviour. The second argument is based on the impact that a positive mood has on this relationship. Stated differently, the display of such behaviours within the workplace is dependent on the degree to which job satisfaction encapsulates an employee's positive mood (McNeely & Meglino, 1994).

In addition to the empirical research provided, Ilies et al. (2009) empirically proved that job satisfaction mediates the relationship between agreeableness and the two OCB dimensions, altruism and courtesy, as well as between conscientiousness and two OCB dimensions, altruism and courtesy. It is for this reason that the following are proposed:

*Hypothesis 21: Job satisfaction has a significant mediating effect on the relationship between agreeableness and altruism*

*Hypothesis 22: Job satisfaction has a significant mediating effect on the relationship between agreeableness and courtesy*

*Hypothesis 23: Job satisfaction has a significant mediating effect on the relationship between conscientiousness and altruism*

*Hypothesis 24: Job satisfaction has a significant mediating effect on the relationship between conscientiousness and courtesy*

## 2.8 Proposed Structural Model

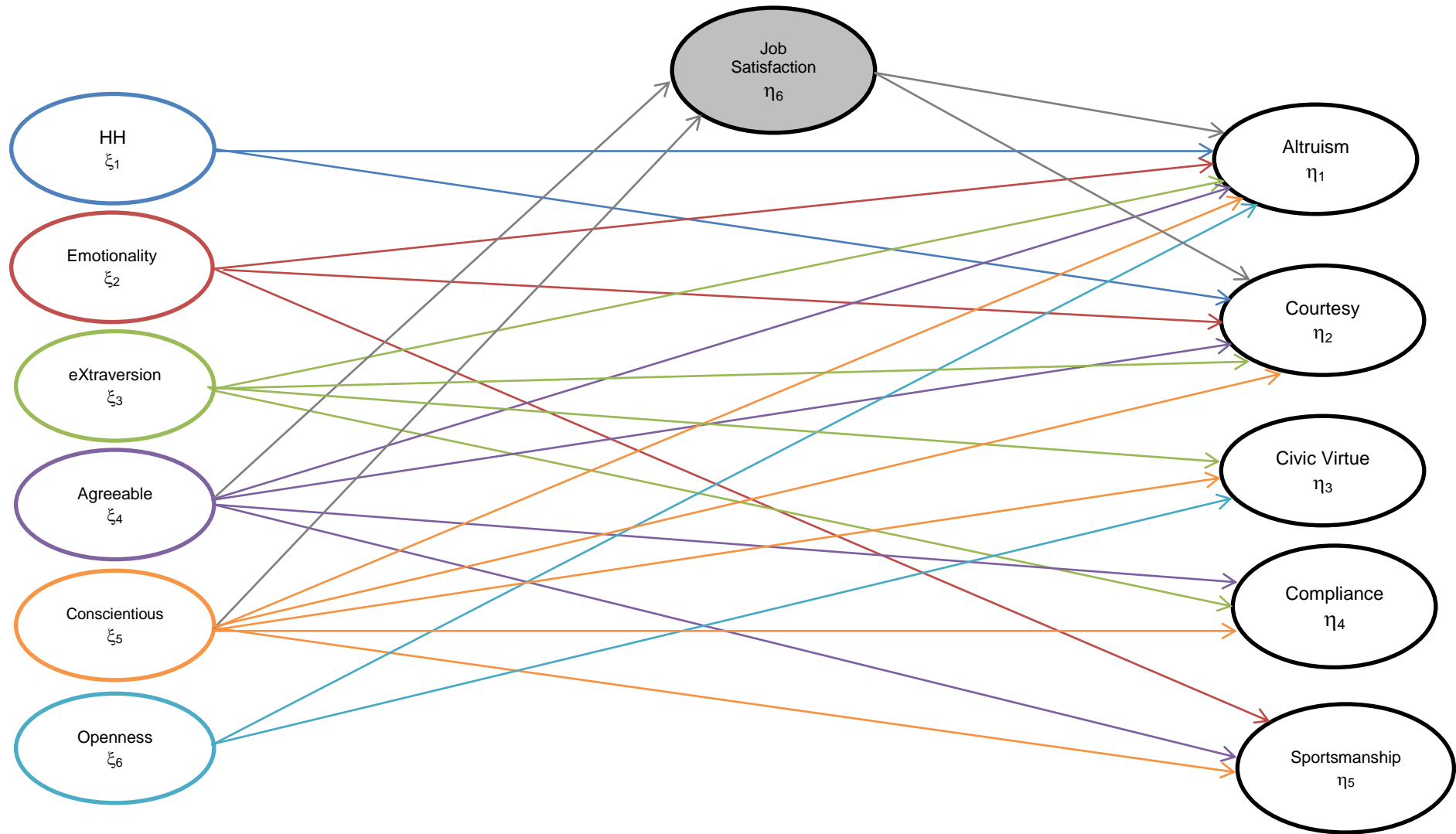
Figure 2.1 depicts the proposed structural model for the current study. It is based on the proposed hypotheses provided in the literature review. It is important to note that due to the complexity of the model, space was restricted and, as a result the causal relationships of  $\gamma$  and  $\beta$  were not included in the figure.

In addition, the structural model can be expressed in terms of the following mathematical equation, which is further divided into a series of separate structural equations:

$$\eta = B\eta + \Gamma\xi + \zeta \dots \dots \dots (1)$$

These structural equations are made up of a set of matrices that represent the research problems that the current study aims to investigate. The latent variables in Figure 2.1 are expressed in LISREL notation as follows:

- Honesty-humility –  $\xi_1$
- Emotionality –  $\xi_2$
- Extraversion –  $\xi_3$
- Agreeableness –  $\xi_4$
- Conscientiousness –  $\xi_5$
- Openness to experience –  $\xi_6$
- Altruism –  $\eta_1$
- Courtesy –  $\eta_2$
- Civic Virtue –  $\eta_3$
- Compliance –  $\eta_4$
- Sportsmanship –  $\eta_5$
- Job satisfaction –  $\eta_6$



**Figure 2.1. Proposed Structural Model for the Hypothesised Relationships**

## **2.9 Summary of Chapter 2**

The aim of this chapter was to provide a thorough analysis of the existing literature in order to define the latent variables of interest, namely organisational citizenship behaviour and its most prominent antecedents. From reviewing the literature, it became clear that the most essential antecedent of OCB is personality. A clear description of the personality model utilised in this study was provided. Another antecedent, namely job satisfaction, was described and thus defined as a mediator between certain variables. In addition, specific relationships between OCB, the personality factors and job satisfaction were hypothesised. Thereafter, a theoretical structural model was compiled in order to graphically depict the identified relationships. This model was depicted in scientific LISREL notation. The following chapter will provide the methodology necessary to test the hypothesised relationships within the structural model.

## CHAPTER 3 RESEARCH DESIGN AND METHODOLOGY

### 3.1 Introduction

The purpose of this chapter is to provide a thorough description of the methodology selected in order to provide empirical evidence of the relationships hypothesised in Chapter 2. Ultimately, the methodology chosen aims to obtain answers to the research-initiating question, which is stated as follows:

*Why is there variance in organisational citizenship behaviour amongst site engineers?*

Before one can elaborate on the research methodology and design, it is important to recap the objectives as stated in Chapter 1. In summary, this research study aims to:

- Investigate the current level of organisational citizenship behaviour amongst site engineers.
- Identify the most significant antecedents that contribute the most to the variance in OCB amongst site engineers within a number of South African construction companies.
- Develop and empirically investigate a structural model portraying the relationship between the crucial antecedents and OCB.
- Emphasise the managerial implications of the research findings and thereafter recommend interventions that would enhance the levels of organisational citizenship behaviour in employees within the South African civil engineering sector.

### 3.2 Research Design

The objective of this study was to determine whether specific causal relationships exist between the HEXACO personality factors and the OCB sub-dimensions as proposed by the structural model in Figure 2.1. The statistical hypotheses provided in Section 3.2.1 prophesise the particular relationships between the exogenous latent variable ( $\xi$ ) and endogenous latent variables ( $\eta$ ). A quantitative approach was utilised in this study through the acquisition of primary data.

In order to empirically investigate the substantive research hypothesis, it is necessary to have a strategy that will provide precise empirical evidence. This strategy is often referred to as the research design, and is defined as the plan and structure that are created for the

investigation in order to obtain answers to the research question, as well as to control variance. The research design is able to maximise systematic variance, minimise error variance and control extraneous variance. It will determine the certainty with which the empirical evidence can be used in arguments for or against the hypothesis (De Goede, 2007; Theron, 2011).

An ex post facto correlational design was used in this study. Ex post facto research is a form of systematic empirical inquiry in which the researcher does not use random assignment or experimental manipulation of the independent variables, i.e. does not have direct control over these variables. Correlational designs are designs in which the independent variables and the dependent variables can only be studied across individuals in order to ascertain the degree to which they co-vary (De Goede, 2007; Theron, 2011).

The logic of the ex post facto correlational design is that the researcher observes  $n$  observed variables, viz. item scores, subscale scores or most likely item parcels, and determines the covariance between these observed variables. Estimates for the freed structural model parameters are acquired in an iterative way with the aim of replicating the observed covariance matrix as precisely as possible. If the fitted model fails to accurately replicate the observed covariance matrix, it would be concluded that the hypothesised structural model does not offer a credible explanation for the observed covariance matrix (De Goede, 2007; Theron, 2011).

The opposite, however, is not true. If the covariance matrix, obtained from the estimated model parameters closely relates to the observed covariance matrix, it would not mean that the processes hypothesised by the structural model inevitably produced the observed covariance matrix. A high degree of fit among the observed and estimated covariance matrices would only imply that the processes depicted in the structural model offer one credible explanation for the observed covariance matrix (De Goede, 2007; Theron, 2011).

There are, however, downsides to the use of non-experimental data, including the possibility of incorrectly inferring that a relationship exists between a dependent and an independent variable. Although such downsides exist, the ex post facto correlation design has high external validity because of the lack of manipulation of or interference in the variables (Janse van Rensburg, 2010; Van der Westhuizen, 2014).

The reason for the choice of such a design is due to the fact that the current study's structural model contains more than two endogenous variables that are affected by more than two exogenous latent variables. In addition, there are causal relationships between the

endogenous latent variables and the exogenous latent variables that cannot be manipulated experimentally (De Goede, 2007; Theron, 2011).

An ex post facto correlational design can be analysed in one of two ways namely, multiple regression or structural equation modelling (SEM). Due to the fact that this study has more than one endogenous latent variable, SEM will be used. For an ex post facto correlational design it is necessary to have at least two indicator variables that represent each latent variable (De Goede, 2007; Theron, 2011).

### 3.2.1 Statistical hypotheses

The overarching substantive research hypothesis means that the structural model indicates a valid account of the psychological process underpinning OCB amongst employees. As mentioned previously, the overarching substantive hypothesis was further divided into 24 specific substantive hypotheses. These hypotheses were then converted into specific path coefficients, all of which, with the exception of the hypotheses for the exact and close model fit, can be found below.

#### Hypothesis 1

Honesty-humility ( $\xi_1$ ) has a significant positive effect on altruism ( $\eta_1$ ).

$$H_{o1}: \gamma_{11} = 0$$

$$H_{a1}: \gamma_{11} > 0$$

#### Hypothesis 2

Honesty-humility ( $\xi_1$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

$$H_{o2}: \gamma_{21} = 0$$

$$H_{a2}: \gamma_{21} > 0$$

#### Hypothesis 3

Emotionality ( $\xi_2$ ) has a significant positive effect on altruism ( $\eta_1$ ).

$$H_{o3}: \gamma_{12} = 0$$

$$H_{a3}: \gamma_{12} > 0$$



#### Hypothesis 4

Emotionality ( $\xi_2$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

$$H_{o4}: \gamma_{22} = 0$$

$$H_{a4}: \gamma_{22} > 0$$

#### Hypothesis 5

Emotionality ( $\xi_2$ ) has a significant negative effect on sportsmanship ( $\eta_5$ )

$$H_{o5}: \gamma_{52} = 0$$

$$H_{a5}: \gamma_{52} < 0$$

#### Hypothesis 6

Extraversion ( $\xi_3$ ) has a significant positive effect on altruism ( $\eta_1$ ).

$$H_{o6}: \gamma_{13} = 0$$

$$H_{a6}: \gamma_{13} > 0$$

#### Hypothesis 7

Extraversion ( $\xi_3$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

$$H_{o7}: \gamma_{23} = 0$$

$$H_{a7}: \gamma_{23} > 0$$

#### Hypothesis 8

Extraversion ( $\xi_3$ ) has a significant positive effect on civic virtue ( $\eta_3$ )

$$H_{o8}: \gamma_{33} = 0$$

$$H_{a8}: \gamma_{33} > 0$$

#### Hypothesis 9

Extraversion ( $\xi_3$ ) has a significant positive effect on compliance ( $\eta_4$ ).

$$H_{o9}: \gamma_{43} = 0$$

$$H_{a9}: \gamma_{43} > 0$$

### Hypothesis 10

Agreeableness ( $\xi_4$ ) has a significant positive effect on altruism ( $\eta_1$ ).

$$H_{o10}: \gamma_{14} = 0$$

$$H_{a10}: \gamma_{14} > 0$$

### Hypothesis 11

Agreeableness ( $\xi_4$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

$$H_{o11}: \gamma_{24} = 0$$

$$H_{a11}: \gamma_{24} > 0$$

### Hypothesis 12

Agreeableness ( $\xi_4$ ) has a significant positive effect on compliance ( $\eta_4$ ).

$$H_{o12}: \gamma_{44} = 0$$

$$H_{a12}: \gamma_{44} > 0$$

### Hypothesis 13

Agreeableness ( $\xi_4$ ) has a significant positive effect on sportsmanship ( $\eta_5$ ).

$$H_{o13}: \gamma_{54} = 0$$

$$H_{a13}: \gamma_{54} > 0$$

### Hypothesis 14

Conscientiousness ( $\xi_5$ ) has a significant positive effect on altruism ( $\eta_1$ ).

$$H_{o14}: \gamma_{15} = 0$$

$$H_{a14}: \gamma_{15} > 0$$

### Hypothesis 15

Conscientiousness ( $\xi_5$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

$$H_{o15}: \gamma_{25} = 0$$

$$H_{a15}: \gamma_{25} > 0$$

### Hypothesis 16

Conscientiousness ( $\xi_5$ ) has a significant positive effect on civic virtue ( $\eta_3$ ).

$$H_{o16}: \gamma_{35} = 0$$

$$H_{a16}: \gamma_{35} > 0$$

### Hypothesis 17

Conscientiousness ( $\xi_5$ ) has a significant positive effect on compliance ( $\eta_4$ ).

$$H_{o17}: \gamma_{45} = 0$$

$$H_{a17}: \gamma_{45} > 0$$

### Hypothesis 18

Conscientiousness ( $\xi_5$ ) has a significant positive effect sportsmanship ( $\eta_5$ ).

$$H_{o18}: \gamma_{55} = 0$$

$$H_{a18}: \gamma_{55} > 0$$

### Hypothesis 19

Open to experience ( $\xi_6$ ) has a significant positive effect altruism ( $\eta_1$ ).

$$H_{o19}: \gamma_{16} = 0$$

$$H_{a19}: \gamma_{16} > 0$$

### Hypothesis 20

Open to experience ( $\xi_6$ ) has a significant positive effect civic virtue ( $\eta_3$ ).

$$H_{o20}: \gamma_{36} = 0$$

$$H_{a20}: \gamma_{36} > 0$$

### Hypothesis 21

Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between agreeableness ( $\xi_4$ ) and altruism ( $\eta_1$ ).

$$H_{o21}: \gamma_{64}\beta_{16} = 0$$

$$H_{a21}: \gamma_{64}\beta_{16} > 0$$

### Hypothesis 22

Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between agreeableness ( $\xi_4$ ) and courtesy ( $\eta_2$ ).

$$H_{o22}: \gamma_{64}\beta_{26} = 0$$

$$H_{a22}: \gamma_{64}\beta_{26} > 0$$

### Hypothesis 23

Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between conscientiousness ( $\xi_5$ ) and altruism ( $\eta_1$ ).

$$H_{o23}: \gamma_{61}\beta_{16} = 0$$

$$H_{a23}: \gamma_{61}\beta_{16} > 0$$

### Hypothesis 24

Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between conscientiousness ( $\xi_5$ ) and courtesy ( $\eta_2$ ).

$$H_{o24}: \gamma_{65}\beta_{26} = 0$$

$$H_{a24}: \gamma_{65}\beta_{26} > 0$$

## **3.3 Research Participants**

It is not always realistic to obtain measurements from every subject in a target population, e.g. all skilled South African employees ( $N$ ). The more practical and feasible option is to focus on a representative sample ( $n$ ) of this target population. The extent to which the observations can be generalised to the target population depends on the number of subjects in the chosen sample as well as the representativeness of the sample (De Goede, 2007)

This research study required data to be obtained from skilled employees, specifically those on site who have completed a degree or diploma in Civil Engineering, and who are employed at a number of South African engineering firms that operate within the civil engineering sector. These companies have site engineers placed throughout the country and abroad.

Sampling methods can be divided into two domains, namely probability and non-probability sampling. Probability sampling can be further divided into simple random, stratified random, cluster and systematic sampling. Although probability sampling has its distinct advantages, it is not always feasible to make use of such sampling. This is mainly because even the most prudently chosen sample may still contain a proportion of sampling error, and thus may not provide the perfect reflection of the population. An alternative would be to make use of a form of non-probability sampling, namely convenience, purposive, quota or snowball sampling (Babbie, 2010; Greemstein, 2001).

For the purpose of this study, a purposive sample, also commonly referred to as judgement sampling, was utilised. In purposive sampling, the researcher is able to select particular cases that are, in the researcher's opinion, an accurate reflection of the population. In addition, these cases would be chosen in an attempt to best answer the research initiating question and achieve the study's objective (Babbie, 2010; Greemstein, 2001).

Given the content of the study, the sample size should be considered from the standpoint of SEM and the number of variables within the structural model. SEM is considered to be a large sample technique. Therefore, the tests of model fit were based on the assumption of a large sample (De Goede, 2007).

Hair, Black, Babin and Anderson (2010) have proposed a number of guidelines that can be utilised in the determination of a sample size for SEM. From these guidelines, it is recommended that a minimum sample size of 500 participants is utilised. This is mainly because the structural model contains a relatively large number of constructs. In addition to this it is suggested that the sample size be increased if any of the following are applicable:

- The data deviates from multivariate normality
- Sample-intensive estimation methods are utilised
- The missing data surpasses 10%

In view of these guidelines, a sample group was selected from six of the top and most reputable construction companies in South Africa. The researcher's request was presented to the relevant human resources (HR) individuals within each company. Furthermore, in order to obtain more research participants from additional companies, the researcher approached SAFCEC, the national representative of civil engineering contractors, who subsequently allowed the researcher to present the request to a large number of HR representatives from a number of construction firms. After the HR departments of each company agreed to participate in the study, a formal letter of agreement was signed and

sent through to the Ethics Committee for approval. Thereafter, approximately 311 relevant site employees were asked to voluntarily participate in the study.

A total of 121 individual completed the survey, which is a 38.91% response rate. Two of these participants had incomplete surveys, in which the majority of the statements had not been answered. As a result, their overall responses had to be removed from the study, leaving the researcher with 119 responses in total. The biographical information of the participants is set out in Table 3.1.

**Table 3.1**  
***Biographical Information of the Respondents***

Gender	Age group	Ethnic group/race				Total
		White	Indian/Asian	Coloured	Black/African	
Male	20-29	46	2	2	15	65
	30-39	20	0	4	11	35
	40-49	2	0	0	1	3
	50-59	4	0	0	0	4
Female	20-29	3	1	2	6	12
	30-39	0	0	0	0	0
	40-49	0	0	0	0	0
	50-59	0	0	0	0	0
<b>Total</b>						<b>119</b>

The sample comprised 12 women (10%) and 107 men (90%). The majority of the participants were between the ages of 20 and 29. The demographics of the sample were as follows:

- 63.0% white respondents (n = 75)
- 2.5% Indian/Asian respondents (n = 3)
- 6.7% coloured respondents (n = 8)
- 27.7% black/African respondents (n = 33)

### **3.4 Measuring Instruments**

For an ex post facto correlational design, it is necessary to have at least two indicator variables that represent each latent variable. In order to successfully investigate the fit of the model in question, it is essential to have highly reliable and valid instruments that can measure the latent variables accurately. The final questionnaire, together with the informed consent, can be found in Appendix A. It is an eleven-page, 89-item self-administered survey containing four sections, including a section for biographical information. The entire questionnaire took the average participant approximately twenty minutes to complete. Confidentiality and anonymity of the participants were maintained throughout the study.

#### **3.4.1 Biographical information**

Biographical information about the participants was obtained in the first section of the self-administered survey. This information included demographic attributes, including gender, age and race.

The other characteristics that are normally included in research studies, like income, tenure and education level, were not included in this study for a number of reasons. From the information regarding the sample specifics it is clear that all the participants are at relatively the same level within each of the companies. In terms of education level, each participant is required to be a qualified civil engineer, with either a national diploma or degree. In addition, all the participants were in similar positions on site, and thus earned relatively similar salaries.

Although important in general, the other factors like marital status and religion are not included in the study because on site, as mentioned by the companies' representatives, these factors do not interfere with the work of the civil engineers, and are considered to be private.

When appointed, each engineer is expected to be proficient in English and Afrikaans, i.e. read, write and speak the languages. This is in order to ensure effective communication amongst engineers. As a result home language was not asked, and the survey was only provided in English.

### 3.4.2 Organisational citizenship behaviours

Podsakoff, MacKenzie, Moorman and Fetter (1990) established a measure that operationalised all five dimensions of OCB, namely altruism, courtesy, conscientiousness, civic virtue and sportsmanship. This measurement tool consists of 24 items that are to be answered on a seven-point Likert-type scale, ranging from 'strongly disagree' (1) to 'strongly agree' (7). Each dimension has five items, except for civic virtue which has four. Sample items include "I help others who have heavy workloads" for altruism, "I take steps to try to prevent problems with other workers" for courtesy, "I read and keep up with organization announcements, memos, and so on." for civic virtue, "I consume a lot of time complaining about trivial matters" for sportsmanship, and "I obey company rules and regulations even when no one is watching" for compliance.

The internal consistency reliability for the scale as a whole was .85 (Singh & Singh, 2009). Podsakoff et al. (1990) found alpha coefficients exceeding .80 for all the dimensions besides civic virtue which had an alpha coefficient of .70. In addition, Podsakoff et al. (1990) were able to provide empirical evidence for the existence of a satisfactory level of discriminant validity. This measure was further utilised in a number of OCB studies conducted by Al-sharafi and Rajiani (2013), Ali and Waqar (2013), Winkel, Wyland, Shaffer and Clason (2011), Polat (2009) as well as Bell and Menguc (2002). All of these studies reported satisfactory alpha coefficients and inter-item correlations.

### 3.4.3 Job satisfaction

The Revised Job Diagnostic Survey (JDS) was utilised for the current study. The reliability, i.e. the alpha coefficients, for the revised JDS sub scales range from .67 to .79, thus indicating a satisfactory internal consistency (Buys, Olckers & Schaap, 2007; Renn & Swiercz, 1993).

Only one section of this measurement was utilised, viz. the general satisfaction section. The general satisfaction section falls under the personal outcomes section of the revised JDS. It consists of five items that are to be answered on a seven-point Likert-type scale, i.e. ranging from 'disagree strongly' (1) to 'agree strongly' (7). An example of the items used to measure job satisfaction is "I am generally satisfied with the kind of work I do in this job". The JDS has been further validated and used within the South African context in the research conducted by Boonzaier and Boonzaier (1993) and Buys et al. (2007), which both reported satisfactory alpha coefficients.



In this study, composite variables were formed by calculating item parcels. The mean of all the even numbered items was calculated to form one indicator variable. The second indicator variable was formed from the calculated mean of all the odd-numbered items.

#### **3.4.4 HEXACO personality factors**

The HEXACO Personality Inventory-Revised (HEXACO-PI-R) is a measurement utilised in order to assess the six HEXACO personality factors. Within this measuring instrument, each personality factor has 16 items, all of which are answered in the form of a five-point likert-type scale, ranging from 'disagree strongly' (1) to 'agree strongly' (5). In the present study, however, a self-reported shorter version of the HEXACO-PI-R was utilised, namely HEXACO-60. The HEXACO-60 contains particular items from the original 100-item HEXACO-PI-R, where each personality scale has ten items. The four narrow traits within a personality scale are represented by two to three items each. Each personality scale in the HEXACO-60 contains at least four reversed items, but no more than six. The personality scales for the self-report HEXACO-60 have internal consistency reliabilities of .76 for HH, .80 for emotionality, .80 for extraversion, .77 for agreeableness, .76 for conscientiousness and .78 for openness to experience (Ashton & Lee, 2009, 2012).

Sample items include "I would be quite bored by a visit to an art gallery" for openness to experience, "I plan ahead and organize things, to avoid scrambling at the last minute" for conscientiousness, "I rarely hold a grudge, even against people who have badly wronged me" for agreeableness, "I feel reasonably satisfied with myself overall" for extraversion, "I would feel afraid if I had to travel in bad weather conditions" for emotionality and "I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed" for HH. This measure has been utilised in a number of HEXACO-related studies conducted by Ashton and Lee (2005, 2007, 2008, 2009, 2010), Lee and Ashton (2012), as well as Bourdage et al. (2012). All of these studies reported satisfactory alpha coefficients and inter-item correlations.

Each personality factor is calculated by a combination of its respective sub-factors. It therefore is possible to use these four sub-factors to operationalize the particular latent variable, i.e. there will be four indicator variables for each latent variable (personality characteristic). It is important to note that, to date, no research studies have made use of this measuring instrument in South Africa.

### **3.5 Test Administration and Data Collection**

The entire data collection process, from the initial contact with the company, to capturing all the required data, took approximately nine months. Within this time period, a pilot study was conducted in order to test the comprehensibility of the questionnaire as well as to determine the average time it would take an individual to complete the survey. Five diverse engineers who work on site for various companies volunteered to participate in the pilot study. The feedback received from these participants was satisfactory.

Before data collection could commence, a formal letter of agreement was required from each participating company. Two alternative survey administration methods were made available to the companies, i.e. a pencil-and-paper questionnaire and a web-based survey. Most of the companies made use of one method, and only one company opted to make use of both. In each of the administration methods, the participants were required to provide informed consent before completing the questionnaire. When the pencil-and-paper tests were administered to the participants, the researcher was present and administered the test herself in order to ensure that the anonymity of the participants was upheld.

The total response rate for the both the web-based and pencil-and-paper surveys was 38.91%. These responses were recorded in an Excel document for the pencil-and-paper survey, and the web-based survey responses were imported into the same Excel Spreadsheet for further analyses.

#### **3.5.1 Self-administered survey research**

Self-administered questionnaires are used in order to obtain data and information directly from research participants. This quantitative study made use of closed-ended questions, which ultimately made the responses easier to evaluate and quantify. The use of five or more scale points is always best, as it not only improves the overall reliability, but also reduces the occurrence of central tendency (Barker, Pistrang & Elliot, 2002; Wallace Foundation, 2009).

The use of self-administered survey methods has some distinct advantages and possible disadvantages. It is a low-cost and efficient method of obtaining data in an ethical manner that is not only free from interviewer bias, but also ensures the confidentiality and anonymity of those concerned. In the case of this study, these benefits far outweighed the drawbacks to the use of such methods. These drawbacks include self-reporting bias, respondent error where participants misinterpret the questions, incomplete surveys and low response rates

(Barker et al., 2002; Wallace Foundation, 2009). Although these disadvantages may occur and can be seen as a limitation to the study, the availability of such measuring instruments together with the benefits of these types of surveys, made it the best choice of method for the current study.

### **3.6 Ethical Considerations**

It is important to note that empirical behavioural research necessitates individuals' involvement, whether it is active or passive participation. As a result, such research could possibly impose on the participants' overall rights and wellbeing. It therefore is important to ensure that the participants are made aware of any possible ethical risks in the study (Janse van Rensburg, 2010; Van der Westhuizen, 2014). This study, however, did not pose any serious ethical hazards and any concerns relating to individual involvement were dealt with accordingly.

The data collection for the study could only start once ethical approval had been granted by the Research Ethics Committee: Human Research (Humanities) of Stellenbosch University in September 2013. All tests and measuring instruments made use of in this study are publicly obtainable. The researcher acknowledges that the HEXACO-60 personality test is a psychological test and was thus performed under the guidance and supervision of a registered psychologist, namely Dr. B. Boonzaier.

The identities of all the participating individuals and construction companies were kept confidential and anonymous, which is in compliance with Chapter 3 of the Ethical Rules of Conduct Pertaining Specifically to the Profession of Psychology, which can be found in Annexure 12 of the Health Professions Act, No. 56 of 1974 (Republic of South Africa, 2006). This was made possible by ensuring that only the researcher, her supervisor and the statistician had access to the raw data, and no individual results were provided to any of the companies. Although the biographical section of the survey required certain personal details, including some employment information, none of this information could be exploited to reveal the identity of any single participant.

All involvement in the study was voluntary and each participant was required to complete an informed consent document, which can be found in Appendix A, before they filled in the remainder of the self-administered survey. This informed consent document is in accordance with the conditions provided in Chapter 10 of the Ethical Rules of Conduct Pertaining Specifically to the Profession of Psychology under the Health Professions Act, No. 56 of

1974 (Republic of South Africa, 2006). The document clearly provided information regarding the purpose of the study, the procedure, potential benefits, payment for participation, confidentiality, the participants' rights, as well as the principle researcher's and supervisor's contact details.

In addition, no individuals were offered inappropriate financial or other incentives to participate, which is in accordance with the same conditions mentioned above. The participants were, however, offered the opportunity to win three monetary prizes, for the winner was drawn randomly with two objective witnesses present.

The participating companies were provided with a final feedback report on the study, in which the results did not differentiate between the companies. This not only provided the companies with insight into the problem at hand, but also provided managerial implications and highlighted the importance of interventions.

### **3.7 Missing Values and Reverse Scores**

Multivariate data sets usually have missing values, which could be a consequence of non-responses, absenteeism etc. Due to the fact that pencil-and-paper questionnaires were administered, there was a possibility of missing values, i.e. certain items or questions not answered by the participants. Before the analysis of the data, therefore, the issue of missing values had to be dealt with.

The method utilised depends on the number of missing values as well as whether the data follows multivariate normality. Numerous methods were examined to solve the missing values problem, including:

- List-wise deletion
- Pair-wise deletion
- Imputation by matching
- Multiple imputations
- Full information maximum likelihood (Smuts, 2010)

List-wise deletion pertains to the removal of whole cases in which there are missing values for any of the variables, whereas pair-wise deletion emphasises the deletion of cases only for the analysis of variables for which there are missing values (Smuts, 2010).

Imputation by matching would be utilised if the assumption of multivariate normality is not satisfied. This refers to a method of replacing missing values with real values, where these substitute values, are obtained from one or more other cases that have parallel response patterns over a group of matching variables (De Goede, 2007).

If one had to choose between multiple imputations and full information maximum likelihood, multiple imputations would be considered more satisfactory. The multiple imputation method conducts numerous imputations for every missing value and each imputation will develop a data set that is analysed separately. The advantage of using multiple imputation processes is that no case found to have missing values will be deleted. Multiple imputation assumes that the data follows a multivariate normal distribution as well as that data is missing at random (De Goede, 2007; Smuts, 2010).

In this study there were only two cases with missing values. Both of these cases were from the pencil-and-paper surveys, and had large portions of missing responses. As a result, these cases were removed and, therefore, no missing value replacement was required for the study.

The current study's questionnaire, compiled by combining a number of measuring instruments, contained some statements that were negatively phrased. Before any statistical analyses could be conducted, these items were reverse-scored.

### **3.8 Statistical Analysis**

#### **3.8.1 Covariance based SEM versus partial least squares SEM**

There are two popular, yet varying approaches to structural equation modelling (SEM), namely Partial least squares SEM and the more mainstream, covariance based SEM. Partial least squares SEM (PLS-SEM) is a causal modelling approach that intends to maximise the explained variance of the dependent latent variables. In contrast to this approach, covariance-based SEM (CB-SEM) aims to replicate the theoretical covariance matrix and therefore does not place emphasis on the explained variance. Even though CB-SEM is a widely used method, PLS-SEM is being used more and more in a number of disciplines (Hair, Ringle & Sarstedt, 2011).

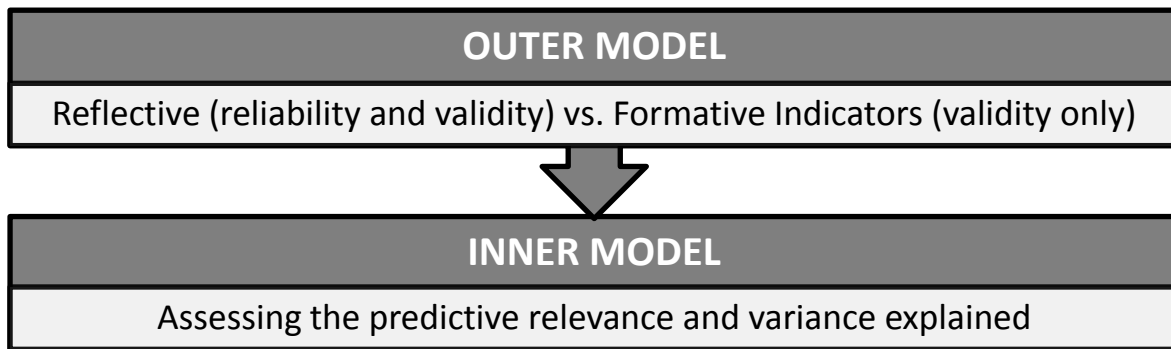
The CB-SEM matrix is based on a particular set of structural equations, and places emphasis on model parameter estimates that minimise the variance between the theoretical and estimated covariance matrices. CB-SEM requires that a number of assumptions, like multivariate normality and minimum sample size, be met. Should these assumptions not be met, the results of the study will be very inaccurate. Should this be the case, or if the research objectives focus more on the prediction instead of the confirmation of structural relationships, then the variance-focusing PLS-SEM would be the best method to use (Hair et al., 2011).

It is important to note that SEMs that have acceptable measurement properties usually yield comparable outcomes in both methods. Therefore, before a choice can be made regarding the approach to take, it is vital to comprehend the reasons why each approach exists (Hair et al., 2011).

In both approaches, there are two components to SEM, the structural model and the measurement model. In the structural model, it is crucial to distinguish between endogenous and exogenous variables. The exogenous latent variables are those independent constructs that have structural paths affecting the endogenous variables, i.e. the dependent or target constructs. In the PLS-SEM structural model, namely the inner model, there are no causal loops, meaning that the paths between the latent variables are unidirectional (Hair et al., 2011).

The PLS-SEM measurement model, namely the outer model, incorporates the predictive paths between each latent variable and its corresponding indicator variables. There are two forms of measurement models, namely reflective and formative models. Reflective indicators mean that alterations in the latent construct are mirrored and manifested in alterations in the indicator variables, i.e. the paths run outwards from the latent variable to the indicator variable and are commonly referred to as outer loadings. Formative indicators run in the opposite direction, and are commonly referred to as outer weights (Hair et al., 2011). The two components of PLS path modelling can be found in Figure 3.1.

The simple PLS-SEM algorithm has a two-stage approach. The first stage requires the completion of four steps, and the second stage, commonly referred to as partial modelling, involves the final estimates for both the outer loadings and the structural model path coefficients. In a reflective measurement model, the regression model is comprised of single regressions with each indicator being the dependent variable, and each latent construct being the independent variable. In the structural model, the independent variables act as antecedents to the dependent variables (Hair et al., 2011).



**Figure 3.1. Two Components of PLS Path Modelling**

(Hair et al., 2011; Robyn, 2012)

Due to the fact that PLS-SEM is a regression-based method it has fewer issues than the CB-SEM, especially with regard to sample sizes, as it can handle much smaller as well as large samples. The PLS-SEM does, however, have some drawbacks. One of these is that it does not provide a satisfactory measure for the model's goodness-of-fit. Furthermore, PLS-SEM bias does exist in general (Hair et al., 2011).

Because the study objectives and structural model focus on prediction, and because this study has a relatively small sample size, PLS-SEM was the preferred approach. In terms of the outer model, a reflective measurement model was utilised because it focuses more on reliability and validity (Hair et al., 2011). The software utilised for the data analyses was the STATISTICA and SmartsPLS packages.

### **3.8.2 Evaluation of the measurement model**

#### **3.8.2.1 Item analysis**

The several scales utilised to operationalise the latent variables encompassed in the structural model depicted in Chapter 2 were established to assess a specific construct or dimension of a construct with an explicit constitutive classification. Items were created to mirror the opinion of respondents on these particular latent variables. The items were created to perform as stimulus sets to which participants reacted with behaviours that were fairly uncontaminated expressions of a particular underlying latent variable. If these design

objectives were successful they ought to mirror in a number of item statistics (De Goede, 2007; Smuts, 2010).

Item analysis was conducted in order to identify and possibly remove or correct potential items that did not contribute to the internally consistent description of the dimension in question. Item analysis can contribute to the improvement of the tests by adding more reliability and validity through the selection, replacement or correction of items (De Goede, 2007; Smuts, 2010).

Although it is recommended that an alpha coefficient should be equal to or more than .7, this value is still considered to be relatively strict, and therefore an alpha coefficient of .6 or more will be considered as satisfactory. It is important to note that the sub-dimensions of each personality factor in the HEXACO-60 were not designed to have high alpha coefficients. It therefore is important to look at the alpha value of the whole personality factor, and not at its sub-dimensions (M. Kidd, personal communication, 4 June 2014; Lee & Ashton, 2012; Malhotra, 2004).

In addition, when analysing the internal consistency, it is essential to look at the inter-item correlations. Inter-item values that are greater than zero are seen to represent acceptable reliability, but values between .5 and 1 represent excellent reliability levels (M. Kidd, personal communication, 4 June 2014).

In conclusion, the removal of an item is dependent on a number of factors, including the inter-item correlation, the Cronbach alpha should the item be deleted as well as the number of items in the scale or sub scale. Should a subscale contain very few items, e.g. three, the removal of one item would ultimately leave one with no subscale. In cases like this, the removal of an item would not be recommended.

### **3.8.2.2 Factor analysis**

There are two specific types of factor analysis, namely exploratory and confirmatory factor analysis. Confirmatory factor analysis (CFA) is an application of CB-SEM, which typically is used as the statistical analysis technique to test the proposed model's fit, in terms of both measurement and structural models. This is accomplished through the use of a number of goodness-of-fit statistics, including the root mean square error of approximation (RMSEA) and other goodness-of-fit indices. It is important to note, however, that the model in this study was not analysed by means of CFA, as an alternative SEM approach had been chosen, namely PLS-SEM (De Goede, 2007; Smuts, 2010).



Exploratory factor analysis (EFA) makes use of a method of analysis called dimensionality analysis. The structural design of each of the scales used to operationalise the latent variables encompassed in the structural model mirrors the intent to construct uni-dimensional sets of items. The items were created to perform as stimulus sets to which participants reacted with behaviour that was relatively uncontaminated expressions of a specific one-dimensional underlying latent variable. This behavioural response to every item is not only dependent on the latent variable in question but is also affected by a number of other irrelevant latent variables and random error influences. The assumption is that only the applicable latent variable is a common cause of variance across all the items within a subscale, i.e. if the latent variable in question would be statistically controlled, the partial correlation among items would approach zero. It is therefore crucial to attain fairly uncontaminated measures of the particular underlying latent variable via the items within the scale (De Goede, 2007; Smuts, 2010).

EFA was not conducted in this study for a number of reasons. Firstly, the instruments that were selected for this study had been validated, by means of EFA, previously, albeit not in South Africa. It is important to note, that these instruments have been used within multiple contexts and with varying samples, and validated in each setting. It is true that EFA reveals other factors, but the question remains, how would this fit in with the researcher's objectives? The use of EFA could ultimately result in the identification of various constructs/factors that do not prove the point of the research. This brings about the most compelling argument that the factors derived from EFA will only be applicable to the current dataset due to the inflation of the Cronbach alpha, thus limiting the possibility of generalising the results of the study to the entire population (M. Kidd, personal communication, 4 June 2014).

### **3.8.2.3 Redundancy analysis**

One particular issue with the PLS-SEM is that an indicator's information may turn out to be redundant because of elevated levels of multicollinearity in the measurement model. Should such a problem exist, it would ultimately result in unstable path coefficient estimates. It therefore is essential to perform a multicollinearity test for each of the endogenous variables, i.e. a PLS redundancy analysis. Once the results from the analysis have been obtained, the researcher can then interpret the tolerance column, where a multicollinearity problem exists if there are values below .3 or .2 (Hair et al., 2011; M. Kidd, personal communication, 4 June 2014).

#### **3.8.2.4 Evaluating the outer loadings**

As mentioned previously, the PLS-SEM does not make the assumption that the data is normally distributed. Bootstrapping is a method used in PLS-SEM in order to evaluate the significance of path coefficients, and thus test the study hypotheses. It develops a large number, with a minimum of 5000, bootstrap samples by randomly selecting cases with replacement from the original sample. All of the bootstrap sample results give the standard error for every path coefficient. Once this information is obtained, either a t-test or 95% confidence interval can be performed in order to determine the significance of the paths. It is important to note that the success of this method is dependent on how well the sample reflects the target population (Hair et al., 2011).

In this study, 1000 bootstrap samples were utilised. The bootstrap analysis was performed using a 95% confidence level because the alternative, viz. the t-test, is based on the assumption of normality, whereas the confidence intervals make no assumptions. The significance of the paths was then determined by evaluating the upper and lower limits of this interval, where a path is seen as not significant if zero falls within these limits (M. Kidd, personal communication, 4 June 2014).

#### **3.8.2.5 Reliability analysis**

Construct reliability analysis concentrates on composite reliability as an approximation of the construct's internal consistency, also referred to as reliability. Contrary to the Cronbach alpha obtained in the item analysis, composite reliability does not make the assumption that all the indicators are uniformly reliable. In most exploratory research, composite reliability values are considered satisfactory if they are above .6, but for the purpose of this study, values greater than .7 indicate excellent reliability. It is important to note that indicators with values between .4 and .7 will only be considered for removal, if this deletion would result in a composite reliability value above the threshold of .7. In addition, indicators with values below .4 should always be removed from the scale (Hair et al., 2011; M. Kidd, personal communication, 4 June 2014).

A measurement model's validity is comprised of the assessment of convergent validity, discriminant validity, as well as divergent validity. Convergent validity can be explained by the average variance extracted (AVE), where values of .5 or more are considered satisfactory. Convergent validity therefore means that the latent variable contributes to more than half of its subsequent indicators' variance. Divergent validity refers to whether the constructs are all unique, or whether they measure the same thing. This can be measured

by performing an additional analysis specifically for divergent validity (Hair et al., 2011; M. Kidd, personal communication, 4 June 2014).

### **3.8.3 Evaluation of the structural model**

As mentioned previously, the structural model in the PLS-SEM approach is referred to as the inner model. The inner model can be evaluated through the use of  $R^2$  values and path coefficients. The  $R^2$  values can be described as coefficients of determination that are utilised in order to determine the total variance in the endogenous latent variables accounted for by the entire model.  $R^2$  values of .75 or more can be described as substantial, whereas moderate values range from .5, and weak values from .25. It is important to note that these values are general guidelines that change within various contexts. For the consumer behaviour discipline, an  $R^2$  value of .2 is considered to be highly satisfactory (Hair et al., 2011; M. Kidd, personal communication, 4 June 2014).

A bootstrap analysis was performed using a 95% confidence interval. This approach is used mainly because, unlike CB-SEM, PLS-SEM cannot test the specific hypotheses. Similar to the evaluation of the measurement model, the significance of the paths is then determined by evaluating the upper and lower limits of this interval, where a path is seen as not significant if zero falls within these limits.

## **3.9 Summary of Chapter 3**

Chapter 3 has specified the methodological selections for the empirical evaluation of the hypothesised relationships provided in Chapter 2, with the ultimate goal of achieving the study objectives and thus answering the research-initiating question. In short, the ex post facto correlation research design was chosen and utilised to acquire primary data. The details regarding the sampling method used to choose a suitable sample were provided. In addition, the manner in which the data was collected, i.e. in a quantitative self-administered survey, was clearly deliberated on by outlining the various instruments used. Once the primary data has been collected, a decision needed to be made regarding the data analysis approach to be taken, i.e. CB-SEM or PLS-SEM. Thereafter, each step of the analysis process was explained and linked to the testing of the hypotheses. The following chapter provides a detailed interpretation of the data after the analysis had been completed.

## CHAPTER 4 PRESENTATION OF RESEARCH RESULTS

### 4.1 Introduction

This chapter aims to report on and interpret the various analyses that were undertaken in this study, as outlined in Chapter 3. A number of steps were taken in the analyses and the reporting of the results follow a similar process. The first step was to validate the measurement model through the interpretation of reliability using Cronbach alpha and composite reliability, the discussion of the possibility of multicollinearity and, finally, to evaluate the model through the interpretation of the outer loadings. Once all of these steps were reported on, the researcher was able to validate the structural model in an attempt to test the hypothesised relationships of the structural model as found in Chapter 2 and Chapter 3.

### 4.2 Validating the Measurement Model

#### 4.2.1 Item analysis

The item analysis ultimately gave insight into the psychometric properties of the various instruments used to measure the latent constructs. In the sections below, the researcher has provided tables that summarise the results for each scale, and subsequently analysed the Cronbach alpha and inter-item correlations in order to make an informed decision regarding the overall reliability of the scale. Unfortunately, due to the large number of items in the HEXACO scale, not all the results are presented in tables within this chapter. The original outputs of the analysis of the HEXACO scale can be found in Appendix B.

##### ***4.2.1.1 Organisational citizenship behaviour scale***

Table 4.1 reports the overall item analysis results for each subscale within the organisation citizenship behaviour scale, namely altruism, sportsmanship, compliance, courtesy and civic virtue. The table not only provides a summary of each subscale, but also presents the item-total statistics of each item within the subscales. The only reverse-scored items could be found in the sportsmanship subscale, as indicated by an 'R' next to the item name.

The Cronbach alphas for the OCB subscales were all above the .60 cut-off point (Malhotra, 2004), with altruism, sportsmanship, compliance, and courtesy all being very close to .70. These alpha values could be deemed satisfactory, as they ultimately mean that approximately 60% to 70% of the variance is systematic or true score variance, and the remaining percentage could be assigned to random error variance.

**Table 4.1**  
***Organisational Citizenship Behaviour: Reliability and Item-Total Statistics***

	Mean	Standard deviation	Cronbach alpha	Average inter item correlation	Inter-item correlation	Alpha if deleted
<b>Altruism</b>	<b>28.925</b>	<b>3.293</b>	<b>.680</b>	<b>.316</b>		
Alt1					0.383	0.666
Alt2					0.554	0.577
Alt3					0.337	0.674
Alt4					0.396	0.648
Alt5					0.564	0.580
<b>Sportsmanship</b>	<b>27.925</b>	<b>4.497</b>	<b>.666</b>	<b>.302</b>		
Sport1R					0.601	0.535
Sport2R					0.383	0.634
Sport3R					0.530	0.564
Sport4R					0.401	0.623
Sport5R					0.229	0.701
<b>Compliance</b>	<b>30.109</b>	<b>3.512</b>	<b>.674</b>	<b>.328</b>		
Consc1					0.476	0.612
Consc2					0.325	0.699
Consc3					0.371	0.648
Consc4					0.477	0.601
Consc5					0.601	0.560
<b>Courtesy</b>	<b>29.219</b>	<b>3.880</b>	<b>.683</b>	<b>.327</b>		
Court1					0.529	0.594
Court2					0.548	0.587
Court3					0.365	0.663
Court4					0.265	0.728
Court5					0.551	0.587
<b>Civic Virtue</b>	<b>20.656</b>	<b>3.808</b>	<b>.613</b>	<b>.288</b>		
CV1					0.441	0.504
CV2					0.457	0.491
CV3					0.293	0.612
CV4					0.391	0.548

In terms of the average inter-item correlation for each subscale, as found in Table 4.1, all of the subscale values were above the zero threshold, thus indicating acceptable average inter-item correlations. When observing the item-total correlations for each item, within any given subscale there were no unsatisfactory, i.e. below zero, values. There were, however, some items that showed highly satisfying inter-item correlations ( $> .50$ ), the highest of which could be found in sportsmanship and compliance (M. Kidd, personal communication, 4 June 2014).

In addition, the Cronbach alpha for each subscale would not increase dramatically should any of the items be removed, except for the second compliance item, namely *Consc2*, and the fourth courtesy item, namely *Court4*. The Cronbach alpha would increase to 0.70 and 0.73 for each item respectively. It is important to note that the removal of an item is dependent on a number of statistics, including the inter-item correlation. Although the alpha coefficient may increase, the other statistics did not truly warrant the deletion of these items. In conclusion, the statistics were not sufficient enough to remove or delete these items from their respective subscales, namely compliance and courtesy.

#### **4.2.1.2 Job satisfaction scale**

Of the 89-item survey, five of the statements were related to the level of job satisfaction amongst the participants. These five items were obtained from the general satisfaction subscale of the revised job diagnostic survey. Table 4.2 reports the overall item analysis results for job satisfaction.

The Cronbach alpha for the job satisfaction scale was above the .70 cut-off (Malhotra, 2004). The Cronbach alpha value of 0.75 is seen as highly satisfactory, with approximately 75% of the variance being systematic or true score variance, while the remaining 25% could be assigned to random error variance.

The average inter-item correlation for job satisfaction, as shown in Table 4.2, was above the zero threshold, thus indicating acceptable average inter-item correlations. The inter-item correlations for each item were all deemed satisfactory ( $> 0$ ), with most of the items displaying highly satisfying inter-item correlations ( $> .50$ ), the highest of which was the third job satisfaction item, namely *JobSat3* (M. Kidd, personal communication, 4 June 2014).

In addition, the Cronbach alpha for the scale would not increase dramatically should any of the items be removed, with the exception of the second job satisfaction item, namely *JobSat2*, where the alpha coefficient would increase to 0.77. As mentioned previously, the

researcher needed to consider a number of statistics before a decision could be made regarding the removal of a flagged item. The inter-item correlation for the second job satisfaction item (JobSat2) was sufficient to warrant the inclusion of the item. As a result, it could be concluded that the statistics were not sufficient enough to remove or delete this item.

**Table 4.2**  
***Job Satisfaction: Reliability and Item-Total Statistics***

	Mean	Standard deviation	Cronbach alpha	Average inter item correlation	Inter-item correlation	Alpha if deleted
<b>Job satisfaction</b>	<b>22.875</b>	<b>5.357</b>	<b>0.750</b>	<b>0.399</b>		
JobSat1					0.567	0.688
JobSat2					0.382	0.767
JobSat3					0.605	0.679
JobSat4					0.577	0.684
JobSat5					0.499	0.712

#### ***4.2.1.3 HEXACO personality factor scale***

Table 4.3 reports the overall item analysis results for each personality factor within the HEXACO personality scale, namely honesty-humility, emotionality, extraversion, agreeableness, conscientiousness and openness to experience. The table not only provides the summary for each factor, but also presents the item-total statistics of each sub-facet within the subscales. Due to the large number of items, the table does not, however, provide the statistics regarding each item within the various sub-facets of the personality factors. These results are reported on, and can be found in Appendix B.

It is important to note that the sub-facets of each personality factor in the HEXACO-60 were not designed to have high alpha coefficients, i.e. due to the short length of each sub-facet scale, the internal consistencies could not be expected to be high. It is therefore important to look at the alpha value of the whole personality factor, and not its sub dimensions.

**Table 4.3**  
**HEXACO Personality Factors: Reliability and Item-Total Statistics**

	Number of items	Mean	Standard deviation	Cronbach alpha	Average inter item correlation	Inter-item correlation	Alpha if deleted
<b>HH</b>	<b>10</b>	<b>14.343</b>	<b>2.130</b>	<b>.466</b>	<b>.183</b>		
Sincerity	3					0.220	0.437
Fairness	3					0.356	0.312
Greed avoidance	2					0.193	0.474
Modesty	2					0.312	0.350
<b>Emotionality</b>	<b>10</b>	<b>11.312</b>	<b>2.147</b>	<b>0.539</b>	<b>0.234</b>		
Fearfulness	3					0.421	0.388
Anxiety	2					0.214	0.568
Dependence	2					0.365	0.432
Sentimentality	3					0.320	0.472
<b>Extraversion</b>	<b>10</b>	<b>14.613</b>	<b>1.903</b>	<b>0.592</b>	<b>0.283</b>		
Expressiveness/social self-esteem	3					0.415	0.501
Social boldness	3					0.306	0.582
Sociability	2					0.351	0.545
Liveliness	2					0.464	0.460
<b>Agreeableness</b>	<b>10</b>	<b>13.573</b>	<b>2.404</b>	<b>0.704</b>	<b>0.381</b>		
Forgiveness	2					0.448	0.671
Gentleness	3					0.454	0.663
Flexibility	3					0.533	0.619
Patience	2					0.545	0.604
<b>Conscientiousness</b>	<b>10</b>	<b>16.142</b>	<b>2.029</b>	<b>0.688</b>	<b>0.356</b>		
Organisation	2					0.503	0.606
Diligence	2					0.378	0.677
Perfectionism	3					0.463	0.628
Prudence	3					0.558	0.563
<b>Openness to experience</b>	<b>10</b>	<b>13.593</b>	<b>2.698</b>	<b>0.691</b>	<b>0.373</b>		
Aesthetic appreciation	2					0.552	0.593
Inquisitiveness	2					0.501	0.614
Creativity	3					0.472	0.628
Unconventionality	3					0.444	0.657



#### **4.2.1.3.1 Honesty humility**

The alpha coefficient for HH was .47, which was not deemed to be acceptable. Therefore a closer look at the personality factor was required. As mentioned previously, the HH personality factor could be further divided into four sub-facets, namely sincerity, fairness, greed avoidance and modesty. The alpha coefficients for each sub-facet were .27, .56, .57 and .56 respectively. Given the fact that high internal consistencies should not be expected, the alphas for three of the four sub-facets were very close to the .60 cut-off (Malhotra, 2004), and could thus be deemed acceptable. The item-total correlations for each item were satisfactory, i.e. they were above the zero threshold (M. Kidd, personal communication, 4 June 2014). From these values, no single item was flagged as problematic.

In addition, the Cronbach alpha would only increase should two particular items from two separate sub-facets be removed, namely the second sincerity item (H\_Sin2) and the second fairness item (H\_Fair2), thus identifying them as potentially problematic. The removal of these items, however, would ultimately leave one with no subscale. In conclusion, the limited number of items, in conjunction with the remaining statistics that were in support of including all the items, suggested that both these items should be retained. This conclusion was further justified by the statistics found in Table 4.3, where the removal of either sincerity or fairness would ultimately have a negative impact on the overall Cronbach alpha for HH.

Although the removal of greed avoidance would increase the alpha to 0.47, the fact that none of the greed avoidance items were seen as a problem in the initial item analysis suggests that all the items in the scale should be retained. It is important to note that, if the hypothesised relationships with HH and other variables could not be established, it could be due to the weak reliability.

#### **4.2.1.3.2 Emotionality**

The alpha coefficient for emotionality was .54, which was not deemed to be acceptable as it fell below the .60 cut-off (Malhotra, 2004). Therefore a closer look at the personality factor was required. As mentioned previously, the emotionality personality factor could be further divided into four sub-facets, namely fearfulness, anxiety, dependence and sentimentality. The alpha coefficients for each sub-facet were .51, .34, .31 and .52 respectively. The item-total correlations for each item were all above zero, and therefore could be deemed satisfactory (M. Kidd, personal communication, 4 June 2014). As a result, no single item was identified as potentially problematic.

There were only two items, namely the third fearfulness item (E\_Fear3R) and the third sentimentality item (E\_Sent3) that would increase the alpha coefficient if either were removed. The more problematic of the two was the sentimentality item, as the fearfulness item would only result in a minimal increase and there therefore was no point in removing this item. The deletion of the third sentimentality item (E\_Sent3) would ultimately leave one with no subscale. It could therefore be concluded that all the items would be retained. This deduction was further vindicated in the statistics, where the removal of either of these sub-facets would result in a lower Cronbach alpha.

Even though the removal of anxiety would result in the emotionality alpha coefficient increasing to 0.57, none of the anxiety items were seen as potentially problematic. This therefore suggested that the emotionality sub-facet should be retained. It is important to note that if the hypothesised relationships with Emotionality and other variables could not be established, it could be due to the weak reliability.

#### **4.2.1.3.3 Extraversion**

As stipulated in Table 4.3, alpha coefficient for extraversion is .59, which was very close to the .60 cut-off, and could therefore be deemed satisfactory (Malhotra, 2004). As mentioned previously, the extraversion personality factor could be divided further into four sub-facets, namely expressiveness, social boldness, sociability and liveliness. The alpha coefficients for each sub-facet were .36, .57, .23 and .35 respectively. The item-total correlations for each item were all above zero, and therefore could be deemed satisfactory (M. Kidd, personal communication, 4 June 2014).

There were only two items, namely the second expressiveness item (X\_Exp2R) and the first social boldness item (X\_SB1R) that would increase the alpha coefficient if either were removed. The fact that there were a limited number of items in each scale, and that the remaining statistics were in support of retaining all the items, suggest that neither of the items should be removed. This deduction was further vindicated in the statistics, where the removal of any of the extraversion sub-facets would have resulted in a lower Cronbach alpha. It is important to note that if the hypothesised relationships with extraversion and other variables could not be established, it could be due to the weak reliability.

#### **4.2.1.3.4 Agreeableness**

As stipulated in Table 4.3, the alpha coefficient for agreeableness was .70, which was above the .60 cut-off, and therefore it was deemed more than satisfactory (Malhotra, 2004). Agreeableness consists of four sub-facets, namely forgiveness, gentleness, flexibility and

patience, all of which had Cronbach alpha values ranging between .34 and .67. Given the fact that high internal consistencies would not be expected, the alphas for two of the four sub-facets were above the .60 cut-off, and were more than acceptable. The item-total correlations for each item were satisfactory, i.e. they were above the zero threshold (M. Kidd, personal communication, 4 June 2014).

Only a single item was identified to be problematic, viz. the second gentleness item (A\_Gent2), which would increase the alpha coefficient if it was removed. Item-total correlations, in combination with the limited number of items per scale, were sufficient evidence to retain the item. This conclusion was further justified by the statistics in Table 4.3, where the removal of any agreeableness sub-facets would have resulted in a lower Cronbach alpha.

#### **4.2.1.3.5      *Conscientiousness***

The alpha coefficient for the conscientiousness sub scale was .69, which is a satisfactory internal consistency as it is above the .60 cut-off (Malhotra, 2004). Conscientiousness consists of four sub-facets, namely organisation, diligence, perfectionism and prudence, all of which had alpha coefficients ranging between .41 and .61. The item-total correlations were all satisfactory as they are above the zero threshold (M. Kidd, personal communication, 4 June 2014), and the removal of any of the items would result in a lower Cronbach alpha. This was further vindicated by the fact that the removal of a single sub-facet would have had a detrimental effect on the conscientiousness alpha coefficient.

#### **4.2.1.3.6      *Openness to experience***

As stipulated in Table 4.3, the alpha coefficient for openness to experience is .69, which was above the .60 cut-off, and therefore was deemed more than satisfactory (Malhotra, 2004). This factor consists of four sub-facets, namely aesthetic appreciation, inquisitiveness, creativity and unconventionality, all of which have Cronbach alpha values ranging between .26 and .66. The item-total correlations for each item were satisfactory, i.e. they were above the zero threshold (M. Kidd, personal communication, 4 June 2014).

In addition, the Cronbach alpha would only increase should two particular items from two separate sub-facets be removed, namely the second creativity item (O\_Cre2) and the first unconventionality item (O\_Un1R), thus identifying them as potentially problematic. The removal of these items, however, would ultimately leave one with no subscale. In conclusion, the limited number of items in conjunction with the remaining statistics that were in support of including all the items, suggests that both these items should be retained. This conclusion

was further justified in the statistics found in Table 4.3, where the removal of any of the sub-facets would have had a negative impact on the overall Cronbach alpha for openness to experience.

#### **4.2.1.4 Concluding remarks regarding the item analysis**

As mentioned, the item analysis was conducted in order to determine the psychometric reliability of the indicator variables that would be chosen to represent the latent variables. The results of the analysis thus indicated sufficient internal consistency reliabilities from interpreting the Cronbach alpha and the item-total correlations. As a result of these satisfactory outcomes, and for the other reasons stipulated in the interpretations, no poor items were detected and removed from the study.

It therefore was concluded that the results of the foregoing analysis suggested that the items in all three of the scales systematically reflected their designated latent variables with adequate success.

#### **4.2.2 Redundancy analysis**

As mentioned previously, redundancy analysis is an approach that is used to determine whether multicollinearity exists in the study. This analysis is conducted only on the endogenous variables, i.e. altruism, sportsmanship, courtesy, compliance, civic virtue, and job satisfaction. The results of the analysis can be found in Appendix C. The variables were interpreted by means of the tolerance column, where a multicollinearity problem exists if there are values below .3 or .2 (M. Kidd, personal communication, 4 June 2014). There were no tolerance values below .3, and it therefore could be concluded that a multicollinearity problem did not exist.

#### **4.2.3 Evaluating the outer loadings**

As mentioned in Chapter 3, a bootstrap analysis was performed using a 95% confidence interval, in an attempt to evaluate the measurement model. Due to the number of items in the self-administered survey, the results were divided into two different tables. The results for the outer loadings pertaining to organisational citizenship behaviour and job satisfaction can be found in Table 4.4. In addition, the results for the outer loadings pertaining to the HEXACO personality factors can be found in Table 4.5.

**Table 4.4**  
**PLS-SEM Outer Loadings: OCB and Job Satisfaction**

Construct	Item	Outer loadings	Bootstrap mean	95% lower	95% upper	
<b>Altruism</b>	Alt1	0.62	0.62	0.42	0.76	Significant
	Alt2	0.74	0.73	0.55	0.85	Significant
	Alt3	0.66	0.63	0.38	0.79	Significant
	Alt4	0.56	0.57	0.36	0.75	Significant
	Alt5	0.76	0.75	0.55	0.85	Significant
<b>Sportsmanship</b>	Sport1R	0.82	0.8	0.58	0.91	Significant
	Sport2R	0.69	0.66	0.39	0.82	Significant
	Sport3R	0.74	0.73	0.52	0.86	Significant
	Sport4R	0.66	0.65	0.42	0.81	Significant
	Sport5R	0.22	0.24	-0.17	0.65	Not significant
<b>Compliance</b>	Consc1	0.71	0.69	0.47	0.82	Significant
	Consc2	0.52	0.52	0.32	0.68	Significant
	Consc3	0.66	0.67	0.48	0.80	Significant
	Consc4	0.69	0.69	0.55	0.80	Significant
	Consc5	0.79	0.78	0.59	0.88	Significant
<b>Courtesy</b>	Court1	0.70	0.69	0.50	0.81	Significant
	Court2	0.82	0.81	0.70	0.89	Significant
	Court3	0.63	0.62	0.40	0.77	Significant
	Court4	0.35	0.36	0.08	0.58	Significant
	Court5	0.75	0.75	0.58	0.86	Significant
<b>Civic virtue</b>	Cv1	0.68	0.67	0.39	0.83	Significant
	Cv2	0.54	0.53	0.17	0.77	Significant
	Cv3	0.62	0.59	0.18	0.82	Significant
	Cv4	0.81	0.80	0.63	0.91	Significant
<b>Job satisfaction</b>	Jobsat1	0.81	0.81	0.69	0.91	Significant
	Jobsat2	0.49	0.47	0.09	0.71	Significant
	Jobsat3	0.85	0.83	0.72	0.91	Significant
	Jobsat4	0.76	0.74	0.52	0.85	Significant
	Jobsat5	0.61	0.60	0.33	0.77	Significant

Table 4.5

**PLS-SEM Outer Loadings: HEXACO Personality Factors**

Construct	Item	Outer loadings	Bootstrap mean	95% lower	95% upper	
<b>HH</b>	Sincerity	0.39	0.34	-0.20	0.69	Not significant
	Fairness	0.88	0.83	0.58	0.97	Significant
	Greed avoidance	0.51	0.49	-0.03	0.82	Not significant
	Modesty	0.54	0.49	-0.04	0.80	Not significant
<b>Emotionality</b>	Fearfulness	0.63	0.60	0.15	0.84	Significant
	Anxiety	0.34	0.33	-0.13	0.67	Not significant
	Dependence	0.85	0.82	0.64	0.94	Significant
	Sentimentality	0.65	0.61	0.22	0.82	Significant
<b>Extraversion</b>	Expressiveness	0.68	0.62	0.09	0.84	Significant
	Social boldness	0.20	0.22	-0.38	0.69	Not significant
	Sociability	0.73	0.68	0.33	0.87	Significant
	Liveliness	0.80	0.77	0.45	0.91	Significant
<b>Agreeableness</b>	Forgiveness	0.77	0.77	0.63	0.88	Significant
	Gentleness	0.66	0.65	0.39	0.81	Significant
	Flexibility	0.77	0.75	0.58	0.87	Significant
	Patience	0.72	0.72	0.55	0.83	Significant
<b>Conscientiousness</b>	Organisation	0.72	0.71	0.53	0.84	Significant
	Diligence	0.73	0.73	0.57	0.84	Significant
	Perfectionism	0.67	0.67	0.43	0.81	Significant
	Prudence	0.72	0.72	0.59	0.83	Significant
<b>Openness</b>	Aesthetic appreciation	0.80	0.68	-0.24	0.92	Not significant
	Inquisitiveness	0.82	0.67	-0.48	0.95	Not significant
	Creativity	0.54	0.48	-0.24	0.85	Not significant
	Unconventionality	0.65	0.57	-0.23	0.91	Not significant

In terms of the results pertaining to OCB, the outer loadings in the table were all above the cut-off threshold of .5, with the exception of the fifth sportsmanship item (Sport5R), which had a value of .22. In addition, the results from the bootstrap analysis indicated that all the items were significant, i.e. zero did not fall within the 95% confidence interval, with the exception of the fifth sportsmanship item (Sport5R). After careful review of this item/statement, it was possible that the participants did not understand the statement correctly, even though a clear explanation of it was given to each participant. This therefore did not provide an acceptable theoretical argument to remove the item in question.

With regard to the results concerning job satisfaction, the outer loadings were all above the .5 threshold, with the exception of the second job satisfaction item (JobSat2). In addition, the results of the bootstrap analysis indicated that all the items were significant. Although the outer loading for the second job satisfaction item (JobSat2) was marginally below .5 and the results from the bootstrap analysis indicated that zero just missed the 95% confidence interval, the path was still considered to be significant and no problem was identified.

In terms of the results pertaining to the HEXACO personality factors, the outer loadings in Table 4.5 were all above the cut-off threshold of .5, with the exception of sincerity, anxiety and social boldness, which had values of .39, .34 and .20 respectively. In addition, the results from the bootstrap analysis indicated that there were a number of sub-facets that were not significant.

#### ***4.2.3.1 Concluding remarks regarding the outer loadings***

It was decided that no items would be removed on the basis of the outer loadings. There are number of things to consider when making such a decision. Firstly, the removal of an item will increase the risk of noise in the data. In addition, the removal of an item or tweaking of data in order to get the ideal or perfect result, would have a negative impact on the researcher's ability to generalise the results of and conclusions drawn from the study. Lastly, an item cannot be removed on the basis of statistics alone. In order to successfully justify the removal of an item or construct is to motivate its removal theoretically, in conjunction with the statistics, by looking at the survey in question.

Although the fifth sportsmanship item was a serious contender for removal, it was decided that there was insufficient evidence to drop it. In terms of the remaining 'not significant' conclusions relating to personality, none of the sub-facets was removed. The main reason for this was that it was not possible to determine, from the results provided, exactly which item was causing the problem. It was the researcher's opinion that the removal of an entire sub-facet of a personality factor would have detrimental effects on the study because it

entailed the removal of at least two to three items, depending on the sub-facet, where only one may have been problematic.

It is important to note that, even though no items were removed, the above findings in combination with the item analyses, would have an impact on the path coefficients, and thus the hypothesised relationships, when analysing the structural model.

#### **4.2.4 Reliability analysis**

Table 4.6 provides the results of the reliability analysis, which is a necessary step for the PLS-SEM approach. It was crucial to the path analysis of the measurement and structural models. The composite reliability of each scale representing certain latent variables was excellent, as all of the scales had values greater than the .70 cut-off (Hair et al., 2011), with the exception of honesty-humility which had a value of .68, thus falling just below the threshold. The HH scale was still included, because the composite reliability value was still acceptable.

In terms of the reported AVE results, four scales were above the .5 cut-off (Hair et al., 2011). The majority of the scales fell marginally below the threshold. This demonstrates that a larger amount of variance was due to measurement error, and not due to the underlying construct. In addition, HH presented a very low AVE score.

Although certain scales were flagged as problematic due to their lower AVE levels, the high composite reliability found for each of the scales indicated that there was a satisfactory level of convergent validity. In addition, divergent validity was tested to determine the uniqueness of the constructs. The results indicated that all the constructs passed the test.

### **4.3 Validating the Structural Model**

The  $R^2$  values for the inner model can be found in Table 4.6. These values were calculated for the endogenous variables only, and therefore all exogenous variables, i.e. the personality factors, would have an  $R^2$  value of zero. The  $R^2$  values obtained in the current study, albeit moderate or weak, indicated a satisfactory amount of variance in the endogenous latent variables (Hair et al., 2011). The job satisfaction scale reported the lowest value of 0.12, thus indicating that the total model was responsible for approximately 12% of the variance reported in job satisfaction. In addition, the OCB compliance scale reported the highest value



of 0.36, meaning that the total model was responsible for approximately 36% of the variance reported in compliance.

**Table 4.6**  
***Reliability Statistics for the PLS Path Model***

	Ave	Composite reliability	R square
Agreeable	0.536	0.821	
Altruism	0.452	0.803	0.335
Civic virtue	0.444	0.758	0.241
Conscientious	0.510	0.806	
Courtesy	0.449	0.793	0.312
Emotionality	0.415	0.723	
HH	0.371	0.683	
Job satisfaction	0.514	0.837	0.122
Openness	0.511	0.803	
Sportsmanship	0.437	0.777	0.171
Compliance	0.463	0.809	0.358
Extraversion	0.416	0.711	

After assessing the reliability and psychometric properties of the scales measuring the latent variables, the PLS path coefficients were examined and evaluated to draw a conclusion on the strength and significance of the relationships hypothesised in the previous chapters. These path coefficients typically fall between -1.00 and +1.00. If a value of zero falls within the 95% confidence interval, it signifies that there is a lack of relationship between the two latent variables (Hair et al., 2011; M. Kidd, personal communication, 4 June 2014).

The structural model is typically assessed through the use of  $R^2$ , found in Table 4.6, and path coefficients, found in Table 4.7. As mentioned previously, the  $R^2$  values obtained in the current study, albeit moderate or weak depending on the scale, indicated a satisfactory amount of variance in the endogenous latent variables.

As indicated in Table 4.7, a number of relationships were proven not to be statistically significant because of two reasons. The first was that zero fell within the 95% confidence interval, and the second was that the path coefficients indicated weak relationships between the variables in question. Although the path between emotionality and sportsmanship was

deemed not to be statistically significant, the path coefficient indicated the negative relationship as hypothesised. This relationship lies on the threshold because it was relatively close to being significant, even though the opposite was reported.

**Table 4.7**  
**Path Coefficients**

Path	Path coefficient	Bootstrap mean	95% Lower	95% Upper	
Agreeable ->Altruism	0.13	0.12	-0.06	0.31	Not significant
Agreeable ->Courtesy	0.27	0.25	0.06	0.42	Significant
Agreeable -> Job satisfaction	0.26	0.28	0.09	0.46	Significant
Agreeable -> Sportsmanship	0.19	0.19	-0.04	0.38	Not significant
Agreeable -> Compliance	0.12	0.13	-0.04	0.29	Not significant
Conscientious -> Altruism	0.43	0.41	0.19	0.61	Significant
Conscientious -> Civic virtue	0.40	0.40	0.20	0.57	Significant
Conscientious -> Courtesy	0.36	0.35	0.16	0.52	Significant
Conscientious -> Job satisfaction	0.20	0.22	0.05	0.40	Significant
Conscientious -> Sportsmanship	0.17	0.19	0.01	0.40	Significant
Conscientious -> Compliance	0.56	0.57	0.41	0.69	Significant
Emotionality -> Altruism	-0.06	-0.06	-0.29	0.17	Not significant
Emotionality -> Courtesy	-0.03	-0.03	-0.26	0.17	Not significant
Emotionality -> Sportsmanship	-0.24	-0.25	-0.45	0.00	Not significant
HH -> Altruism	0.09	0.10	-0.07	0.27	Not significant
HH -> Courtesy	0.09	0.10	-0.12	0.31	Not significant
Job satisfaction -> Altruism	0.10	0.11	-0.17	0.38	Not significant
Job satisfaction -> Courtesy	-0.02	0.00	-0.26	0.23	Not significant
Openness -> Altruism	-0.01	0.01	-0.17	0.18	Not significant
Openness -> Civic virtue	0.10	0.12	-0.20	0.31	Not significant
Extraversion -> Altruism	0.05	0.07	-0.13	0.29	Not significant
Extraversion -> Civic virtue	0.18	0.19	0.02	0.38	Significant
Extraversion -> Courtesy	0.12	0.10	-0.21	0.36	Not significant
Extraversion -> Compliance	0.03	0.04	-0.15	0.21	Not significant

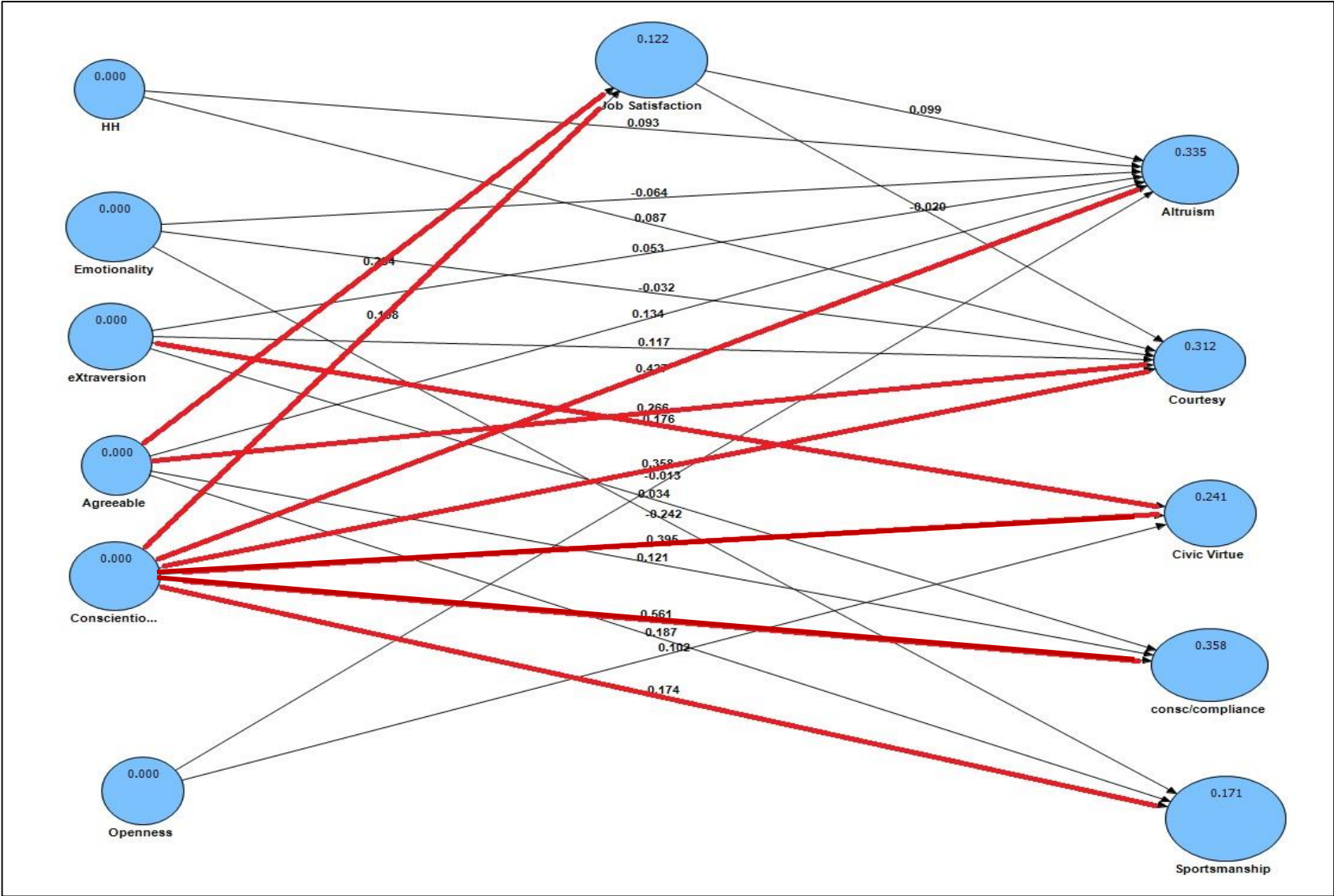


Figure 4.1. PLS Report for the Personality and OCB Structural Model

It therefore is concluded that only seven of the twenty-four hypothesised relationships were proven to be significant. Figure 4.1 graphically represents the significant and not significant PLS path coefficients in the form of the original structural model. All of the significant relationships are represented in red, and the remaining paths are not statistically significant.

#### 4.4 Reporting and Interpreting the Final Scores

A separate analysis was conducted of all the various subscales in order to determine the current levels of behaviour, satisfaction and personality amongst the participants from the various participating companies. This analysis provided the necessary descriptive statistics, namely the mean, median, and standard deviation.

##### 4.4.1 Interpreting the organisational citizenship scores

The organisation citizenship behaviour scale was utilised in this study in order to determine the degree to which the civil engineers who work on site display particular behaviours. Similar to the OCB model, the OCB scale is comprised of five subscales, which are all indicators of the corresponding OCB dimensions. As mentioned previously, the items were all answered on a seven-point Likert-type scale, ranging from 'strongly disagree' (1) to 'strongly agree' (7). The only reverse-scored items were all five of the statements on sportsmanship. Table 4.8 provides the average scores for the OCB subscales.

**Table 4.8**  
***Scoring the OCB Scale with Mean Scales***

<b>Dimensions</b>	<b>Median</b>	<b>Mean</b>	<b>Standard deviation (SD)</b>
<b>Altruism</b>	6.0	5.783	0.661
<b>Courtesy</b>	6.0	5.863	0.751
<b>Civic virtue</b>	5.25	5.159	0.954
<b>Compliance</b>	6.2	6.020	0.705
<b>Sportsmanship</b>	5.6	5.598	0.891

When interpreting the average scores for the various OCB Dimensions, the following can be deduced about the study participants:

- **Altruism:** The mean score obtained for the altruism subscale was 5.78 (SD = .66), which indicates an above average level of altruistic behaviour. It therefore could be inferred that a sufficient number of the participants chose to help colleagues on their own time without expecting any form of reciprocity.
- **Courtesy:** The mean score obtained for the courtesy subscale was 5.86 (SD = .75), which indicates a relatively high level of courteous behaviour. This implies that a number of the participants were considerate of others and the organisation. This behaviour is displayed in an attempt to minimise conflict as much as reasonably possible.
- **Civic virtue:** The mean score obtained for the civic virtue subscale was 5.16 (SD = .95), which indicates an above average level of this behaviour. This meant that a large number of study participants took the initiative to actively seek out information concerning the organisation. These participants seemed to indicate a high level of concern for their respective organisations' wellbeing.
- **Compliance:** The mean score obtained for the compliance subscale, also referred to as conscientiousness subscale, was 6.02 (SD = .71), which indicates a well above average level of this behaviour. This ultimately means that a sufficient number of participants go above and beyond their minimum job requirements.
- **Sportsmanship:** The mean score obtained for the sportsmanship subscale was 5.6 (SD = .89), thus displaying an above average level of this behaviour. This score ultimately means that a large proportion of the participants are tolerant of non-ideal situations and surroundings.

Overall, one can conclude that there is an above average level of OCB amongst the individuals who participated in this study.

#### 4.4.2 Interpreting the job satisfaction score

As mentioned previously, the Revised Job Diagnostic Survey (JDS) was utilised in this study in order to determine the degree to which the civil engineers who work on site possess a particular level of job satisfaction. Only a single subscale of the JDS was used, consisting of five items. Each item was scored on a seven-point Likert-type scale, ranging from 'strongly disagree' (1) to 'strongly agree' (7). No items in this scale were reverse-scored.

The total mean score obtained for job satisfaction was 4.56 (1.08). This indicates that the employees employed by the participating construction companies recorded an above average level of satisfaction with their jobs.

#### 4.4.3 Interpreting the HEXACO personality score

In the present study a self-reported shorter version of the HEXACO-PI-R was utilised, namely HEXACO-60. This scale was used in order to determine the overall level of the various personality characteristics amongst the participants. The participant responses were recorded on a five-point Likert-type scale ranging from 'disagree strongly' (1) to 'agree strongly' (5). All reverse-scored items were accounted for and corrected. Lee and Ashton (2012) provide the following guidelines for interpreting the scores per personality characteristic:

- Well above average: all values more than or equal to 4.4
- Somewhat above average: values ranging between 3.6 and 4.3
- Average: values ranging between 2.8 and 3.5
- Somewhat below average: values ranging between 2.0 and 2.7
- Well below average: all values less than or equal to 1.9

It is important to note that a high value on a particular subscale does not necessarily mean that it is better than a low value, and similarly, a low value does not necessarily mean that it is worse than having a high value. Table 4.9 provides the average scores for the HEXACO subscales.

**Table 4.9**  
**Scoring the HEXACO-60 Scale with Mean Scales**

Dimensions	Median	Mean	Standard deviation (SD)
Honesty-humility	3.583	3.586	0.532
Emotionality	2.792	2.828	0.537
Extraversion	3.653	3.653	0.476
Agreeableness	3.417	3.393	0.601
Conscientiousness	4.042	4.035	0.507
Openness	3.458	3.398	0.675

When interpreting the average scores for the various personality factors, the following can be deduced about the study participants:

- Honesty-humility:** The mean score obtained for this personality subscale was 3.59 (SD = .5324). According to the guidelines provided, this was slightly above average. The sub-facets of HH, namely, sincerity, fairness, greed avoidance and modesty, had mean scores of 3.75 (SD = .78), 4.32 (SD = .81), 2.88 (SD = .94) and 3.39 (SD = .89) respectively. These results therefore indicate that the majority of the participants were more inclined not to exploit or manipulate others in order to benefit themselves. In addition, they enjoyed obtaining and displaying materialistic items, privilege and wealth, and were less tempted to disregard rules. These individuals therefore would be motivated more by monetary or material rewards offered by their respective companies (Lee & Ashton, 2012).
- Emotionality:** The mean score obtained for this personality subscale was 2.83 (SD = .5368). According to the guidelines provided, this was an average level. The sub-facets of emotionality, namely, fearfulness, anxiety, dependence and sentimentality, had mean scores of 2.55 (SD = .78), 3.37 (SD = .90), 2.52 (SD = .83) and 2.88 (SD = .81) respectively. These results therefore indicate that the majority of the participants were less likely to feel the need to share their emotional concerns with others, and were less empathetic towards others. In addition, these individuals were less likely to be deterred by dangerous conditions that ultimately could result in injury (Lee & Ashton, 2012).

- **Extraversion:** The mean score obtained for this personality subscale was 3.65 (SD = .48). According to the guidelines provided, this was slightly above average. The sub-facets of extraversion, namely, expressiveness, social boldness, sociability and liveliness, had mean scores of 4.1 (SD = .58), 3.13 (SD = .80), 3.52 (SD = .81) and 3.87 (SD = .63) respectively. These results therefore indicate that the majority of the participants were more confident in themselves, especially within leadership positions. They would typically be more optimistic and enthusiastic in everything they do (Lee & Ashton, 2012).
- **Agreeableness:** The mean score obtained for this personality subscale was 3.39 (SD = .60). According to the guidelines provided, this was an average level. The sub-facets of agreeableness, namely, forgiveness, gentleness, flexibility and patience, had mean scores of 3.65 (SD = .91), 3.07 (SD = .74), 3.25 (SD = .74) and 3.64 (SD = .92) respectively. These results therefore indicate that the majority of the participants were more willing to forgive and forget and control their temper. In addition, these individuals tended to be more critical of others, as well as to have a stubborn nature (Lee & Ashton, 2012).
- **Conscientiousness:** The mean score obtained for this personality subscale was 4.04 (SD = .51). According to the guidelines provided, this was above average. The sub-facets of conscientiousness, namely, organisation, diligence, perfectionism and prudence, had mean scores of 3.82 (SD = .82), 4.56 (SD = .58), 3.9 (SD = .68) and 3.86 (SD = .73) respectively. These results therefore indicate that the majority of the individuals are more organised, goal and detail oriented, and deliberated carefully when making decisions (Lee & Ashton, 2012).
- **Openness to experience:** The mean score obtained for this personality subscale was 3.4 (SD = .67). According to the guidelines provided, this was above average. The sub-facets of openness to experience, namely, aesthetic appreciation, inquisitiveness, creativity and unconventionality, had mean scores of 3.02 (SD = 1.22), 3.59 (SD = .84), 3.42 (SD = .91) and 3.57 (SD = .68) respectively. These results therefore indicate that the majority of the participants were inquisitive about various knowledge domains and, in some cases, were open to varying opinions, but did not always make use of their own creativity and imagination to come up with innovative and new unconventional ideas (Lee & Ashton, 2012).



#### 4.5 Interpreting the Proposed Hypotheses

Before the proposed hypotheses are interpreted, it is important to note that there is a widespread misunderstanding of SEM, in terms of which it is believed that the SEM path coefficients provide empirical evidence of a causal relationship amongst the variables. The truth is that the path coefficients do not infer anything regarding causality per se. Causality is in fact inferred from the researcher's hypothesised model, in combination with the empirical testing of this model. Bearing this in mind, the empirical findings were assessed in terms of the hypotheses proposed in Chapter 3.

Hypothesis 1: Honesty-humility ( $\xi_1$ ) has a significant positive effect on altruism ( $\eta_1$ ).

Hypothesis 2: Honesty-humility ( $\xi_1$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

These hypotheses were **not statistically significant** in the PLS-SEM (path coefficient was .09 for both hypotheses). Due to the fact that there was a lack of empirical evidence regarding the relationships amongst the organisational citizenship behaviour factors and honesty-humility, it became difficult to include these connections. The researcher attempted to make use of the available evidence, both theoretical and empirical, in order to theorise the existence of such relationships. This finding was inconsistent with the theoretical arguments posed by Chiaburu et al. (2011), but was, in fact, consistent with the empirical evidence provided by Bourdage et al. (2012) who indicated that honesty-humility was related to impression management behaviour, and not necessarily prosocial behaviours and behaviours that indicate organisational concern. The lack of relationships found, however, could be attributed to the not significant outer loadings together with the low level of internal consistency, AVE and  $R^2$  values reported earlier in this chapter. These indications of weak reliability and validity would have detrimental effects on the path coefficients (M. Kidd, personal communication, 4 June 2014). Another possible reason contributing to the lack of relationship between HH and altruism as well as HH and courtesy could be the small sample used for this study.

Hypothesis 3: Emotionality ( $\xi_2$ ) has a significant positive effect on altruism ( $\eta_1$ ).

Hypothesis 4: Emotionality ( $\xi_2$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

Hypothesis 5: Emotionality ( $\xi_2$ ) has a significant positive effect on sportsmanship ( $\eta_5$ )

All three of these hypotheses were **not statistically significant** in the PLS-SEM, with path coefficients of -.06 for hypothesis 3, -.03 for hypothesis 4, and -.24 for hypothesis 5. The negative path coefficients for the relationships between emotionality and altruism, as well as between emotionality and courtesy, were not expected. These negative coefficients are consistent with the findings of Singh and Singh (2009), but did not reflect the empirical evidence provided by Bourdage et al. (2012).

Although the path between emotionality and sportsmanship was deemed not to be statistically significant, the path coefficient indicated the negative relationship, albeit weak, as hypothesised. This relationship lay on the threshold because it was relatively close to being significant, even though the opposite was reported.

The lack of relationships found, however, could be contributed to the not significant outer loadings together with the low level of internal consistency reported earlier in this chapter. The lower  $R^2$  for sportsmanship could have a negative impact on the path coefficient, which would explain why it was on the threshold and deemed not significant. Another possible reason contributing to the lack of relationship between emotionality and altruism, emotionality and sportsmanship as well as emotionality and courtesy, could be the small sample obtained for this study.

Hypothesis 6: Extraversion ( $\xi_3$ ) has a significant positive effect on altruism ( $\eta_1$ ).

Hypothesis 7: Extraversion ( $\xi_3$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

Hypothesis 8: Extraversion ( $\xi_3$ ) has a significant positive effect on civic virtue ( $\eta_3$ )

Hypothesis 9: Extraversion ( $\xi_3$ ) has a significant positive effect on compliance ( $\eta_4$ ).

Hypotheses 6, 7 and 9 were **not statistically significant** in the PLS-SEM, with path coefficients of .05, .12 and .03. This was contrary to the findings of Singh and Singh (2009), Kiffin-Petersen et al. (2011), Chiaburu et al. (2011) and Najari et al. (2011), who all reported that extraversion has strong positive correlations with the various components of OCB.

The lack of relationships found, however, could be contributed to the not significant outer loadings together with the low AVE values reported earlier in this chapter. Another possible reason contributing to the lack of relationship between extraversion and altruism and between extraversion and courtesy could be the small sample obtained for this study.

Hypothesis 8, however, was found to be **statistically significant** in the PLS-SEM (path coefficient = .18). This conclusion is consistent with the findings of Chiaburu et al. (2011), Najari et al. (2011) as well as Singh and Singh (2009). This, therefore, implies that extraverted individuals who have high levels of the social boldness facet are more likely to defend the organisation, i.e. display civic virtue, because they are not afraid to speak their minds whether it is towards people they know or to unfamiliar strangers.

Hypothesis 10: Agreeableness ( $\xi_4$ ) has a significant positive effect on altruism ( $\eta_1$ ).

Hypothesis 11: Agreeableness ( $\xi_4$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

Hypothesis 12: Agreeableness ( $\xi_4$ ) has a significant positive effect on compliance ( $\eta_4$ ).

Hypothesis 13: Agreeableness ( $\xi_4$ ) has a significant positive effect on sportsmanship ( $\eta_5$ ).

Hypotheses 10, 12 and 13 were **not statistically significant**, with path coefficients of .13, .12 and .19 respectively. This is contrary to the findings of Organ and Ryan (1995), Konovsky and Organ (1996), Elanain (2007), Singh and Singh (2009), Chiaburu et al. (2011) and Najari et al. (2011), who all reported that agreeableness was one of the main contributors to the development of various OCB dimensions, including altruism, courtesy and sportsmanship.

The internal consistency, the AVE values and the composite reliability all indicate that the measurement of agreeableness is satisfactorily reliable. In addition, the  $R^2$  values for altruism and courtesy were moderate and acceptable. The  $R^2$  value for sportsmanship was weaker than the interpersonal dimensions, and possibly could have contributed to the path coefficient being deemed not significant.

Hypothesis 11, however, was found to be **statistically significant** in the PLS-SEM (path coefficient = .27). This conclusion is consistent with the empirical evidence provided by the findings of Organ and Ryan (1995), Konovsky and Organ (1996), Elanain (2007), Singh and Singh (2009), Chiaburu et al. (2011), Bourdage et al. (2012) and Najari et al. (2011). This

finding ultimately means that an individual who has high levels of agreeableness will be more likely to take on more responsibilities and do more than what the job requires.

Hypothesis 14: Conscientiousness ( $\xi_5$ ) has a significant positive effect on altruism ( $\eta_1$ ).

Hypothesis 15: Conscientiousness ( $\xi_5$ ) has a significant positive effect on courtesy ( $\eta_2$ ).

Hypothesis 16: Conscientiousness ( $\xi_5$ ) has a significant positive effect on civic virtue ( $\eta_3$ ).

Hypothesis 17: Conscientiousness ( $\xi_5$ ) has a significant positive effect on compliance ( $\eta_4$ ).

Hypothesis 18: Conscientiousness ( $\xi_5$ ) has a significant positive effect sportsmanship ( $\eta_5$ ).

All of these hypotheses were proven to be **statistically significant** in the PLS-SEM, and presented path coefficients of .43 for hypothesis 14, .36 for hypothesis 15, .4 for hypothesis 16, .56 for hypothesis 17 and .17 for hypothesis 18.

These results are in accordance with research conducted by Neal, Yeo, Koy and Xiao (2011), which indicated a significant relationship between the Big Five conscientiousness and all forms of performance, including citizenship behaviour. In terms of the interpersonal dimensions of OCB, viz. altruism and courtesy, similar conclusions were drawn by Elanain (2007), Chiaburu et al. (2011), Bourdage et al. (2012) and Najari et al. (2011). In terms of the remaining, more organisation related OCB dimensions, namely civic virtue, compliance and sportsmanship, similar deductions were made by Organ and Lingl (1995), Organ and Ryan (1995), Konovsky and Organ (1996), Najari et al. (2011), Elanain (2007), Chiaburu et al. (2011), Akinbode (2011), Singh and Singh (2009) and Bourdage et al. (2012). In conclusion, the most diligent, organised, detail-oriented and prudent individual is more likely to remain up to date with organisational concerns and to do more than what is required by the job. In addition, prudent individuals are more likely to think before they act and not to act on impulse, therefore resulting in the individuals refraining from complaining unless absolutely necessary.

Hypothesis 19: Openness to experience ( $\xi_6$ ) has a significant positive effect on altruism ( $\eta_1$ ).

Hypothesis 20: Openness to experience ( $\xi_6$ ) has a significant positive effect on civic virtue ( $\eta_3$ ).

Hypotheses 19 and 20 were **not statistically significant**, with path coefficients of - .01 and .10 respectively. This is contrary to the findings of Najari et al. (2011), Elanain (2007), Chiaburu et al. (2011) and Bourdage et al. (2012), who all concluded that a positive significant relationship exists between openness to experience and altruism, as well as between openness to experience and civic virtue.

The internal consistency, the AVE values and the composite reliability all indicated that the measurement of openness to experience was satisfactorily reliable. In addition, the  $R^2$  values for altruism and civic virtue were moderate and acceptable. A possible reason for the lack of relationship between openness to experience and altruism and openness to experience and civic virtue could be the small sample obtained for this study.

Hypothesis 21: Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between agreeableness ( $\xi_4$ ) and altruism ( $\eta_1$ ).

Hypothesis 22: Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between agreeableness ( $\xi_4$ ) and courtesy ( $\eta_2$ ).

Hypothesis 23: Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between conscientiousness ( $\xi_5$ ) and altruism ( $\eta_1$ ).

Hypothesis 24: Job satisfaction ( $\eta_6$ ) has a significant mediating effect on the relationship between conscientiousness ( $\xi_5$ ) and courtesy ( $\eta_2$ ).

As mentioned previously, two conditions are necessary for mediation to occur. Firstly, empirical evidence on the direct relationship between job satisfaction and these personality characteristics must exist, and secondly, a direct association between job satisfaction and OCB is required.

Significant path coefficients were found for the path between agreeableness and job satisfaction (path coefficient = .26) as well as for the path between conscientiousness and job satisfaction (path coefficient = .20). These significant path coefficients indicated that the

first condition for mediation was met. This is in accordance with the findings of Organ and Lingl (1995).

The second condition for mediation, however, was not met. Path coefficients that were not significant were found for the path between job satisfaction and altruism (path coefficient = .1), as well as for the path between job satisfaction and courtesy (path coefficient = - .02). This, however, is inconsistent with the findings of multiple researchers (Organ and Ryan, 1995; LePine et al., 2002; Chih et al., 2012; Ziegler et al., 2012; Swaminathan & Jawahar, 2013), who all agreed that job satisfaction is the one antecedent that has been consistent from the beginning of research on OCB.

In conclusion, this study did not provide empirical evidence to justify that job satisfaction mediates the relationship between agreeableness and two OCB dimensions, viz. altruism and courtesy, as well as between conscientiousness and two OCB dimensions, viz. altruism and courtesy.

#### **4.5.1 Concluding remarks regarding interpretations of the hypotheses**

The paths hypothesised in hypotheses 8, 11, 14, 15, 16, 17 and 18 were proven to be significant. In the light of these findings, it also is important to explain the variance in the most important endogenous latent variables in the study, viz. the OCB sub-dimensions. This can be done by further analysing the PLS path analysis, i.e. significant paths, in combination with the obtained  $R^2$  values, found in Table 4.6.

In terms of altruism, an  $R^2$  value of .34 was obtained for the altruism scale, which demonstrates that all the personality factors together with job satisfaction, i.e. the total model, explained approximately 34% of the variance in altruism. Of this percentage of variance, only one factor in the path analysis had a significant path to altruism, and ultimately contributed the most to the variance extracted by the total model, namely conscientiousness.

An  $R^2$  value of .31 was obtained for the courtesy scale, which demonstrates that the total model was responsible for approximately 31% of the variance in courtesy. Similar to altruism, the path analysis found that only conscientiousness contributed significantly to the variance extracted by the total model.

Similarly, the total model explained approximately 24% of the variance observed in civic virtue. It is important to note that the interpretation of the path analyses found that openness

to experience did not contribute significantly to any of the total model's extracted variance. The remaining percentage of variance can be contributed to other variables that are not part of this study.

In addition, the total model explained approximately 17% of the variance in sportsmanship. Of this percentage of variance, only one factor in the path analysis had a significant path to sportsmanship, and ultimately contributed the most to the variance extracted by the total model, namely conscientiousness.

Finally, the total model was responsible for approximately 36% of the variance observed in compliance. From the path analysis it is clear that, of all the factors in the model, only conscientiousness contributed significantly to compliance, and therefore explains the variance extracted.

#### **4.6 Summary of Chapter 4**

Chapter 4 has provided an in-depth assessment of the results of the data analyses. This was achieved by first validating the measurement model, and then validating the structural model in an attempt to test the hypothesised relationships found in Chapter 3. Due to a number of reasons outlined in Chapter 3, a PLS-SEM approach, a form of regression analysis, was utilised to accomplish the chapter's goals. In order to evaluate the measurement model within this approach, the results of the item analyses, redundancy analyses and reliability analyses were interpreted in combination with the interpretation of the outer loadings.

Thereafter, the structural model was evaluated through the interpretation of two things, namely the path coefficients and  $R^2$ . Through the use of PLS-SEM a number of observations were made regarding the structural model. The most important of these was that, in line with past research, the conscientiousness personality factor is an excellent predictor of all five OCB dimensions. In addition, the agreeableness personality factor successfully predicted an interpersonal component of OCB, namely courtesy. Furthermore, Extraversion had a positive, albeit weak, significant path with civic virtue. For the remaining hypotheses, the data did not provide empirical evidence regarding the paths between certain HEXACO personality factors, job satisfaction and OCB.

## CHAPTER 5 IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

### 5.1 Introduction

The current situation within the construction industry is in dire need of intervention. This is mainly due to the industry's complex and competitive nature in combination with the challenges facing all construction companies in South Africa at this moment in time. High performing and loyal employees are the centre of all construction companies' success.

One of the ways to obtain and retain such employees within the industry has been identified as organisational citizenship behaviour. The preliminary discussion held with a number of engineers indicated that OCB was lacking amongst the engineers on site. The reported findings of this study, as discussed in Chapter 4, highlight the seriousness of the issue at hand.

In order to assist the construction industry's industrial psychologists in the tackling of the problem, this chapter aims to provide the practical implications of the findings. These implications also include the possible managerial implications to improve the current situation. Furthermore, limitations to these findings and recommendations for future studies are provided so that fruitful research is guaranteed in the future.

### 5.2 Theoretical Implications

Within the areas of personality and job satisfaction theories, this research adds to the existing literature on OCB in a number of ways. Firstly, the study embodies a beneficial first effort towards understanding what causes variance in OCB within the civil engineering sector in South Africa. This was made possible by showing how personality and job satisfaction can be utilised to predict these variances.

Secondly, the certain paths hypothesised in the theoretical structural model, as depicted in Figure 2.1, were empirically proven to be significant, thus adding to and further advocating for the existing body of evidence. The findings of this study indicate that employees who are conscientious, agreeable and/or extraverted are more likely to exhibit increased levels of OCB.



### **5.3 Managerial Implications**

The recent focus on larger companies' attempts to better the competitive environment, viz. the tender rigging, has caused a fair amount of scrutiny from the government. It is clear that the attempt to alter the external environment through anticompetitive behaviour has not been successful. If anything, these actions have brought the industry into disrepute (Greve, 2013).

Enhancing OCB is seen as a highly cost-effective and efficient method to improve organisation effectiveness, performance and competitive advantage (Chien, 2009). OCB can be enhanced through the reestablishment of human resource management (HRM) practices and procedures. Specifically, the construction companies need to alter their organisational culture, recruitment and selection, training and development, performance appraisal and compensation in a manner that will encourage OCB (Babaei, Ahmad, Idris, Omar & Rahimian, 2012; Engelbrecht & Chamberlain, 2005).

Due to the fact that this study focused on the relationship between personality and OCB, the only applicable HRM intervention, in terms of personality, would be recruitment and selection. The researcher has provided additional HRM interventions focusing on the enhancement of OCB in an attempt to address the problem at hand.

#### **5.3.1 Recruitment and selection**

Central to this study is the impact that personality has on organisational citizenship behaviours. The findings of this research indicate that there are three core personality factors that contribute to the displaying of this behaviour, namely conscientiousness, agreeableness and extraversion. Due to the fact that an individual cannot change his/her personality, the only personality-related intervention that can be recommended is within recruitment and selection.

In order for a company to enhance the likelihood of employing people with these personality characteristics and behavioural tendencies, it is essential that industrial psychologists adjust the recruitment and selection procedures. This entails adding the assessment of personality and citizenship behavioural propensities to the more traditional selection methods.

Firstly, personality tests are considered to be psychological tests, and it therefore is important to adhere to the Employment Equity Act No. 55 of 1998 (Republic of South Africa, 1998) and the Employment Equity Amendment Act, No. 47 of 2013 (Republic of South Africa, 2013).

Section 8 of Chapter 2 of the Employment Equity Act (EEA) in combination with the Employment Equity Amendment Act states that psychological assessments of employees are forbidden unless the tests adhere to all of the following:

- The test has been empirically proven to be valid and reliable
- The employees can be tested in a fair manner
- The test is not prejudiced against any particular employee or group thereof
- The test has been certified by the Health Professions Council of South Africa (HPCSA) or any other accredited professional council (Republic of South Africa, 1998; Republic of South Africa, 2013).

There is no clause within these laws indicating that psychological testing cannot be used as the sole reason for hiring, or not hiring, an applicant. Companies utilising psychological testing in their selection procedures should do so with caution. If the company should be called before the Commission for Conciliation, Mediation and Arbitration, the company representatives would need to prove that the refusal to hire an individual did not amount to unfair discrimination, but rather was based on the fact that he/she could not fulfil the inherent job requirements (G. G. Cillié, personal communication, 27 June 2014).

Even if all the requirements in Section 8 of the EEA are met, the company will still need to demonstrate that this measurement instrument predicts certain behaviour. This is only possible through a predictive validity study. The challenge is that, in South Africa, such studies are not always possible due to the limited samples that can be obtained. It therefore can be said that all psychological tests used in South Africa have a certain degree of risk and should be used cautiously (G. G. Cillié, personal communication, 27 June 2014).

In terms of selecting applicants on the basis of OCB, training should occur for the interviewers before interviews commence. This training should teach the interviewers the importance of identifying the correct behaviours needed within the company in order to have a favourable impact on performance. The interviewers should ensure that the applicant's beliefs and values match the organisational culture of OCB. This is mainly to guarantee the applicant's optimal fit and the increased likelihood of exhibiting OCB (Podsakoff, Podsakoff, Whiting, & Mishra, 2011).

### 5.3.2 Organisational culture

It is essential that companies address the current industry problems from within. The South African Minister of Economic Development, namely Ebrahim Patel, called on the CEOs of all construction companies, and stressed the importance of developing and integrating a better organisational culture that accentuates integrity and personal responsibility (Greve, 2013).

Within any organisation it is important to have supportive conduct exhibited by leaders and managers. This display of appropriate behaviour will be reflected across all levels in the company, thus encouraging an atmosphere in which helping and caring behaviour become the norm (Simmons, 2013).

An organisational culture focused on OCB ensures that the employees of the company will perform their job tasks as well as they can and that they also will try to find ways to assist their co-workers and the organisation. In order to exhibit such behaviour successfully, it is not only essential to perform well and care for others, but also is important to have integrity. Having moral and ethical integrity is central to an employee's concern for the wellbeing of the organisation, i.e. civic virtue. These are the types of employees that are needed because, if there is any unethical behaviour, they will not be afraid to speak out against it for the sake of the company (Simmons, 2013).

In addition, an OCB-related culture would encourage the employees to have a sense of personal responsibility with regard to the company's performance, instead of seeing it as someone else's concern. In essence, such a culture encourages the employees to care, i.e. to care about their tasks, to care about the tasks of their colleagues and to care about the company they work for (Simmons, 2013). An organisational culture focused on OCB therefore can be seen as an answer to the plea for a better culture within the various companies in the industry.

A certain limitation to the introduction and integration of a new and improved organisational culture is the spreading of this culture to sites in all corners of the country and, in some cases, internationally. Each site has a culture of its own, stemming from the original organisational culture. Changing these cultures to a more unified culture may pose a problem, as the implementation as well as maintenance thereof may be a secondary priority after production (L. M. da Silva, personal communication, 20 June 2014).

### 5.3.3 Training and development

Although personality does play a role in the occurrence of OCB, employees can still learn to display such behaviour in the workplace. It is important to note that the companies should not focus only on teaching their employees to help one another, but should also encourage them to ask for assistance in order to increase their performance (Simmons, 2013).

Training focused on OCB should be designed and implemented by the human resources department of each company. This training should assist the site employees interested in developing all the skills necessary for OCB, as well as improve the social processes that reinforce this behaviour. Interpersonal skills training is an example of what should be included. This is mainly because the engineers may not have developed interpersonal skills, which could prove to be detrimental to the displaying of OCB (Teal, 2013).

In addition, it is essential to train the employees to take responsibility of their own actions. It should be emphasised that even though personality and attitudes may influence OCB positively, displaying these behaviours is still seen as a personal choice to do the right thing (Simmons, 2013).

Due to the vast distances between site employees, this training may prove to be more complicated. Some of the companies who participated in this study do have leadership training and development programmes that are compulsory for all site employees. It then is recommended that the companies incorporate the OCB training into the respective programmes to ensure that all the site employees are exposed to this training.

In addition, it is suggested that a mentoring programme be developed for the more junior site employees. This will ensure the smoother introduction and transition to life on site. Moreover, it will provide a joint effort to address work related challenges, thus allowing the employees to assist each other through joint problem solving and knowledge sharing (Janse van Rensburg, 2010; Van der Westhuizen. 2014). It is possible to base a part of this programme on the manner in which the select few informal mentors assist their co-workers.

#### **5.3.4 Performance appraisal, constructive feedback and compensation**

In addition to other implications of this study, OCB can be enhanced by providing constructive feedback, having a performance appraisal system in place, and providing the correct form of compensation.

Firstly, constructive feedback can be seen as a way in which information regarding goal achievement and overall performance is provided to the employees. This information gives the employees an indication of their current progress and emphasises their current capabilities together with what needs to be improved. A method in which constructive feedback can be provided to employees is through frequent performance appraisals (Janse van Rensburg, 2010; Van der Westhuizen, 2014).

Performance appraisals should be conducted on a regular basis, e.g. on site after each project completion, and not just annually. OCB therefore should be included in the appraisal system, with the items being evaluated not phrased negatively (Dalal, 2005). It is recommended that the same person, i.e. the supervisor, does the performance evaluations, thus providing a more prominent indication of the rate at which OCB is displayed (Moss, 2009). Employees will soon learn that displaying these discretionary behaviours will leave a more favourable impression on their supervisors and, ultimately, will result in improved performance appraisals (Simmons, 2013).

Lastly, OCB may be influenced by the competitive level of compensation and rewards. It is important to note that offering competitive remuneration will increase the likelihood of attracting and retaining well-performing employees. If there is a perception that the employees are being paid well, they will exert more effort in their job in order to ensure job security. These efforts may include going beyond the normal job requirements, as well as assisting colleagues (Moss, 2009). Discretionary behaviours displayed by employees should be recognised. Due to the voluntary nature of OCB, equitable rewards should be incorporated into the performance appraisals, and not tied directly to the displaying of this behaviour.

It is important to note that the participating site employees will be more motivated by monetary and material rewards. This relates to one of the personality characteristics identified in this study. The findings of this research indicated that the participants had a relatively low level of greed avoidance, a sub-facet that forms part of honesty-humility.

#### **5.4 Limitations to the Study**

Despite the contributions that this study has made to the existing body of evidence on OCB, it is not without its limitations. It is important to note that these limitations do not necessarily undermine the research findings, as provided in Chapter 4.

To gain the participation of the construction companies was challenging. Some were more willing than others to meet with the researcher and discuss the requirements and potential benefits for the company as a whole. This challenge meant that alternative methods needed to be utilised to ensure that the study gained exposure within the industry. The researcher approached SAFCEC and was able to present a proposal to a number of HR representatives from various construction companies.

In addition, the researcher was approached by another company that focuses on the training and development of employees for construction companies, whose anonymity will remain intact. This company opened some doors, allowing the researcher to present to the top directors within the respective companies. All the participating companies allowed the researcher to conduct the study on all the relevant employees.

Despite these efforts, a relatively small sample size of 119 participants meeting all the requirements was obtained. The ideal would have been to obtain a much larger sample in order to empirically test the fit of the model proposed in Chapter 2. In addition, the small sample size has a negative influence on the generalisability of the research findings. In terms of future research, the obtaining of a much larger sample size may prove to be challenging within this context, as the population of South African civil engineers working on site may not be large enough.

In addition to the above, there is another possible limitation regarding the generalisability of the study findings. This study was conducted on a sample reflecting a homogeneous population. Should a sample be homogeneous, the researcher's capacity to generalise the findings will be limited. Although the current sample included the respective ethnic groups in the employees, the fact that the majority of the responses were obtained from males between the ages of 20 and 39 at similar levels within the companies provides an indication of an issue of homogeneity in the sample (Teal, 2013).

The third limitation is concerned with the data obtained by the self-administered survey. As mentioned previously, there are certain errors associated with the use of these surveys, including self-report bias. This means that the data supplied by the respondents is influenced by social desirability and impression management, and therefore may provide higher levels

of latent variables that are not as accurate as one would want them to be (Janse van Rensburg, 2010; Van der Westhuizen. 2014).

It is important to note that preventative measures were taken in order to minimise the occurrence of this bias. Confidentiality and anonymity of all the participants was guaranteed. In addition, the fact that there were no right or wrong answers to the questions was emphasised. Moreover, item analysis was conducted in an attempt to determine the psychometric reliability of the measurement instruments.

In addition to the aforementioned error, this study may have a certain degree of respondent error as a result of the self-administered survey. As mentioned previously, respondent error refers to the participant erroneously responding to a statement without the proper understanding of its meaning. Future South African studies utilising these measurement instruments, should be conducted with caution and with the full knowledge of possible cultural differences in the study participants.

Fourthly, this was a cross-sectional research study. Even though it was hypothesised, causality could not be empirically verified in this study. In addition, the ex post facto research design poses the fifth limitation, as it did not permit the manipulation of the exogenous latent variables and therefore limited the researcher's ability to generalise (Engelbrecht & Chamberlain, 2005; Janse van Rensburg, 2010; Van der Westhuizen. 2014).

Moreover, the current research planned to examine more modern concepts of personality. The HEXACO personality model has not been examined or used within the South African context. In addition, little to no research has been conducted in the field of industrial psychology within the South African construction industry. Subsequently, there is a lack of published research on the subject matter in question, thus posing an additional limitation.

Finally, the HEXACO-60 utilised in this study to measure the personality factors still needs to be validated within the South African context, and thus presents another limitation. It is essential that further studies focus on the validation and certification of the measure within the South African field of Industrial Psychology.

## 5.5 Recommendations for Future Research

After the review of the literature and the completion of the study, it became apparent that the construction industry is in dire need of industrial psychological studies focused on multiple areas. In addition, the empirical research of organisational citizenship behaviour within any South African industry is still in its early stages, with only a few researchers focusing on its significance in this context. It is for this reason that additional research is recommended, and the following ideas are offered in order to ensure fruitful empirical studies in the future:

- The finding in this study of the PLS path analysis indicated satisfactory  $R^2$  values, all of which ranged from .1221 to .3575. Nonetheless, it is possible that factors not included in this study may significantly predict one or more of the OCB dimensions in the civil engineers who work on site within the construction industry. It is therefore recommended that additional studies should be conducted within this industry and should include other factors. Possible factors that could be included in future research include the attitudinal, motivational and situational factors.
- In terms of future research, the obtaining of a much larger sample size may prove to be challenging within this context, as the population of South African civil engineers working on site may not be large enough. It therefore is recommended that more research be conducted utilising various multi-level statistical methods and multiple sources of data, i.e. not only using self-report, but also including employee and managerial data. This is particularly relevant to OCB because the subscale reliabilities reported in this study were slightly lower than the more traditional .7 cut-off (Engelbrecht & Chamberlain, 2005).
- An additional study is needed to validate the psychometric properties of the HEXACO-60 on a South African sample. It is recommended that exploratory factor analysis be included in the validation study.
- Due to the fact that existing industrial psychological research within the construction industry is limited, it is recommended that future investigations focus on multiple areas of industrial psychology including, but not limited to, OCB.



## 5.6 Concluding Remarks

It is important for every company to know that an organisation with employees who display OCB will be more successful and will perform better than an organisation that does not have these good citizens. It is for this reason that companies need to incorporate, encourage and support the display of discretionary behaviours across all the hierarchal levels. This will not only attract the best employees, but will also assist the companies in retaining them.

Through the exploration of the factors that influence OCB amongst site employees working for construction companies within the civil engineering sector of the construction industry, this research study contributed to the existing framework of OCB. The reported conclusions of the research provide empirical evidence on how certain personality characteristics can positively influence the display of discretionary behaviours.

In addition to the theoretical implications of this study, managerial implications and suggested practical interventions were provided. The researcher is confident that these recommendations will provide industrial psychologists with the necessary insight to make informed decisions and alterations to company HRM practices in order to address the situation at hand.

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**APPENDIX A: INFORMED CONSENT AND SELF-ADMINISTERED QUESTIONNAIRE**

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY  
jou kennisvenoot • your knowledge partner

**STELLENBOSCH UNIVERSITY  
CONSENT TO PARTICIPATE IN RESEARCH**

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***A study of the relationship between the HEXACO personality dimensions and organisational citizenship behaviour within the Civil Engineering Sector.***

You are asked to participate in a research study, i.e. a thesis, conducted by Evette R. Brink, for the completion of Masters of Commerce in Industrial Psychology, from the Department of Industrial Psychology at Stellenbosch University. You were selected as a possible participant in this study because of your tertiary qualification and nature of your job, i.e. because you are a civil engineer who works on site and has been employed by the company for at least one year.

**1. PURPOSE OF THE STUDY**

This study aims to determine which personality characteristics contribute to a variance in organisational citizenship behaviour, i.e. doing more than what your job formally requires of you. In other words, it aims to determine why some people, in terms of their personality characteristics, are more likely to be considerate and assist their co-workers as well as to act in a way that will benefit the organisation.

**2. PROCEDURES**

If you volunteer to participate in this study, I ask that you complete the following questionnaire. This survey is designed to take an estimated 20 minutes to complete. The questionnaire consists of three sections which measure your work behaviour on site towards the work itself and your co-workers, your personality characteristics as well as your job satisfaction. It will be provided to you either via an email with the link to the electronic survey, or in the case of a particular company, via a pen and paper format. Once you have completed it, please submit your answers (on the survey site) or hand in the questionnaire to the researcher. If you have any queries during the completion of the questionnaire, do not hesitate to contact Miss Brink, the researcher.

**3. POTENTIAL RISKS AND DISCOMFORTS**

This is a low risk study in terms of your participation. The only discomfort that can be expected is the time that will have to be set aside to complete the questionnaire. All your answers will be in the possession of the researcher, who will keep them on a password protected computer. In addition, none of the individual results will be provided to your company. Your answers will remain anonymous and full confidentiality is guaranteed.

#### **4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

There is no direct benefit to the subject participant. This study aims to determine what personality characteristics makes one prone to behave in a certain manner. The overall results and conclusions of the study will be provided to the participants and companies who ask for it. The company can make use of the overall conclusions by means of developing and implementing training and development interventions for the benefit of the company as a whole as well as for the employees.

#### **5. PAYMENT FOR PARTICIPATION**

All participant employee numbers will be placed in a pool, where one number will be drawn randomly. This individual will win a R1000 voucher from either Takealot/Kalahari. This draw will happen twice, once for those individuals who have completed the form on the electronic survey, and the second time will be for those who completed the pen and paper questionnaire.

#### **6. CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. All your answers will be in the possession of the researcher, who will keep them on a password protected computer. The only people who have access to this data, will be those responsible for the data analyses, i.e. the researcher, the research supervisor, Dr B. Boonzaier and Professor Martin Kidd of Stellenbosch University. In addition, none of the individual results will be provided to anyone, including your company. Your answers will remain anonymous and full confidentiality is guaranteed.

#### **7. PARTICIPATION AND WITHDRAWAL**

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

#### **8. IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about the research, please feel free to contact:

Evette Brink (Researcher)

[evettebrink@gmail.com](mailto:evettebrink@gmail.com)

072 476 6127

Dr B. Boonzaier (Supervisor)

[bb@sun.ac.za](mailto:bb@sun.ac.za)

021 808 4555

## 9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development, Stellenbosch University.

***Please select one of the following options:***

- I have read and understood the foregoing information and I agree to voluntarily participate in the research
- I have read and understood the foregoing information but I decline the invitation to participate in the research

**\*Company Name**

**Employee Number**

*\* This is only to ensure that no duplicate responses are obtained*

**Email Address**

*\* This will only be used to contact the prize winner of the draw*

**\*Age**

*This is only for statistical purposes*

**\*Gender**

*This is only for statistical purposes*

Male

Female

**\*Race**

*This is only for statistical purposes*

Asian/Indian

Black/African

Coloured

White

The following are a number of statements regarding your behaviour towards your site work and co-workers, your personality as well as your feelings about your work on site. Please read each statement and decide how much you agree or disagree with that statement. Please answer all statements, even if you are not entirely certain of your response. Please select your response using the following scale:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly

1. I help others who have heavy workloads  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
2. I am the classic "squeaky wheel" that always needs greasing  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
3. I believe in giving an honest day's work for an honest day's pay  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
4. I consume a lot of time complaining about trivial matters  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
5. I try to avoid creating problems for co-workers  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
6. I keep abreast of changes in the organisation  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
7. I tend to make "mountains out of molehills"  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
8. I consider the impact of my actions on co-workers  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
9. I attend meetings that are not mandatory, but are considered important  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------
10. I am always ready to lend a helping hand to those around me  

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------

11. I attend functions that are not required, but help the company image  
1            2            3            4            5            6            7
12. I read and keep up with organisation announcements, memos, and so on  
1            2            3            4            5            6            7
13. I help others who have been absent  
1            2            3            4            5            6            7
14. I do not abuse the rights of others  
1            2            3            4            5            6            7
15. I willingly help others who have work related problems  
1            2            3            4            5            6            7
16. I always focus on what's wrong, rather than the positive side  
1            2            3            4            5            6            7
17. I takes steps to try to prevent problems with other workers  
1            2            3            4            5            6            7
18. My attendance at work is above the norm  
1            2            3            4            5            6            7
19. I always find fault with what the organisation is doing  
1            2            3            4            5            6            7
20. I am mindful of how my behaviour affects other people's jobs  
1            2            3            4            5            6            7
21. I do not take extra breaks  
1            2            3            4            5            6            7
22. I obey company rules and regulations even when no one is watching  
1            2            3            4            5            6            7
23. I help orient new people even though it is not required  
1            2            3            4            5            6            7
24. I am one of my most conscientious employees  
1            2            3            4            5            6            7

25. Generally speaking, I am very satisfied with this job  
 1            2            3            4            5            6            7
26. I seldom think of quitting this job  
 1            2            3            4            5            6            7
27. I am generally satisfied with the kind of work I do in this job  
 1            2            3            4            5            6            7
28. Most people in this job are very satisfied with the job  
 1            2            3            4            5            6            7
29. People in this job seldom think of quitting  
 1            2            3            4            5            6            7

Please select your response to the statement using the following scale:

- |                      |          |          |          |                |
|----------------------|----------|----------|----------|----------------|
| <b>1</b>             | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b>       |
| Disagree<br>Strongly | Disagree | Neutral  | Agree    | Agree Strongly |

30. I would be quite bored by a visit to an art gallery  
 1            2            3            4            5
31. I plan ahead and organise things, to avoid scrambling at the last minute  
 1            2            3            4            5
32. I rarely hold a grudge, even against people who have badly wronged me  
 1            2            3            4            5
33. I feel reasonably satisfied with myself overall  
 1            2            3            4            5
34. I would feel afraid if I had to travel in bad weather conditions  
 1            2            3            4            5

35. I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed
- 1                      2                      3                      4                      5
36. I'm interested in learning about the history and politics of other countries
- 1                      2                      3                      4                      5
37. I often push myself very hard when trying to achieve a goal
- 1                      2                      3                      4                      5
38. People sometimes tell me that I am too critical of others
- 1                      2                      3                      4                      5
39. I rarely express my opinions in group meetings
- 1                      2                      3                      4                      5
40. I sometimes can't help worrying about little things
- 1                      2                      3                      4                      5
41. If I knew that I could never get caught, I would be willing to steal a million dollars
- 1                      2                      3                      4                      5
42. I would enjoy creating a work of art, such as a novel, a song, or a painting
- 1                      2                      3                      4                      5
43. When working on something, I don't pay much attention to small details
- 1                      2                      3                      4                      5
44. People sometimes tell me that I'm too stubborn
- 1                      2                      3                      4                      5
45. I prefer jobs that involve active social interaction to those that involve working alone
- 1                      2                      3                      4                      5
46. When I suffer from a painful experience, I need someone to make me feel comfortable
- 1                      2                      3                      4                      5
47. Having a lot of money is not especially important to me
- 1                      2                      3                      4                      5



48. I think that paying attention to radical ideas is a waste of time  
1                      2                      3                      4                      5
49. I make decisions based on the feeling of the moment rather than on careful thought  
1                      2                      3                      4                      5
50. People think of me as someone who has a quick temper  
1                      2                      3                      4                      5
51. On most days, I feel cheerful and optimistic  
1                      2                      3                      4                      5
52. I feel like crying when I see other people crying  
1                      2                      3                      4                      5
53. I think that I am entitled to more respect than the average person is  
1                      2                      3                      4                      5
54. If I had the opportunity, I would like to attend a classical music concert  
1                      2                      3                      4                      5
55. When working, I sometimes have difficulties due to being disorganised  
1                      2                      3                      4                      5
56. My attitude toward people who have treated me badly is "forgive and forget"  
1                      2                      3                      4                      5
57. I feel that I am an unpopular person  
1                      2                      3                      4                      5
58. When it comes to physical danger, I am very fearful  
1                      2                      3                      4                      5
59. If I want something from someone, I will laugh at that person's worst jokes  
1                      2                      3                      4                      5
60. I've never really enjoyed looking through an encyclopaedia  
1                      2                      3                      4                      5
61. I do only the minimum amount of work needed to get by  
1                      2                      3                      4                      5

62. I tend to be lenient in judging other people  
1                      2                      3                      4                      5
63. In social situations, I'm usually the one who makes the first move  
1                      2                      3                      4                      5
64. I worry a lot less than most people do  
1                      2                      3                      4                      5
65. I would never accept a bribe, even if it were very large  
1                      2                      3                      4                      5
66. People have often told me that I have a good imagination  
1                      2                      3                      4                      5
67. I always try to be accurate in my work, even at the expense of time  
1                      2                      3                      4                      5
68. I am usually quite flexible in my opinions when people disagree with me  
1                      2                      3                      4                      5
69. The first thing that I always do in a new place is to make friends  
1                      2                      3                      4                      5
70. I can handle difficult situations without needing emotional support from anyone else  
1                      2                      3                      4                      5
71. I would get a lot of pleasure from owning expensive luxury goods  
1                      2                      3                      4                      5
72. I like people who have unconventional views  
1                      2                      3                      4                      5
73. I make a lot of mistakes because I don't think before I act  
1                      2                      3                      4                      5
74. Most people tend to get angry more quickly than I do  
1                      2                      3                      4                      5
75. Most people are more upbeat and dynamic than I generally am  
1                      2                      3                      4                      5

76. I feel strong emotions when someone close to me is going away for a long time  
1                      2                      3                      4                      5
77. I want people to know that I am an important person of high status  
1                      2                      3                      4                      5
78. I don't think of myself as the artistic or creative type  
1                      2                      3                      4                      5
79. People often call me a perfectionist  
1                      2                      3                      4                      5
80. Even when people make a lot of mistakes, I rarely say anything negative  
1                      2                      3                      4                      5
81. I sometimes feel that I am a worthless person  
1                      2                      3                      4                      5
82. Even in an emergency I wouldn't feel like panicking  
1                      2                      3                      4                      5
83. I wouldn't pretend to like someone just to get that person to do favours for me  
1                      2                      3                      4                      5
84. I find it boring to discuss philosophy  
1                      2                      3                      4                      5
85. I prefer to do whatever comes to mind, rather than stick to a plan  
1                      2                      3                      4                      5
86. When people tell me that I'm wrong, my first reaction is to argue with them  
1                      2                      3                      4                      5
87. When I'm in a group of people, I'm often the one who speaks on behalf of the group  
1                      2                      3                      4                      5
88. I remain unemotional even in situations where most people get very sentimental  
1                      2                      3                      4                      5
89. I'd be tempted to use counterfeit money, if I were sure I could get away with it  
1                      2                      3                      4                      5

**APPENDIX B: ITEM ANALYSES RESULTS FOR THE HEXACO-60 SCALE****Honesty-Humility**• ***Sincerity***

Summary for scale: Mean=11.2353 Std.Dv.=2.34956 Valid N:119 Cronbach alpha: .268234 Standardized alpha: .271294 Average inter-item corr.: .111205					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
H_Sin1	7.59663	2.81209	1.67692	0.12440	0.27000
H_Sin2R(reversed)	7.29411	4.12357	2.03066	0.07770	0.31941
H_Sin3	7.57983	3.03354	1.74170	0.25168	0.00000

• ***Fairness***

Summary for scale: Mean=12.9748 Std.Dv.=2.44069 Valid N:119 Cronbach alpha: .555506 Standardized alpha: .595215 Average inter-item corr.: .339050					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
H_Fair1R(reversed)	8.63865	2.91985	1.70875	0.44065	0.33046
H_Fair2	8.85714	3.01320	1.73585	0.25366	0.68225
H_Fair3R(reversed)	8.45378	3.69324	1.92178	0.46855	0.36673

• ***Greed avoidance***

Summary for scale: Mean=5.75630 Std.Dv.=1.87294 Valid N:119 Cronbach alpha: .572415 Standardized alpha: .572418 Average inter-item corr.: .400971					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
H_GA1	2.87395	1.23621	1.11185	0.40097	
H_GA2R(reversed)	2.88235	1.24666	1.11654	0.40097	

• ***Modesty***

Summary for scale: Mean=6.78814 Std.Dv.=1.77278 Valid N:119 Cronbach alpha: .561433 Standardized alpha: .562779 Average inter-item corr.: .391574					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
H_Mod1R(reversed)	3.48305	1.02937	1.01458	0.39157	
H_Mod2R(reversed)	3.30508	1.21200	1.10091	0.39157	

- Total**

Summary for scale: Mean=14.3432 Std.Dv.=2.12962 Valid N:118 Cronbach alpha: .466143 Standardized alpha: .471307 Average inter-item corr.: .183313					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
sincerity	10.5946	3.26293	1.80636	0.22008	0.43679
fairness	10.0240	2.86171	1.69165	0.35604	0.31187
greed avoidance	11.4618	2.99595	1.73088	0.19296	0.47413
modesty	10.9491	2.79779	1.67266	0.31158	0.34962

### Emotionality

- Fearfulness**

Summary for scale: Mean=7.64706 Std.Dv.=2.34191 Valid N:119 Cronbach alpha: .510764 Standardized alpha: .509387 Average inter-item corr.: .258315					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
E_Fear1	5.40336	2.87931	1.69685	0.36867	0.33717
E_Fear2	4.88235	2.82649	1.68121	0.35319	0.36246
E_Fear3R(reversed)	5.00840	3.31925	1.82188	0.25854	0.51468

- Anxiety**

Summary for scale: Mean=6.72500 Std.Dv.=1.79618 Valid N:12 Cronbach alpha: .344685 Standardized alpha: .344739 Average inter-item corr.: .208269					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
E_AnX1	3.20833	1.29826	1.13941	0.20826	
E_AnX2R(reversed)	3.51666	1.34972	1.16177	0.20826	

- Dependence**

Summary for scale: Mean=5.05000 Std.Dv.=1.65438 Valid N:12 Cronbach alpha: .307747 Standardized alpha: .307846 Average inter-item corr.: .181926					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
E_Dep1	2.15833	1.11659	1.05669	0.18192	
E_Dep2R(reversed)	2.89166	1.17993	1.08624	0.18192	

- Sentimentality**

Summary for scale: Mean=8.63025 Std.Dv.=2.41768 Valid N:119 Cronbach alpha: .524794 Standardized alpha: .526572 Average inter-item corr.: .273448					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
E_Sent1	6.09243	3.00826	1.73443	0.34125	0.41981
E_Sent2	5.34453	2.99894	1.73174	0.43792	0.26193
E_Sent3R(reversed)	5.82352	3.55709	1.88602	0.24636	0.56428

- Total**

Summary for scale: Mean=11.3123 Std.Dv.=2.14730 Valid N:119 Cronbach alpha: .538747 Standardized alpha: .546343 Average inter-item corr.: .233523					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
fearfulness	8.76330	2.86017	1.69120	0.42129	0.38794
anxiety	7.94257	3.09777	1.76005	0.21407	0.56813
dependence	8.79551	2.87648	1.69602	0.36549	0.43174
sentimentality	8.43557	3.03459	1.74201	0.31959	0.47150

### Extraversion

- Expressiveness**

Summary for scale: Mean=12.3025 Std.Dv.=1.73964 Valid N:119 Cronbach alpha: .364623 Standardized alpha: .369053 Average inter-item corr.: .165160					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
X_Exp1	8.02521	2.07499	1.44048	0.23135	0.26300
X_Exp2R(reversed)	8.47899	1.87981	1.37106	0.13053	0.43531
X_Exp3R(reversed)	8.10084	1.31756	1.14785	0.29688	0.07203

- Social boldness**

Summary for scale: Mean=9.37815 Std.Dv.=2.38282 Valid N:119 Cronbach alpha: .574880 Standardized alpha: .580265 Average inter-item corr.: .321207					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
X_SB1R(reversed)	6.08403	3.20302	1.78969	0.27615	0.64359
X_SB2	6.40336	3.16503	1.77905	0.39601	0.45854
X_SB3	6.26890	2.73441	1.65360	0.49754	0.29358

• **Sociability**

Summary for scale: Mean=7.03333 Std.Dv.=1.61367 Valid N:11 Cronbach alpha: .233649 Standardized alpha: .234045 Average inter-item corr.: .132532					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
X_Soc1	3.38333	1.06972	1.03427	0.13253	
X_Soc2	3.65000	1.21083	1.10037	0.13253	

• **Liveliness**

Summary for scale: Mean=7.73109 Std.Dv.=1.25345 Valid N:11 Cronbach alpha: .348291 Standardized alpha: .353643 Average inter-item corr.: .214803					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
X_Live1	3.57142	0.76590	0.87516	0.21480	
X_Live2R(reversed)	4.15966	0.52072	0.72161	0.21480	

• **Total**

Summary for scale: Mean=14.6134 Std.Dv.=1.90276 Valid N:11 Cronbach alpha: .591581 Standardized alpha: .610961 Average inter-item corr.: .283094					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
expressiveness	10.5126	2.49914	1.58086	0.41490	0.50139
social boldness	11.4874	2.24050	1.49683	0.30577	0.58169
sociability	11.0924	2.11890	1.45564	0.35074	0.54538
liveliness	10.7479	2.31879	1.52276	0.46393	0.45998

**Agreeableness**

• **Forgiveness**

Summary for scale: Mean=7.29167 Std.Dv.=1.81680 Valid N:11 Cronbach alpha: .672621 Standardized alpha: .672645 Average inter-item corr.: .506756					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
A_Forg1	3.55000	1.09750	1.04761	0.50675	
A_Forg2	3.74166	1.07493	1.03678	0.50675	

- Gentleness**

Summary for scale: Mean=9.22034 Std.Dv.=2.21161 Valid N:118 Cronbach alpha: .336705 Standardized alpha: .325074 Average inter-item corr.: .140010					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Itm-Totl Correl.	Alpha if deleted
A_Gent1R(reversed)	6.21186	2.20087	1.48353	0.31618	0.00000
A_Gent2	6.03389	3.25308	1.80363	0.11494	0.39570
A_Gent3	6.19491	3.15692	1.77677	0.15583	0.32013

- Flexibility**

Summary for scale: Mean=9.74790 Std.Dv.=2.23310 Valid N:119 Cronbach alpha: .368017 Standardized alpha: .371626 Average inter-item corr.: .164699					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Itm-Totl Correl.	Alpha if deleted
A_Flex1R(reversed)	6.89915	2.62848	1.62126	0.20348	0.30691
A_Flex2	6.27731	3.04074	1.74377	0.21749	0.27320
A_Flex3R(reversed)	6.31932	3.00727	1.73414	0.22317	0.26234

- Patience**

Summary for scale: Mean=7.27966 Std.Dv.=1.83455 Valid N:11 Cronbach alpha: .629291 Standardized alpha: .629786 Average inter-item corr.: .459626					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Itm-Totl Correl.	Alpha if deleted
A_Pat1R(reversed)	3.59322	1.08876	1.04344	0.45962	
A_Pat2	3.68644	1.19829	1.09466	0.45962	

- Total**

Summary for scale: Mean=13.5726 Std.Dv.=2.40354 Valid N:11 Cronbach alpha: .703668 Standardized alpha: .709169 Average inter-item corr.: .380543					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Itm-Totl Correl.	Alpha if deleted
forgiveness	9.9316	3.40985	1.84657	0.44794	0.67078
gentleness	10.5156	3.92924	1.98223	0.45389	0.66266
flexibility	10.3390	3.70034	1.92362	0.53259	0.61931
patience	9.9316	3.12068	1.76654	0.54489	0.60421



**Conscientiousness**• **Organisation**

	Summary for scale: Mean=7.64167 Std.Dv.=1.63366 Valid N:120 Cronbach alpha: .510089 Standardized alpha: .514405 Average inter-item corr.: .346262				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
C_Org1	3.50000	1.13333	1.06458	0.34626	
C_Org2R(reversed)	4.14166	0.83826	0.91556	0.34626	

• **Diligence**

	Summary for scale: Mean=9.11667 Std.Dv.=1.15361 Valid N:120 Cronbach alpha: .595875 Standardized alpha: .596961 Average inter-item corr.: .425477				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
C_Dil1	4.55833	0.49659	0.70469	0.42547	
C_Dil2R(reversed)	4.55833	0.42993	0.65569	0.42547	

• **Perfectionism**

	Summary for scale: Mean=11.7059 Std.Dv.=2.02674 Valid N:119 Cronbach alpha: .413540 Standardized alpha: .430348 Average inter-item corr.: .201183				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
C_Perf1R(reversed)	7.61344	2.03545	1.42669	0.26373	0.29003
C_Perf2	7.47899	2.95544	1.71914	0.25759	0.33833
C_Perf3	8.31932	2.03248	1.42565	0.24987	0.32256

• **Prudence**

	Summary for scale: Mean=11.5714 Std.Dv.=2.18458 Valid N:119 Cronbach alpha: .606097 Standardized alpha: .606695 Average inter-item corr.: .339988				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
C_Prud1R(reversed)	7.58823	2.47750	1.57401	0.43972	0.46938
C_Prud2R(reversed)	7.57983	2.52934	1.59039	0.42280	0.49427
C_Prud3R(reversed)	7.97479	2.54558	1.59548	0.38192	0.55437

- **Total**

Summary for scale: Mean=16.1415 Std.Dv.=2.02940 Valid N:119 Cronbach alpha: .687737 Standardized alpha: .687022 Average inter-item corr.: .356425					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
organisation	12.3179	2.20027	1.48333	0.50264	0.60620
diligence	11.5826	2.99760	1.73136	0.37731	0.67698
perfectionism	12.2395	2.62261	1.61944	0.46292	0.62788
prudence	12.2843	2.32462	1.52467	0.55781	0.56334

**Openness to experience**

- ***Aesthetic appreciation***

Summary for scale: Mean=6.04167 Std.Dv.=2.43019 Valid N:120 Cronbach alpha: .661362 Standardized alpha: .664030 Average inter-item corr.: .497039					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
O_Aes1R(reversed)	2.97500	2.17437	1.47457	0.49703	
O_Aes2	3.06666	1.74555	1.32119	0.49703	

- ***Inquisitiveness***

Summary for scale: Mean=7.18333 Std.Dv.=1.68025 Valid N:120 Cronbach alpha: .262228 Standardized alpha: .262234 Average inter-item corr.: .150903					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
O_Inq1	3.77500	1.20770	1.09895	0.15090	
O_Inq2R(reversed)	3.40833	1.22493	1.10676	0.15090	

- ***Creativity***

Summary for scale: Mean=10.2605 Std.Dv.=2.73230 Valid N:119 Cronbach alpha: .637747 Standardized alpha: .643345 Average inter-item corr.: .379311					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	ltm-Totl Correl.	Alpha if deleted
O_Cre1	7.10924	2.92083	1.70904	0.49329	0.49755
O_Cre2	6.50420	5.10712	2.25989	0.35915	0.65584
O_Cre3R(reversed)	6.90756	3.63011	1.90528	0.53816	0.41100

- ***Unconventionality***

Summary for scale: Mean=10.7203 Std.Dv.=2.02500 Valid N:118 Cronbach alpha: .437338 Standardized alpha: .450893 Average inter-item corr.: .218062					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Itm-Totl Correl.	Alpha if deleted
O_Un1R(reversed)	6.94915	2.98046	1.72640	0.15591	0.50400
O_Un2	6.91525	2.34875	1.53256	0.39708	0.14273
O_Un3R(reversed)	7.57627	1.61706	1.27163	0.29202	0.32989

- **Total**

Summary for scale: Mean=13.5932 Std.Dv.=2.69831 Valid N:118 Cronbach alpha: .691218 Standardized alpha: .703412 Average inter-item corr.: .373143					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Itm-Totl Correl.	Alpha if deleted
aesthetic appreciation	10.5762	3.29126	1.81418	0.55167	0.59320
inquisitiveness	10.0084	4.68401	2.16425	0.50109	0.61366
creativity	10.1751	4.55642	2.13457	0.47177	0.62836
unconventionality	10.0197	5.38331	2.32019	0.44377	0.65714

**APPENDIX C: REDUNDANCY ANALYSIS RESULTS**

***Altruism***

Redundancy of Independent Variables; DV: Altruism (S)	
R-square column contains R-square of respective variable with all other independent variables	
Variable	Toleran. R-square Partial Cor. Semipart Cor.
Agreeable	0.82348 0.17652 0.17043 0.14177
Conscientious	0.90823 0.09176 0.46392 0.42925
Emotionality	0.81184 0.18815 -0.06556 -0.05385
Job Satisfaction	0.72833 0.27166 0.12115 0.10004
Openness	0.89165 0.10834 -0.01948 -0.01597
eXtraversion	0.75672 0.24327 0.04170 0.03421

***Civic virtue***

Redundancy of Independent Variables; DV: Civic Virt	
R-square column contains R-square of respective variable with all other independent variables	
Variable	Toleran. R-square Partial Cor. Semipart Cor.
Conscientious	0.94148 0.05851 0.40267 0.38337
Openness	0.97980 0.02020 0.11550 0.10133
eXtraversion	0.95301 0.04698 0.19348 0.17186

***Courtesy***

Redundancy of Independent Variables; DV: Courtesy (S)	
R-square column contains R-square of respective variable with all other independent variables	
Variable	Toleran. R-square Partial Cor. Semipart Cor.
Agreeable	0.82397 0.17602 0.29743 0.25967
Conscientious	0.91891 0.08108 0.39953 0.36329
Emotionality	0.87488 0.12511 -0.03073 -0.02562
Job Satisfaction	0.74973 0.25026 -0.00183 -0.00153
eXtraversion	0.76424 0.23576 0.10765 0.09025

**Sportsmanship**

Redundancy of Independent Variables; DV: Sportsman	
R-square column contains R-square of respective variable with all other independent variables	
Variable	Toleran. R-square Partial Cor. Semipart Cor.
Agreeable	0.91265 0.08735 0.19231 0.17846
Conscientious	0.96894 0.03105 0.18499 0.17142
Emotionality	0.90418 0.09581 -0.24503 -0.23016

**Compliance**

Redundancy of Independent Variables; DV: consc/co	
R-square column contains R-square of respective variable with all other independent variables	
Variable	Toleran. R-square Partial Cor. Semipart Cor.
Agreeable	0.90540 0.09459 0.14223 0.11517
Conscientious	0.95145 0.04854 0.56372 0.54704
eXtraversion	0.87828 0.12171 0.03953 0.03171

**Job satisfaction**

Redundancy of Independent Variables; DV: Job Satis	
R-square column contains R-square of respective variable with all other independent variables	
Variable	Toleran. R-square Partial Cor. Semipart Cor.
Agreeable	0.98483 0.01516 0.26959 0.26230
Conscientious	0.98483 0.01516 0.20561 0.19685