THE DEVELOPMENT OF AN ETHICAL INTEGRITY TEST

By

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DECLARATION

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ABSTRACT

This study investigated the growing phenomenon of counterproductive work behaviour, and how personality and integrity affects this. It was deemed important to establish what contributes to counterproductive work behaviour.

The aim of this study was to develop a new ethical integrity test and to investigate existing relationships between constructs that play a significant role in behavioural integrity. These constructs include honesty, conscientiousness, and counterproductive work behaviour. This study was therefore undertaken to develop an ethical integrity test and to determine the initial construct validity of the new test. Based on existing literature, a theoretical model depicting how the different constructs are related to one another was developed and various hypotheses were formulated.

Data for the purpose of the quantitative study were collected by means of an electronic web-based questionnaire. A total of 318 completed questionnaires were returned. The final questionnaire comprised the newly developed ethical integrity test, HEXACO Personality Inventory-Revised (HEXACO-PI-R), and the Interpersonal and Organisational Deviance Scale.

The postulated relationships and the conceptual model were empirically tested using various statistical methods. Reliability analysis was done on all the measurement scales and satisfactory reliability was found. The content and structure of the measured constructs were investigated by means of confirmatory factor analyses. The content and structure of the newly developed Ethical Integrity Test was also investigated by means of exploratory factor analysis. The results indicated that reasonable good fit was achieved for all the refined measurement models. Subsequently, Structural Equation Modelling (SEM) was used to determine the extent to which the conceptual model fitted the data obtained from the sample and to test the hypothesised relationships between the constructs. The results indicated positive relationships between honesty and ethical integrity; conscientiousness and ethical integrity; and conscientiousness and honesty. Furthermore, the results indicated negative relationships between ethical integrity and

counterproductive work behaviour; as well as honesty and counterproductive work behaviour.

The present study contributes to existing literature on counterproductive work behaviour by providing insights into the relationships between honesty, conscientiousness, ethical integrity. This study developed an Ethical Integrity Test based on recent ethics literature. Preliminary evidence of reliability and construct validity for the Ethical Integrity Test was found. The limitations and recommendations present additional insights and possibilities that could be explored through future research studies.

OPSOMMING

Hierdie studie ondersoek die groeiende verskynsel van teenproduktiewe gedrag in die werksomgewing en hoe persoonlikheid en integriteit dit beïnvloed. Dit was dus belangrik om vas te stel wat tot teenproduktiewe werksgedrag bydra. Die doel van hierdie studie was om 'n etiese integriteitstoets te ontwikkel en bestaande verwantskappe tussen konstrukte wat 'n beduidende rol in teenproduktiewe werksgedrag speel, te ondersoek. Hierdie konstrukte sluit eerlikheid, konsensieusheid en integriteit in. Hierdie studie is dus uitgevoer om meer duidelikheid oor hierdie aspekte te verkry, sowel as om 'n etiese integriteitstoets te ontwikkel. 'n Teoretiese model wat voorstel hoe die verskillende konstrukte aan mekaar verwant is, is op grond van die navorsing oor die bestaande literatuur ontwikkel. Verskeie hipoteses is hiervolgens geformuleer.

Data vir die doel van die kwantitatiewe studie is deur middel van 'n elektroniese web-gebaseerde vraelys ingesamel. 'n Totaal van 318 voltooide vraelyste is terug ontvang. Die finale vraelys is uit drie subvraelyste saamgestel, naamlik die nuut ontwikkelde etiese integriteitstoets, HEXACO Personality Inventory-Revised (HEXACO-PI-R), en die Interpersonal and Organisational Deviance Scale.

Die gepostuleerde verwantskappe en die konseptuele model is empiries met behulp van verskeie statistiese metodes getoets. Betroubaarheidsanalise is op die betrokke meetinstrumente uitgevoer en voldoende betroubaarheid is gevind. Die inhoud en die struktuur van die konstrukte wat deur die instrumente gemeet is, is verder deur middel van verkennende en bevestigende faktorontledings ondersoek. Die resultate het redelike goeie passings vir al die hersiene metingsmodelle getoon. Daarna is struktuurvergelykingsmodellering (SVM), gebruik om te bepaal tot watter mate die konseptuele model die data pas, en om die verwantskappe tussen die verskillende konstrukte te toets. Die resultate het positiewe verwantskappe tussen eerlikheid en etiese integriteit; konsensieusheid en etiese integriteit; asook konsensieusheid en eerlikheid getoon. Die resultate het verder negatiewe verwantskappe tussen etiese integriteit en teenproduktiewe werksgedrag; asook eerlikheid en teenproduktiewe werksgedrag getoon.

Hierdie studie dra by tot die bestaande literatuur betreffende teenproduktiewe werksgedrag, deurdat dit insig bied in die aard van die verwantskappe tussen die konstrukte. 'n Etiese Integriteit Toets is ontwikkel gebasseer op onlangse etiek literatuur. Voorlopige bewyse van betroubaarheid en konstruk geldigheid is bewys in hierdie studie. Die beperkings en aanbevelings van die studie dui op verdere insigte en moontlikhede wat in toekomstige navorsing ondersoek kan word.

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CHAPTER 1
INTRODUCTION

1.1   Introduction

Consistent economic growth of a country is necessary in order to compete in the international environment. Sustained high economic growth will ensure a country's competitive advantage and this will in turn work against stagnation and poverty. The production of high quality goods and effective service delivery are the means to which a country can ensure consistent economic growth (De Goede, 2004). This will only be achieved by grouping resources in the shape of organisations. Organisations are artificial phenomena and their major objective is to combine and alter resources into services and goods with economic value. Consequently, productivity is the ultimate ambition behind every organisation's strategic goals.

Each member of the organisation is responsible for contributing towards the organisational strategic goals. Organisations' strategic performance goals are therefore directly linked to the employees' individual performance objectives. When it comes to the performance of employees there are many factors that influence this. Some are positive influences and add to higher performance; however some have a negative impact on performance. Counterproductive work behaviour (CWB) is an example of the latter. These behaviours are harmful towards employees and to a company. Management and organisational research has focused on this topic in the recent years due to the devastating consequences thereof. The consequences of CWB to a company is far reaching and can come in the form of, but is not limited to, lower efficiency, higher expenses, deteriorating reputation, overthrowing organisational rules, and infringing organisational associates' interests (Peng, 2012).

By tradition, employees were selected based on intellectual and behavioural competencies. However, companies have realised that they need to recruit for individuals who will avoid participating in CWB's. All organisations are therefore

competing for talent that is not only suitably qualified and experienced, but ethical in their decision making and conduct. Most organisations struggle with the phenomenon of CWB among employees (Appelbaum & Shapiro, 2006). This problem is even more rampant in destitute and developing countries where people struggle with literacy and are impoverished. Nasir and Bashir (2012) explained how complex CWB is and how it can appear in different forms, for example, "theft, fraud, taking excessive breaks, working slow, showing favouritism, leg pulling, verbal abuse, etc" (p. 241) According to Spector, Fox, Penney, Bruursema, Goh, and Kessler (2006, p. 447) CWB refers to "…a set of distinct acts that share the characteristics that they are volitional (as opposed to accidental or mandated) and harm or intend to harm organizations and/or organization stakeholders, such as clients, coworkers, customers, and supervisors."

The literature on business ethics has refocused to investigate more specifically the ethical and behavioural attitudes of individuals within organisations, rather than on their demographic traits, in relation to broad CWB's. As Ashforth, Gioia, Robinson, and Trevino (2008) effectively explained, "…corruption has been attributed to individual predispositions, including lack of integrity, moral identity, self-control, and empathy, or low levels of cognitive moral development, or even a diagnosable psychopathology" (p. 672). According to Bauman (2013) when investigating the behaviour and behavioural attitudes of individuals within the work environment one is inclined to discuss integrity. The literature on integrity identifies two concepts, firstly the consistency or wholeness approach, and secondly a moral approach which focuses on what is morally acceptable and what not (Six, De Bakker & Huberts, 2007). Moral or ethical integrity is in its purest form an ethical concept. McFall (1987) stated that not all individuals with integrity are viewed as equivalent. Integrity in the consistency perspective requires that a person behaves in accordance to principles, values and beliefs – ethical or not. Ethical integrity on the other hand requires certain constraints to an individual's values and beliefs; therefore ethical integrity requires morality.

Bauman (2013) explains, when one considers the characterization of employees with ethical integrity, it seems that they are more rational and moral in their decision making,

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truthful, self-sufficient, and just. This reasoning can be regarded as accurate because a person with ethical integrity appreciates that when behaving according to ethical values such as honesty will consequently lead to greater self-esteem and long-term well-being. Individuals who have integrity consistently behave across different situations in keeping with moral values. When an individual unfailingly evades violating their values one can consider that the person to be morally trustworthy. This implies that individuals who have high integrity will act according to norms and rules and will therefore not partake in contravening organisational rules (Bauman, 2013). Subsequently, such individuals will refrain from stealing, treating others unjustly, misrepresenting themselves, misleading others nor participate in other forms of CWB (Becker, 2009).

According to Palanski and Yammarino (2007) "Integrity is a ubiquitous ideal in leadership: citizens clamor for it from politicians, employees desire it from their managers, religious faithful expect it from clergy, and stockholders demand it from corporations" (p. 171). Integrity can be viewed as a personal characteristic that has a direct impact on behaviour in the work environment. Due to this, integrity has been researched in numerous organisational psychology fields, for example employee well-being, CWB, productive work behaviour, trust, and ethical leadership. It is evident that demands for integrity is universal in business and that people are demanding it more frequently. According to Audi and Murphy (2006) integrity can be considered as one of the most popular morally sought after characteristics. Integrity further contributes to individual and organisational status due to its grandeur. This implies that integrity has market value and can enable organisations to attract investments. Integrity can consequently be considered a valued company asset.

As companies are competing at attracting, recruiting and retaining people with integrity, the use of integrity tests have become more popular and crucial to the well-being of companies. Integrity literature has established the criterion-related validity of integrity tests with specific reference to the selection of employees (Marcus, Höft & Riediger, 2006; Ones, Viswesvaran & Schmidt, 2012; Van Iddekinge, Roth, Raymark & Odle-Dusseau, 2012). Yukl and Van Fleet (as cited in Becker, 1998) investigated the

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characteristics that are associated with effective leadership and found that integrity requires one to act consistent with one's values and that the individual is truthful and reliable. When considering the description of integrity one is prone to regard integrity and honesty as comparable, however this is not inevitably so. When an individual will not consider facts of reality as anything else, this is regarded as honesty (Becker, 2009). Audi and Murphy (2006) explain that honesty in the workplace manifests in the acceptance and commitment to consistent, ethical and rational norms and values. Honesty in the work environment is based on respect for the truth. The significance and necessity of honesty in the work environment is evident and demands attention.

When comparing honesty and integrity, Rand (as cited in Becker, 1998) explained that honesty entails that one understands that one cannot falsify reality, while integrity is the comprehension that one cannot manipulate one's consciousness. This implies that honesty entails that individuals do not consciously change their interpretation of reality, and integrity necessitates that individuals do not disobey their ethical norms and values. For that reason, honesty can be regarded as an essential element of integrity, however it is not comprehensive enough to equate to integrity (Becker, 2009). One can therefore conclude that employees who are honest will behave with integrity and make ethical decisions in the work environment. Subsequently, honest individuals will avoid taking property which does not belong to them; they will refrain from unfair decision-making and will not participate in other CWB's (Becker, 2009).

After thorough interpretation of the underlying constructs in integrity tests, researchers made major progression in this field by identifying that three of the Big Five personality dimensions strongly correlate with integrity tests: conscientiousness, agreeableness, and emotional stability (Hunter, 2014). Ash (as cited in Murphy & Lee, 1994) explains that there are several reasons to believe why conscientiousness is strongly related to integrity. Conscientiousness is proposed to consist of the following dimensions: hard working, orderly, conformity, and self-control. Sackett and Wanek (1996) suggest that hard work, orderliness, and conformity may "drive the correlation with positive workplace behaviours…" (p. 822). Ones, Viswesvaran and Schmidt suggest that

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integrity tests measure general conscientiousness, and they also state, "…conscientiousness reflects such characteristics as dependability, carefulness, and responsibility" (1993, p. 680).

There are three general reasons for expecting relatively high correlations between measures of integrity and conscientiousness. First, an examination of the items and subscales included in integrity and conscientiousness scales indicates that there are apparent commonalities. Secondly, the description of an individual who exhibits high levels of either integrity or conscientiousness (e.g. dependable, responsible, careful) shows striking similarity. Third, several studies have reported substantial correlations between conscientiousness and integrity scales (Murphy & Lee, 1994). Therefore, one can derive that individuals who are conscientious are responsible, self-controlled, and value norms and rules; these individuals will then display behaviours consistent with ethical integrity.

Conscientiousness includes descriptors such as consistency, self-controlled, trustworthy and orderly. It would therefore be sound to state that conscientiousness will be related to consistency between words and deeds. One reason for this is that conscientious individuals will put more effort into doing what they have committed to do (Simons, 2002). According to Moberg (1997) conscientiousness can be considered to be an ordinary virtue, which is defined as an important character trait which depicts what is expected of humanity. Moberg further defines that this includes traits such as honesty, sympathy and restraint. He further explains that conscientiousness implies that an individual's personality is not self-delusional, impulsive and socially inappropriate. One can therefore conclude that a conscientious individual understands the importance of acting in a humane manner and to abide by rules; therefore such a person will act with honesty towards himself/herself and others. It is well established that integrity tests, which measure honesty to an extent, tap into conscientiousness (Fine, Horowitz, Weigler & Basis, 2010).

1.2   Moral Identity Theory

The ethics literature refers to the Moral Identity Theory which is relevant to the field of integrity. Moral identity is described by Mayer, Acquino, Greenbaum, and Kuenzi (2012) as a self-conception which is based on an array of moral traits. Reynolds and Ceranic (2007) stated that a moral identity integrates the moral aspects of one's self. A moral identity acts as a control mechanism that sets boundaries for individual behaviour and motivates specific moral behaviour. Aquino and Reed (2002) discussed the personal importance of moral identity and stated that moral identity is trait specific and based on current social- cognition-orientated descriptions of the self. Therefore, moral identity is regarded in this study as related to certain moral traits.

Even though moral identity is ingrained in a trait-based approach, one may posit that personal moral identity can be linked to a social referent which can be the association with a real group, an conceptualised ideal (e.g., Allah), a famous figure (Bishop Tutu), an unfamiliar person (e.g., Mother Teresa) or any social composition. On condition that the person's efforts to have the same outlook on life is related to the moral traits of the relevant social group, one may suggest that the individual incorporated moral identity into his or her social self-conception (Aquino & Reed, 2002).

Furthermore, the moral identity theory includes the consistency principle which explains the intention and motivation of a moral identity. A personal identity creates the desire for one to be authentic towards oneself; therefore this creates the desire to behave according to one's identity. A robust moral identity accordingly drives the individual to act persistently in a moral way (Reynolds & Ceranic, 2007). Thus, the moral identity theory can be used to explain integrity behaviour.

1.3   Research initiating question

Given the introductory argument explained above, the research initiating question of this study is:

How can a reliable and valid Ethical Integrity Test be developed in the South African context?

1.4   Research objectives

The increasing occurrence of theft, sabotage, corruption and other deviant behaviours in the workplace results in devastating consequences for organisations, such as decreased productivity, increased costs, inefficient work and organisation's deteriorating status and reputation (Nasir & Bashir, 2012). Due to the devastating loss of productivity and resources because of CWB it is more important than ever for research and practice to capitalize on and further explore the prediction of CWB (O'Neill & Hastings, 2011). The dysfunctional consequences of unethical behaviours and CWB raise the question of how can this be counteracted or prohibited.

The use of integrity tests is one such a solution. By screening out potential unethical individuals during the selection process one inhibits such individuals from entering the organisation and thereby saving the company costs that would have been incurred with this employees CWB's. This study proposes the development of an ethical integrity test, which takes morality and ethics into consideration, in order to be utilised in the selection process. This will ensure that the individuals who pass this test will hold ethical principles and values and will act humanely and fairly. Honesty is of high importance when investigating ethical integrity, as integrity tests in some way measures an individual's honesty. Honesty to a large extent ensures ethical integrity, as an honest person will act transparently, will not misguide or mislead others and will not change facts of reality to their liking. Conscientiousness is another enabler of ethical integrity as conscientious individuals act in an orderly manner, are trustworthy and consistent in their actions. They value norms, principles and rules. Therefore, individuals who are conscientious and honest will display ethical integrity and will thereby refrain from engaging in CWB's.

In the hope of stimulating further research on this important topic, the present study documents the development and preliminary validation of an ethical integrity instrument,

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which in time and post extensive validation can be usefully administered to employees in an organisational setting. Integrity is not a random event, but rather an expression of the lawful working of a complex network of interacting person-centred latent variables. It is proposed to study ethical integrity from a descriptive perspective so that it can better be understood what characterizes ethical integrity, and how it relates to conscientiousness, honesty and CWB. The specific objectives of this study consequently are:

- To develop a reliable and valid Ethical Integrity measure that is suitable to the South African context
- To use conscientiousness, honesty, and CWB to validate the new Ethical Integrity Test.
- To test the absolute fit of both the measurement and structural models;
- To evaluate the significance of the hypothesised paths in the model;
- To determine the construct and criterion-related validity of the new integrity test
- To provide recommendations for further research;
- To provide practical implications for the Human Resource Profession.

1.5   Overview of the thesis

This thesis consists of five chapters. Chapter one discusses the importance of integrity for individual and organisational effectiveness. This chapter also provides a contextual background for investigating the relationship between integrity, honesty, conscientiousness, and CWB in order to validate a new developed integrity test. This chapter comprises the introduction, the purpose of this study and the research-initiating question.

Chapter two provides an in-depth review of the relevant literature to explore the theoretical approaches regarding honesty, conscientiousness, integrity, and CWB. Definitions and measuring instruments for each construct are elaborated on. This chapter continues with commenting on the different relationships between the four

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constructs, and concludes with the construction of a theoretical structural model developed on the basis of the available literature presented in the chapter.

Chapter three is concerned with the research methodology. This chapter provides a detailed description of the research design, hypotheses, measuring instruments, the sample and the data collection process, as well as the statistical techniques used in this study. Chapter four represents the research results. It outlines the data analysis in detail, together with the findings of the study. Chapter five concludes this thesis with a discussion and interpretation of the research results. The limitations and recommendations for future research are discussed. Lastly, some managerial implications and concluding remarks are presented.

CHAPTER 2
LITERATURE STUDY

2.1   Introduction

In Chapter two a thorough review on a range of literature regarding CWB, integrity, honesty, and conscientiousness is presented. These constructs are broadly defined along with their measurement. Subsequently, the relationships between the various constructs are discussed. As conclusion of this chapter a theoretical structural model is offered based on the available literature.

2.2   Counterproductive Work Behaviour

As discussed in Chapter 1, CWB is a serious concern within all organisations and has adverse effects on the sustainability and profitability of organisations (Peng, 2012). CWB is the result of a complex network of factors which cause employees to act out against an organisation. This complex network of factors may include, but is not limited to, personality predispositions and integrity of employees. It is important for organisations to understand what constitutes CWB and to screen out individuals who display such behaviours as far as possible.

2.2.1   Conceptualising CWB

CWB has proven to be a popular phenomenon to research in the field of industrial psychology. The rationale hereof is understandable considering the horrific consequences of CWB if not intervened. Due to the importance of this phenomenon the field of CWB research is extensive (Ho, 2012; Peng, 2012; Van Iddekinge et al., 2012). Before the mid 1990's CWB was conceptualised and examined as individual dysfunctional behaviours with no consideration of an all-encompassing paradigm. Studies focused on the following topics, for example, theft, sabotage, under performance, lateness, workplace violence, and absenteeism (Kelloway, Francis, Prosser & Cameron, 2010; Spector, 2010).

There are numerous studies that investigates CWB's from different points of view. The variance in terminology in the domain of CWB is due to the theoretical bases of the various researchers. Neuman and Baron, as well as Spector, O'Leary-Kelly, Griffin and Glew founded their research on social aggression literature (cited in Spector & Fox, 2002). Hogan and Hogan used a criminological foundation (cited in Spector & Fox, 2002). Bies, Tripp and Kramer incorporated emotion in their perspective, whereas Skarlicki and Folger grounded their research on an organisational justice approach (cited in Spector & Fox, 2002).

According to Peng (2012) CWB has been studied under various labels, such as deviance, aggression, antisocial behaviours, and bad behaviours. After the mid 1990's some studies started to seperate behaviours into two categories: behaviours targeted at the organisation and behaviours targeted at individuals. Examples of organisation targeted behaviours include stealing organisational resources and examples of individually targeted behaviours include physically harming an employee. This discrepancy exhibits that CWB's are targeted at either the individual or the organisation (Ho, 2012).

Hollinger and Clark (1982) proposed the division of CWB into property and production deviance. Property deviance could include stealing of cash, possessions, or services from your employer. Production deviance is defined as abuse of socially acceptable norms toward production; examples hereof include deliberate slowing down one's work. Production deviance may be considered more widespread however it is less serious than property deviance. Hollinger and Clark's scale was created for measuring CWB in retail, hospitals, and manufacturing work situations.

Robinson and Bennett (1995) proposed an integrative typology of CWB in organisations. This typology categorises behaviours in accordance with the nature of the target (i.e., individual vs. organizational) and the seriousness (minor vs. serious) of the act. Interpersonal CWB are aimed at individuals in the work environment such as

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bosses, co-workers or customers and are intentionally harmful on an emotional or physical level; whereas organisational CWB are directed at the organisation's legitimate interests and goals (Mount, Ilies & Johnson, 2006). Four categories of are identified in terms of these two criteria, namely:

- Property deviance (serious deviance directed at the organisation)
- Production deviance (minor deviance directed at the organisation)
- Personal aggression (serious deviance directed at other individuals)
- Political deviance (minor deviance directed at other individuals)

According to Robinson and Bennett (1995, p. 565), typical examples of the four categories of CWB are as follows:

Property Deviance:	Production Deviance:
• Sabotaging equipment • Accepting kickbacks • Lying about hours worked • Stealing from the Company	• Leaving early • Taking excessive breaks • Intentionally working slowly • Wasting resources
Political Deviance:	Personal Aggression:
• Showing favouritism • Gossiping about co-workers • Blaming co-workers • Competing non-beneficially	• Sexual harassment • Verbal abuse • Stealing from co-workers • Endangering co-workers

Within Robinson and Bennett's (1995) typology CWB is defined as behaviour which violates organisational rules of conduct voluntarily and thereby infringes the welfare of the organisation and its associates. Therefore, this framework of CWB is not conceptualised in relation to any system of ethical values. However, according to this typology, CWB is defined as behaviours that disobey official and informal standards as detailed in company codes and policies, practices and rules. This approach states that to define behaviour as CWB the behaviour should have the potential to harm the wellbeing of the organisation and its associates. This definition excludes behaviours that

disregard individual's dignity, for example, poor etiquettes (Kelloway et al., 2010). Bennett and Robinson (2000) explained that CWB's may be a form of behaviour exhibited by employees as retaliating against a displeasing job. This may also be behaviour with the objective of adjusting to, or restoring control over an infuriating job situation.

Sackett and DeVore (2001) provide a detailed review of the definitions of CWB. Sackett and DeVore's (2001) definition considers individually targeted as well as organisationally targeted behaviours. The behaviours of affiliates to the organisation is also included, however they do not consider the behaviours of outsiders as CWB's. Based on Sackett and DeVore's (2001) review, the following definition of CWB was formulated by Gruys and Sackett (2003, p. 30): "any intentional behaviour on the part of an organisation member viewed by the organization as contrary to its legitimate interests". This definition emphasises the behaviour instead of focusing on the results of the behaviour, for instance the harm that is done to a victim. This definition further only recognises deliberate behaviours even though accidental actions may be harmful they are not included. This definition further includes behaviour that is directed at both the organisation and individuals, as these actions may equally have serious consequences for the organisation. The actions of organisational affiliates are also included; however the behaviour of outsiders (e.g., customers and previous employees) is excluded.

Gruys (2000) investigated the dimensionality of CWB and found that the literature contains no less than nine distinctive terms which refers to this particular field of work behaviour, namely (1) antisocial behaviour; (2) workplace deviance; (3) employee vice; (4) organisational misbehaviour; (5) workplace aggression; (6) organisational retaliation behaviour; (7) non-compliant behaviour; (8) organisation-motivated aggression; and (9) organisational delinquency (see Table 2.1).

Table 2.1

Definitions of Workplace Deviance

Construct	Author(s)	Definition
Organisational misbehaviour	Vardi & Wiener (1996)	Any intentional action by members of organisations that violates core organisational and/or societal norms.
Workplace aggression	Baron & Neuman (1996); Folger & Baron (1996)	Any form of behaviour by individuals that is intended to harm current or previous co-workers or their organisation.
Organisation-motivated aggression	O'Leary-Kelly, Griffin & Glew (1996)	Attempted injurious or destructive behaviour initiated by either an organisational insider or an outsider that is instigated by some factor in the organisational context.
Anti-social behaviour	Giacalone & Greenberg (1997)	Any behaviour that brings harm or is intended to bring harm to the organisation, its employees, or its stakeholders.
Workplace deviance	Robinson & Bennett (1995, 1997)	Voluntary behaviour by organisational members that violates significant organisational norms and, in so doing, threatens the wellbeing of the organisation and/or its members.
Organisational vice	Moberg (1997)	An act that betrays the trust of either an individual or the organisational community.
Organisational retaliation behaviours	Skarlicki & Folger (1997)	Adverse reactions to perceived unfairness by disgruntled employees toward their employer.
Non-compliant behaviour	Puffer (1987)	Non-task behaviours that have negative organisational implications.

| Organisational delinquency | Hogan & Hogan (1989) | No formal definition provided; said to be a syndrome which is the result of employee "unreliability". Counterproductive acts are elements of the syndrome. |

(Gruys, 2000, p. 21-23)

Gruys and Sackett (2003) presented a similar hierarchical conceptualisation of CWB's in which an all-encompassing construct of CWB may be further defined into 11 unique categories of CWBs (see Table 2.2 and Table 2.3).

Table 2.2

Eleven categories and examples of counterproductive work behaviours (CWB) from Gruys and Sackett (2003)

CWB dimensions	Examples
Poor attendance	Using sick leave when not really sick, leaving work early without permission
Poor quality of work	Intentionally performing below accepted standards of your job, deliberately making mistakes
Alcohol use	Arriving at place of work under the influence of alcohol, job performance affected by alcohol intake
Drug use	Engaging in the usage of drugs on company premises, having work performance affected due to drug abuse
Misuse of information	Damaging or falsifying company documentation, discussing confidential information with unauthorized individuals
Unsafe behaviours	Not reading safety procedures manuals and not following safety procedures, endangering the safety of coworkers and customers

Inappropriate verbal actions	Arguing with or shouting at other employees, verbally abusing associates of the company
Unacceptable physical actions	Physically attacking coworkers, engaging in unwanted sexual advances toward other employees
Theft and related behaviours Inappropriate	Taking cash or property of the company, misusing company discounts
Destruction of property	Intentional destruction of company property, deliberate interference with company production
Misuse of time and resources	Wasting time during work hours, wasting company resources

(Adapted from Gruys and Sackett, 2003)

Table 2.3

Eleven categories of counterproductive work behaviours (CWB) from Gruys and Sackett (2003) categorised using Robinson and Bennett's (1995) typology

	Organisational	Interpersonal
Severe	**Property deviance (A)** Destruction of property	**Personal aggression (B)** Unsuitable verbal conduct Unsuitable physical conduct

Minor	Production deviance (C)	Political deviance (D)
	Alcohol use	Misuse of information
	Drug use	Unsafe behaviours
	Misappropriation of time and resources	
	Poor attendance	
	Poor quality work	
	Theft and related behaviours	

(Adapted from Gruys & Sackett, 2003)

Research around organisation-targeted CWB's have differentiated into more fine-grained types of behaviours, including disruption, deliberately not performing, stealing form the employer, and withdrawing from job related responsibilities (Spector et al., 2006). Yet, interpersonally targeted CWBs still remained under one general "abuse" category, capturing "behaviours directed toward co-workers and others that harm either physically or psychologically" (Spector et al., 2006), such as playing a prank on someone or hitting someone. One notable feature of these interpersonal behaviours is that they are focused on impacting the target's physical or mental wellbeing, not directly on his/her task performance, and the act itself does not necessarily pertain to the target's work context or resources (Ho, 2012).

Ho's (2012) research focused on identifying interpersonal CWB's that are of a more task-related nature and to distinguish these from the more commonly examined person-focused interpersonal CWB's. Ho identified the following task-related interpersonal CWB's during item generation and validation of his interpersonal CWB measure:

1. Failed to return someone's phone calls or respond to memos
2. Failed to defend someone's plans to others
3. Failed to warn someone of upcoming work problems or issues
4. Delayed work to make someone look bad or slow someone down
5. Caused others to delay action to slow someone down

6. Repeatedly interrupted someone while he/she worked or spoke

7. Created unnecessary work for someone to do

8. Withheld or prevented someone's access to needed information

9. Refused to provide needed resources(e.g., equipment, supplies) to someone

10. Damaged or sabotaged resources that someone needed

11. Stole, removed, or hid resources that someone needed

According to Mount et al. (2006), counterproductive work behaviours fall within a class of discretionary behaviours. Organisational members engage in counterproductive when they deliberately engage in behaviour which is intended to bring harm to the organisation or its associates. Examples of such behaviours are theft, sabotage, workplace violence and aggression, incivility, and revenge (Kelloway et al., 2010). Individuals therefore make conscious decisions with regard to their participation in behaviours that are harmful to others and the organisation.

McLane and Walmsley (2010) adapted Gruys and Sackett's (2003) typology of counterproductive work behaviours, as shown in Table 2.4.

Table 2.4

Behaviour categories and examples of counterproductive work behaviours

Behaviour category	Example behaviours
Theft and related behaviour	Theft of cash or property; giving away of goods or services; misuse of employee discount
Destruction of property	Deface, damage, or destroy property; sabotage production
Misuse of information	Reveal confidential information; falsify records
Misuse of time and resources	Waste time, alter time card, conduct personal business during work time
Unsafe behaviour	Failure to follow safety procedures; failure to learn safety procedures

Poor attendance	Unexcused absence or tardiness; misuse of sick leave
Poor quality work	Intentional slow or sloppy work
Alcohol use	Alcohol use on the job; coming to work under the influence of alcohol
Drug use	Possess, use, or sell drugs at work
Inappropriate verbal actions	Argue with customers; verbally harass co-workers
Inappropriate physical actions	Physically attack co-workers; physical sexual advances toward co-worker

(McLane & Walmsley, 2010, p. 65)

The abuse of information and communication technologies (ICT's) has emerged as a rather new field in the CWB research domain. As most employees have access to computers and the internet in their work environment and also have access to sensitive company information this creates an environment where unethical individuals can abuse the resources at their disposal. Weatherbee (2010) recognised that although the misuse of ICT's is becoming more rampant in organisations, little research has been conducted to understand these behaviours.

Weatherbee (2010) identified that the abuse of technology can vary from relatively less serious behaviours to more serious criminal behaviours. Examples hereof include: "internet surfing during working hours, computerised fraud, sexual harassment, identity theft, software piracy, illegal downloading, hacking or the unauthorised entry into colleagues' or managers' computers, corporate databases or payroll and financial records" (Weatherbee, 2010, p. 36).

Weatherbee (2010) used the CWB typology of Robinson and Bennett (1995) in order to classify the abuse of ICT's as CWB's (see Figure 2.1). This typology of cyber deviancy takes into consideration the various mediating and moderating effects of ICT's. For example, negative workplace blogging may be defined as property deviance and interpersonal aggression. In the same way a damaging internal e-mail can be

categorised as political deviance, however once released to the public it can cause property deviance. This typology includes the effect-shifts of primary outcomes to secondary outcomes, which is useful due to strong evidence suggesting that CWB of internal organisational associates may trigger reciprocal effects directed at the organisation by external stakeholders (Weatherbee, 2010).

CWB can present itself when employees spend time during working hours tending to personal issues. This was termed 'time banditry' by Martin, Brock, Buckley and Ketchen (2010). Employees are responsible for managing their activities and responsibilities within a timeframe, as agreed per their employment contracts. Therefore, time can be considered as an employer's asset and this time can also been stolen by employees when tending to non-work related activities during working hours. Martin, Brock, Buckley and Ketchen (2010) created a classification of time bandits according to level of productivity and engagement (see Figure 2.2).
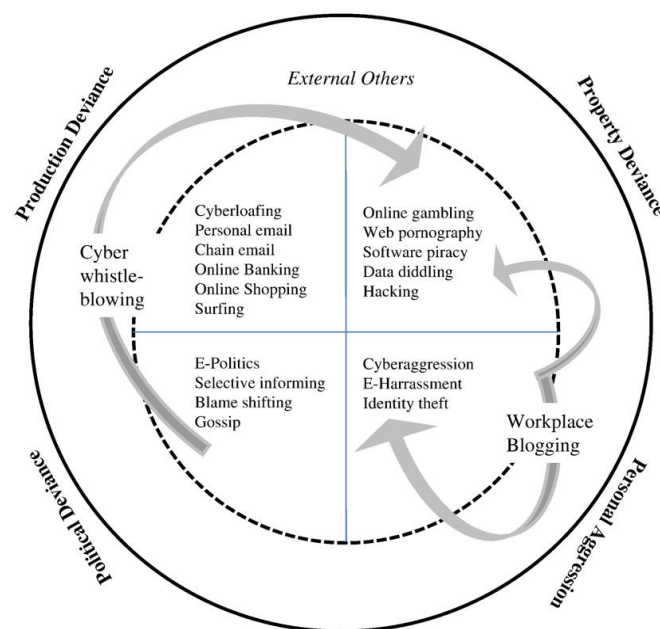
Figure 2.1: **Cyber deviancy Typology and Effect Shifts. Adapted from Weatherbee (2010, p. 40).**

	Productivity	
	Modest	Poor
Modest Engagement	Weasel: Engaged-Productive	Sandbagger: Engaged-Unproductive
Poor	Mercenary: Unengaged-Productive	Parasite: Unengaged-Unproductive

(Martin et al., 2010, p. 31)

Figure 2.2: **Types of time bandits**

For the purpose of this study, CWB can be defined as employee behaviours that have the intention of infringing the norms of the organisation or harming its members on an emotional or physical level.

2.2.2   Measurement of CWB

Bennett and Robinson (2000) aimed to develop a measure of CWB which consists of two general factors: interpersonal deviance and organizational deviance (both serious and minor forms of each type are represented within each family). This measure was developed based on the theory that CWB's fall into clusters or families (Robinson & Bennett, 1997). The Cronbach's alpha coefficient of the organisational deviance scale is .81 and .78 for the interpersonal deviance scale. Interpersonal targeted deviant behaviours were clustered to form 7 items of the interpersonal deviance scale, and organisational target deviant behaviours were grouped to form 12 items of the organisational deviance scale.

Gruys and Sackett (2003) conducted research into the dimensions of CWB by investigating the interactions between a variety of CWB's. The survey consists of 66 items and 11 groups of CWB were inspected: (1) Theft and Related Behaviour; (2) Destruction of Property; (3) Misuse of Information; (4) Misuse of Time and Resources;

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(5) Unsafe behaviour; (6) Poor Attendance; (7) Poor Quality Work; (8) Alcohol Use; (9) Drug Use; (10) Inappropriate Verbal Actions; and (11) Inappropriate Physical Actions. Test takers were requested to indicate if they are inclined to participate in these CWB's by completing a seven-point scale ranging from 1 (no matter what the circumstances, I would not engage in the behaviour) and 7 (in a wide variety of circumstances, I would engage in the behaviour). The Cronbach's alpha for each of the CWB category composites exceed .7, however Destruction of Property and Alcohol Use only achieved estimates of .66 and .59.

Peng (2012) investigated the CWB of Chinese knowledge workers by creating an indigenous CWB scale. The questionnaire consists of 22 items and responses are made on a 5-point likert scale ranging from 1 (never) to 5 (daily). During confirmatory factor analysis the following CWB dimensions were uncovered: unethical behaviour, resistant behaviour, loophole seeking, passive obedience, knowledge withholding, and storytelling. The Chinese knowledge workers' CWB measure was proven to be reliable with Cronbach's alphas for the dimensions ranging from .82 to .97, with an overall Cronbach's alpha of .93 for the scale.

Spector et al. (2006) conducted a detailed analysis of differentials relationships between CWB and antecedents by combining data from three of their prior studies. They utilised their 45-item Counterproductive Work behaviour Checklist to measure CWB directed towards organisations and people. This checklist consists of the 5 subscales, namely abuse toward others, production deviance, sabotage, theft, and withdrawal. Four of the five subscales are proven to be reliable with Cronbach's alphas ranging from .42 to .81. It is important to note that behaviour checklists' items are not a reflection of a construct; however the items define the construct. This usually results in lower internal consistencies for this type of scale. However, they grouped items across the five dimensions into organisational targeted and people targeted variables and found Cronbach's alphas of .84 and .85 respectively.

2.3   Integrity

Chapter 1 introduced a moral view of the concept of integrity within an organisation. It is crucial for an organisation to grasp a clear understanding of what moral integrity is in order to understand that one needs to recruit individuals who have moral integrity and screen out those who lack it. The screening out of individuals who lack moral integrity will save guard the organisation against unethical behaviour and will enhance the overall success of the organisation. Ones et al. (1993) conducted a thorough meta-analysis regarding the criterion-related validity of integrity tests and found that integrity tests strongly predict CWB.

2.3.1   Conceptualising Integrity

Integrity is a complex phenomenon and challenging to define. The vast literature of integrity discusses various viewpoints of this phenomenon which makes it very difficult to provide a singular definition (Six, De Bakker & Huberts, 2007). Bauman (2013) stated that the Latin word equivalent to integrity, integer, was first used to describe the following characteristics: fresh, virgin, whole and complete. This word then evolved to the concept, integritas, which included a moral meaning in Latin terminology. The concept of integrity has been interpreted and utilised in a variety of frameworks over the centuries. However, integrity has always encompassed the basic meaning of wholeness and transparency of character.

Butler and Cantrell (1984) investigated the relationship between integrity and the establishment of interpersonal trust and defined integrity as, when a trusted person is reputed for truthfulness and honesty. This definition further emphasises the notion that integrity is related to transparency and pureness of character.

In the Objectivist approach to integrity, this construct is defined as devotion to sensible beliefs and values. Therefore, according to this approach integrity basically means to act principled and to not be swayed by emotional or social tensions. Integrity therefore

requires one to remain truthful towards your rational convictions. As cited in Bauman (2013) integrity is defined in the 1913 edition of Webster's dictionary as:

"The state or quality of being complete; wholeness; entireness; unbroken state; moral soundness; honesty; freedom from corrupting influence or motive—use specially with reference to the fulfilment of contracts, the discharge of agencies, trusts, and the like; uprightness; rectitude; unimpaired, unadulterated, or genuine state; entire correspondence with an original condition; purity" (p. 415).

Palanski and Yammarino (2007) investigated a large amount of articles in the management literature which include definitions and utilisations of the word integrity. These definitions were then classified into five groups, namely "integrity as wholeness"; "integrity as consistency between words and actions"; "integrity as consistency in adversity"; "integrity as being true to oneself"; and "integrity as morality". The group "integrity as morality" includes speaking the truth, fairness in interactions with others, benevolence toward others, and dependability (See Table 2.5).

Table 2.5

Summary of Integrity Usage in Scholarly Literature

Wholeness	Authenticity	Word/action consistency	Consist in adversity
Badaracco and Ellsworth (1992) Koehn (2005) Lowe et al. (2004) Trevino et al. (2000) Worden (2003)	Cox et al. (2003) Howell and Avolio (1995) Peterson and Seligman (2004) Koehn (2005 Lowe et al. (2004) Morrison (2001) Posner (2001) Yukl and Van Fleet (1992)	Bews and Rossouw (2002) Kirkpatrick and Locke (1991) Paine (2005) Simons (2002, 1999) Tracey and Hinkin (1994) Worden (2003)	Duska (2005) McFall (1987) Paine (2005) Posner (2001) Worden (2003)

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Morality/ethics			
Absence of unethical behaviour Craig and Gustafson (1998) Mumford et al. (2003) Posner (2001)	Honesty Den Hartog and Koopman (2002) Peterson and Seligman (2004) Newman (2003)	Justice/respect Baccili (2001) Bews and Rossouw (2002) Den Hartog and Koopman (2002)	General sense of morality/ethics Baccili (2001) Badaracco and Ellsworth (1992) Batson et al. (1999) Becker (1998) Lowe et al. (2004) Mayer et al. (1995) Newman (2003) Parry and Proctor-Thomson (2002) Posner (2001 Trevino et al. (2000) Yukl and Van Fleet (1992)
Trustworthiness Baccili (2001) Den Hartog and Koopman (2002) Paine (2005) Trevino et al. (2000) Rawls (1971)	Openness/authenticity Baccili (2001) Peterson and Seligman (2004) Koehn (2005) Paine (2005) Rawls (1971)	Empathy/compassion Koehn (2005) Lowe et al. (2004)	

(Palanski & Yammarino, 2007, p. 173)

It became evident to Palanski and Yammarino (2007) that several definitions of integrity are similar in some aspects and are frequently used as substitutes for one another. In order to measure and test integrity more properly, they suggested one should view integrity as a virtue. When viewed as a virtue, integrity becomes a characteristic of a pure character. By viewing integrity as a virtue one can finally separate integrity from

other related constructs, such as honesty and authenticity. Palanski and Yammarino (2007) explain that this makes it possible for researchers to utilise moral philosophy literature which specifies the meaning of integrity more fully and can be considered an established framework.

Further to this, Becker (1998) stated that integrity seems not to be a single virtue or the embodiment of any one value which is directly observable, but a composite of number of concrete virtues. Becker claims that integrity in an organisation is defined as acting on a personal commitment to honesty, openness and fairness – living by and for our standards.

The literature on integrity highlights two approaches: firstly, the consistency or wholeness perspective, which does not have an overt moral component, and secondly, a moral perspective which emphasises what is right and wrong (Six et al., 2007).

Palanski and Yammarino (2007) advocate that the field of integrity may best be categorised as the latter, consistency of words and behaviours. They emphasised that their suggested conceptualisation is grounded on a view of integrity as an adjunctive virtue, a virtue that is neither morally good nor morally bad, but is essential for accomplishing moral righteousness. Based on their theory morally good character consists of many virtues, and it is expected that integrity will be accompanied by morally good virtues (also known as substantive virtues) such as honesty and fairness (Palanski & Yammarino, 2007). Mayer, Davis and Schoorman (1995) furthered the research on integrity and trust by stating that the relationship between these two constructs includes the trustor's observation that the trustee abides by principles that the trustor deems reasonable. Montefiore (1999) found that the consistency approach to integrity dominated research at the time. Six et al. (2007) later found that survey-based empirical research on integrity was, due to practicality, largely also based on the consistency approach.

These authors all appreciate that integrity is about a person's loyalty to principles, values and beliefs. However, these views have a grim ethical problem – the implied moral relativism.

Moral relativism supports that all ethical values, beliefs and ideologies are acceptable and relative to the individual and cultural norms, therefore there are no conclusive ethical principles. Moral relativism can be considered as a type of subjectivism: the view that principles, values, and beliefs are formed through inner psychological methods and are not discovered. This implies that even a cruel dictator could be considered to have integrity, provided that the person consistently behaves in accordance to any set of morals, beliefs and ideologies and that the set of principles are satisfactory to an individual or cultural norm. One can therefore categorise a cruel dictator and an ethical entrepreneur as moral. This perspective would render integrity as futile, as the views of an individual of group can supress morality (Becker, 1998).

The moral approach to integrity considers the construct as fundamentally, but not exclusively, an ethical concept. The moral and non-moral descriptions of integrity includes the concept of wholeness, however only moral integrity makes reference to an individual's pure ethical character (Bauman, 2013).

Brenkert claims that a major flaw in the consistency perspective includes the absence of a moral filter: "Integrity involves more than simply doing what one says; what one says and does must also pass through some moral filter" (2004, p. 4). McFall (1987) differentiated personal integrity from moral integrity by proposing that personal integrity is very similar to the consistency approach. She claimed that personal integrity necessitates that "an agent (1) subscribes to some consistent set of principles or commitments and (2), in the face of temptation or challenge, (3) upholds these principles or commitments, (4) for what the agent takes to be the right reasons" (McFall, 1987, p. 9).

McFall (1987) stated that, if these were the only elements of personal integrity that are required, a person would meet the criteria for integrity in many situations, yet would not be regarded as acting in a moral manner. Therefore, McFall claimed that there ought to be constraints on the individual's principles before that person can be regarded as having integrity. McFall stated that morality must play a role in integrity. She distinguished between personal and social morality, which she said may be in conflict with each other. Social morality is "the set of [moral] principles that we adhere to and expect everyone to adhere to and that is characterized by impartiality" (McFall, 1987, p. 17), whereas personal morality is the "set of moral principles or commitments that I adhere to that I do not expect everyone to adhere to and that needs not be characterized by impartiality". Integrity therefore requires a moral component.

Some argue that the law includes all relevant moral values and norms and that when someone obeys the law, that person then demonstrates integrity. This is an alluring interpretation of the law as it clarifies important values and norms that can be applied when judging someone's integrity. However, the law does not provide ethical decision making guidelines and may in some cases be in conflict with moral values and norms of others (Six et al., 2007).

Miller and Schlenker (2011) identified that there appears to be characteristics of morality that are shared, although individual ideas of morality may differ. These characteristics include being principled (concerned about doing the right thing and having clear values and beliefs), honest (being truthful, sincere and trustworthy), benevolent (kind, caring for others), dependable (reliable and responsible) and religious or spiritual.

According to Brown and Trevino (2006), people with integrity can be considered truthful and righteous individuals, who make fair decisions and practise what they preach. Individuals who have moral integrity consistently act in accordance with moral principles or values across situations and can be considered morally trustworthy.

Barnard, Schurink and De Beer (2008) investigated the construct of integrity and uncovered foundational drives of integrity. Ten classifications were derived from the data and were then grouped to become competencies of integrity. These competencies of integrity are defined in Table 2.6. The identified competencies of integrity are: self-motivation and drive; moral courage and assertiveness; honesty; consistency; commitment; diligence; self-discipline; responsibility; trustworthiness; and fairness.

Table 2.6

Competencies of Integrity

Competency	Competency definition
Self-motivation and drive:	An inner drive and energy to set goals and work hard to achieve them, to fulfil commitments and to maintain or even exceed standards of performance.
Moral courage and assertiveness:	The courage to act on and stand up for what one believes and to show one's principles and values publicly and voice them. This includes the courage of self-reflection in the quest for self-insight.
Honesty:	Truthfulness with oneself and others about one's intentions and capacity. This includes telling the truth and declaring one's intentions. It manifests in transparent and open communication and in sharing information proactively.
Consistency:	The consistent application of and living according to core values and principles in all the different areas of one's life (i.e. work and personal life).

Commitment:	Perseverance to attain what one has committed oneself to doing and to one's duties, responsibilities and obligations, whether it is a public (commitment to others) or a private (commitment to oneself) commitment, and despite difficult or otherwise challenging circumstances.
Diligence:	The display of a diligent attitude towards one's work, of perseverance in one's work effort and of an industrious character.
Self-discipline:	Discipline to live according to one's values and principles and to attain what one has set out to do (as expressed in one's inner drive). Discipline to function within the boundaries of one's moral compass, within agreed-upon rules and principles and within commitments to oneself and others.
Responsibility:	The acceptance of responsibility for one's goals and aspirations, for one's limitations and strengths, for the choices that one makes and for the consequences of one's actions.
Trustworthiness:	The display of a reputation for keeping one's word, commitments and responsibilities to the effect that others can trust one to do what one says.
Fairness:	Fairness, equitability and non-bias in one's decision making, especially in decisions that involve and impact on others.

Adapted from Barnard et al. (2008, p. 45).

Based on the competencies of integrity defined above it is clear that integrity demands internal values and ideologies that govern a person's behaviour. This view is in accordance with the moral compass concept by Lennick and Kiel (2005). The moral compass is unique to every person and includes internal values and principles. The concept that integrity is grounded on internal values and principles or on an internalised moral compass is resonated in numerous other viewpoints on integrity (Barnard et al., 2008). Based on the reasoning above it is established that integrity as morality is an ethical approach to view and define integrity and will be the viewpoint throughout this study.

2.3.2 Dimensions of integrity

Integrity is a multidimensional construct comprising an array of latent integrity dimensions. Conceptualisation of the integrity construct requires that the identity of these dimensions should be established.

2.3.2.1 Integrity as behavioural consistency

Based on the consistency perspective, integrity is viewed as wholeness or completeness, and as demonstrating the consistency and coherence of principles and values (Six *et al.*, 2007; Verhezen, 2008). This definition of integrity implies that a person with integrity is unbroken, undivided, and in a sense, unscathed by pressures of society. This definition further implies that a person with integrity is assured knowing that he/she is abiding by moral standards regardless of temptations, pressures, or societal views. George and Sims (2007) stated that integrity results from "integrating all aspects of your life so that you are true to yourself in all settings" (p. 148). The idea of integrity as wholeness refers to integrity as general consistency of behaviour over time and situations (Palanski & Yammarino, 2007).

In the most basic form, integrity has been described as regularity between one's words and behaviours, corresponding to principles, especially when faced with temptations (Simons, 1999). Based on the consistency viewpoint, integrity is viewed as

completeness and as the consistency of values and beliefs (Six et al., 2007). George and Sims stated that integrity results from "integrating all aspects of your life so that you are true to yourself in all settings" (2007, p. 148).

Palanski and Yammarino (2007) stated that integrity requires an overall consistency of conduct, views, and feelings across circumstances and over time. This definition of integrity is equivalent to Simons' (2002, p. 19) definition of Behavioural Integrity (BI) as "the perceived pattern of alignment between an actor's words and deeds". Nonetheless, the latter definition by Simons has possible restrictions: firstly, the definition emphasises the perceived coherence of words and actions. Although observations are relevant to the measurement of integrity – the real pattern of alignment is more significant to the contribution of theory. Secondly, the definition of BI makes reference to an actor's words and behaviour. Simons (2002) refers to an actor as possibly an individual or a collective group, however the definition seemingly emphasises individual actors only. Further, this definition also addresses a person's obedience towards psychological contracts, along with corporate mission and value declarations, and simply the loyalty towards acting out expressed promises.

Barnard et al. (2008, p. 45) defined the consistency competency of integrity as "the consistent application of and living according to core values and principles in all the different areas of one's life (i.e. work and personal life)". What consistency means is that the same fundamental principles will be applied to the variety of problems, situations, and personalities that a person faces.

Several scholars claim that the consistency perspective of integrity lacks a moral element (Bauman, 2013, Brenkert, 2004; McFall, 1987). In this regard, Bauman (2013) explained that moral trustworthiness is established when an individual acts in alignment with moral principles across situations and therefore this person has moral integrity. Moral integrity then also requires moral courage – the ability to remain loyal to your convictions in all circumstances.

Based on the above conceptualisation, it seems that an individual with moral behavioural consistency persistently behaves according to ethical standards, displays moral courage by remaining loyal to his/her ethical standards under temptation and hardship, and apply these standards to all situations over time. Irrespective of social and emotional stress, such an individual will practice what he/she preaches.

2.3.2.2   Integrity as righteousness

Current literature on integrity has recognised that the moral component of integrity has become more important. The moral meaning of integrity explicitly describes a person's uncorrupted moral character (Bauman, 2013). Integrity has frequently been studied in relation to morality in a broad sense (e.g. Barnard et al., 2008; Bauman, 2013; Brown & Trevino, 2006). The literature investigating integrity often use the terms "morality" and "ethics" to imply that certain behaviours are consistent with societal norms (Craig & Gustafson, 1998). Therefore, integrity can be viewed as the absolute loyalty towards one's inner commitments to moral standards (Becker, 1998). This loyalty towards one's morally justifiable principles is translated into conduct of a personal nature as well as interpersonal conduct which impact relationships (Brown & Trevino, 2006).

Therefore, integrity encompasses morals and commonly accepted values and principles which govern one's decision-making and behaviours (Barnard et al., 2008). This perception of integrity is closely related to Lennick and Kiel's (as cited in Barnard et al., 2008) view of a moral compass. Barnard et al. (2008, p. 43) define the moral compass as "having and living according to a core set of values and principles." Integrity behaviour is ultimately determined by one's inclination to behave in accordance to the internalised standards, beliefs, rules and values that comprise one's moral compass.

Based on the above conceptualisation, it seems that an individual with righteousness behaves ethically and respectably; practises moral virtues and acts in terms of moral principles.

2.3.2.3   Integrity as frankness

People who have integrity will be truthful with themselves as well as towards other people regarding their values and principles. This is demonstrated by having open and honest conversations (Barnard et al., 2008). In order to conduct such conversations one needs to have a certain degree of bluntness regarding the voicing of principles and values. Butler and Cantrell (1984) investigated the relation between integrity and developing trust between individuals and they describe a person with integrity as being known for being honest. Therefore integrity as frankness requires others to have the perception that one is truthful and trustworthy.

Integrity as frankness is related to the conceptualisation of authenticity. Barnard et al. (2008) conceptualised authenticity on an interpersonal level as being truthful towards oneself as well as displaying one's true self and intentions to others. Authenticity further implies that one not have unethical concealed objectives in relationships with others.

Murphy (1993, p. 9) describes honesty within the work environment as "…the extent to which individuals and groups in organisations abide by consistent and rational ethical principles related to obligations to respect the truth". This definition suggests that within the working environment employees who act honestly will remain faithful towards their values and this will not differ from situation to situation. The definition further implies that employees who are honest will respect their commitment to the truth and will not fumble due to rationalisation or scrutiny.

George (as cited in Bauman, 2013) explained that people who have integrity is truthful and refrain from falseness and actively speak the truth. According to Trevino, Hartman and Brown (2000), honesty is a trait that describes a moral person. They further explain that ethical individuals display honesty by being rather candid and careful to be factual and accurate. An ethical person is honest and tells things as they are and does not sugar-coat the truth.

Based on the above conceptualisation, it seems that an individual with frankness acts with truthfulness, authenticity and sincerity.

2.3.2.4   Integrity as credibility

According to Barnard et al. (2008) people who have ethical integrity realises their responsibility towards others as well as their accountability within relationships with people or institutions. Barnard et al. further explained that such people are hard-working and determined to reach their goals and responsibilities, regardless of circumstances which may prove to be very difficult. Integrity as credibility is further supported by Simons' (2002) conceptualisation of behavioural integrity as the commitment between promises made to others and acting out the promises made. This is demonstrated in either explicit or implicit promise keeping.

Barnard et al. (2008) explained that according to their conceptualisation of integrity, trustworthiness is one of the competencies of integrity. Barnard et al. defined trustworthiness as: "The display of a reputation for keeping one's word, commitments and responsibilities to the effect that others can trust one to do what one says" (2008, p. 45).

Based on the above conceptualisation, it seems that credibility implies responsible and dependable conduct which is aligned to ethical principles and norms of the organisation.

2.3.2.5   Integrity as fairness

Integrity is closely linked with Bauman's (2013) concept of a morally just person, while Walker and Hennig (2004) assert that there is a strong tendency for individuals to link integrity with just and fair-minded people. Brown and Trevino (2006) explained when people have integrity they are likely to care for others, are diligent and are fair and unbiased in decision-making. Barnard et al. (2008) defines fairness as making impartial decisions, especially those choices which implicate and affect others. Audi and Murphy (2006) states that people who are ethical and who have integrity will in all spheres of

their life tend to be fair and balanced in their decision-making. They claim that this is innate in all their actions as this is part of who they are.

Integrity as fairness is closely linked to Barnard et al.'s (2008) view that people with integrity are orientated towards people and value their self-worth, are kind and consider others wellbeing, and therefore exhibit empathy. The Confucian approach describes integrity as similar to the virtue of jen. Jen may mean the following: kind, loyal, and moral. People who encompass this virtue may act spontaneously with compassion towards others (Koehn, 2005).

Benevolence refers to another aspect of integrity and is reflected in the perception of a positive orientation towards others (Lapidot, Kark & Shamir, 2007). According to Koehn (2005), a person with integrity makes decisions benevolently and demonstrates a forgiving nature, kindness, and ethical purpose.

Based on the above conceptualisation, it seems that an individual who exhibits fairness treats people equitably and with dignity and respect; makes impartial and objective decisions; and acts in a just manner to all. For the purpose of this study, ethical integrity refers to acting in accordance with universally accepted ethical principles, values and norms. The components of ethical integrity are behavioural consistency, righteousness, frankness, credibility and fairness.

2.3.3   Measurement of Integrity

Organisations utilise integrity tests in order to screen out potentially destructive employees. A vast amount of research has established the criterion-related validity of integrity tests with specific reference to the selection of employees (Marcus et al., 2006; Ones et al., 2012; Van Iddekinge et al., 2012).

The literature distinguishes between two types of integrity tests: overt and covert (personality-based) (e.g. Frost & Rafilson, 1989; Ones & Viswesvaran, 2001; Sackett, Burris & Callahan, 1989). According to Berry, Sackett and Wiemann (2007), overt or

clear-purpose integrity tests, which use direct questions about an individual's past behaviour, originated from the polygraph industry. The overt type integrity tests usually include items that clearly measure tendency to indulge in CWB. However, covert tests in contrast, tend to ask questions based on personality traits which are linked to deviant behaviour in organisations.

The intention of overt integrity tests are to measure disclosure of previous theft and attitudes towards stealing and other CWB's (Ones et al., 1993). However, various overt test items do not assess actual behaviours related to theft. Some of the items deal with the prevalence of theft (Cunningham, 1989). Typical test dimensions are the following:

- ruminations about theft;
- being less punitive and more tolerant toward thieves than non-thieves;
- believing that the majority of people steal regularly;
- believing in inter-thief loyalty;
- agreeing with rationalisations for theft.

Examples of overt tests are the Reid Report; the Stanton Survey; the Phase II Profile; the Employee Reliability Inventory; the London House Personnel Selection Inventory, the Savvy Integrity Test and the Situational Judgement Test (Van Iddekinge et al., 2012).

Overt integrity tests (also known as "clear-purpose" tests) normally consist of two divisions. The one part of the test measures attitude towards theft and includes items that question beliefs about the degree and frequency of theft; beliefs about theft; discipline towards theft; apparent easiness of stealing; approval of rationalisation about stealing; and measuring one's own trustworthiness. The latter part of overt tests measure admittance of CWB and theft. The test measures the extent and regularity of theft and other CWB's and/or unlawful behaviours. These two divisions are frequently accompanied by other measures of, for example, propensity of violence and drug abuse (Sackett & Wanek, 1996).

Personality-based (also known as "covert" or "disguised-purpose tests") are closely related to conventional personality tests. They are significantly wider in application, and are not exclusively aimed at measuring tendencies or attitudes towards CWB, but include items that measure aggression, difficulty with authority, audaciousness, social traditionalism, conscientiousness and reliability (Sackett & Wanek, 1996). Examples of personality-based tests are the Personnel Reaction Blank (PRB), the Employee Reliability Index (ERI), and the Personnel Decisions, Inc. Employment Inventory (PDI-EI).

The PRB can be regarded as one of the original integrity tests in paper-and-pencil format. The PRB was designed with the purpose of rating the capability of impulse control and self-discipline; therefore high scores indicate the inclination to ethical values, dependability, and obedience towards regulations and low scores are indicative of breaking rules, irresponsibility, and disobediences (Blonigen, Patrick, Gasperi, Steffen, Ones, Arvey, de Oliveira Baumgartl, & do Nascimento, 2011).

The PRB has 84 items intended to rate the probability that one would exhibit trustworthiness instead of CWB in the work environment. The test measures one's self awareness and viewpoints. The Personal Reliability Index consist of 41 personality based integrity items and 21 items concerning work-related preferences. The Personal Reliability Index is regarded a global index where lower ratings are indicative of inclination toward CWB. The Personal Reliability index consists of four subscales namely, sense of wellbeing; pro-social background; compliance with social norms; and conventional occupational preferences. High scores in these subscales tap into the following: positive perception on life, joyful childhood and rearing, obeying social norms, and preference for low risk occupations (Blonigen et al., 2011).

Blonigen et al (2011) investigated the construct network of the PRB and found high internal consistency (α > .7) except for the Conventional Occupational Preference subscale. This subscale did demonstrate satisfactory internal consistency in the normative sample (α = .73; Blonigen et al., 2011), however it was found that this

subscale measures various constructs that affect conservative work-related interests. Extensive meta-analyses of the PRB have established the criterion validity in predicting job performance and CWB's (e.g., stealing, aggression, damaging of property, substance abuse, absenteeism) (Ones et al., 1993; Schmidt, Viswesvaran & Ones, 1997).

Simons (2002) investigated integrity in the relationship between subordinate and leader in combination with trust, psychological contracts, and credibility to suggest the importance thereof. Simons (2002, p. 19) describes behavioural integrity as "the perceived pattern of alignment between an actor's words and deeds". Simons, Friedman, Lui and Parks (2007) developed and validated an eight-item measure with the intention of measuring followers' perception of their manager's integrity. The items were measured on a five-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). Scale reliability was demonstrated by Cronbach's alpha = .87 and confirmatory factor analysis was used to ensure that all scales measured different concepts (Simons et al., 2007). Sample items this instrument include: "There is a match between my manager's words and actions"; "My manager does what he/she says he/she will do", and "When my manager promises something, I can be certain that it will happen." Palanski and Yammarino (2011) also utilised this integrity scale developed by Simons et al. (2007) and found high internal consistency (α = .98).

Marcus et al. (2006) originally developed the IBES (Inventar Berufsbezogener Einstellungen und Selbsteinschätzungen, translates to job-related attitudes and self-evaluations inventory) to serve as a measure of integrity testing research in German-speaking countries. This measure was created and developed by Marcus et al. (2006) based on frequent themes in well-known United States integrity tests of both the overt and personality based types. This test includes both overt and personality based integrity test items.

The overt part of the IBES contains 60 items comprising four subscales (general trust; perceived counter-productivity norms; rationalizations; behavioural intentions fantasies).

The personality-based part contains 55 items, divided into the following subscales of manipulativeness, trouble avoidance, positive self-concept, reliability/dependability, and stimulus seeking. These subscales are very similar to U.S. integrity tests, except for general trust (this is a more general attitude scale which is descendant from earlier CWB norms scales) and manipulativeness (a characteristic that is related to interpersonal CWB). The items of the IBES are rated on a five point Likert-type scale of approval. In various studies summarised in the test manual, this test has proven acceptable internal consistencies (mean α= .91 for the overt, .85 for the personality-based part, and .73 for the subscales) (Marcus et al., 2006).

2.4   Honesty

Honesty is known to be a desirable attribute in all societies. Honesty or acting honestly towards others is very important in any relationship between individuals. In the work environment honesty is even more significant to good working relationships as well as for the establishment and preservation of an ethical reputation. In today's society organisations cannot risk acting dishonestly, as employees do not want to work for dishonest employers and dishonesty in practices will harm any company's reputation and adversely affect its sustainability.

2.4.1   Conceptualisation of Honesty

Although honesty and integrity are related constructs, they are conceptually distinct (Yukl & Fleet, 1992). Honesty is a vital requirement of integrity; however it is not sufficient to equate integrity (Becker, 1998). Rand (1957) explained that an honest individual will not utilise his/her perceptions to distort real occurrences.

The definition of honesty according to dictionaries does not recognise the complexity of the term neither the intricacies of its application (Ahearne, 2011). According to the Random House description (as cited in Ahearne, 2011), honesty is: (1) the quality or fact of being honest; uprightness and fairness; (2) truthfulness, sincerity or frankness; (3) freedom from deceit or fraud (p. 120). According to Murphy (1993) honesty in the

work environment can be defined as abiding by consistent, ethical and rational values and norms in respect of the truth. This implies that honest employees will respect their commitment to the truth and will remain loyal to their ethical values.

Barnard et al. (2008) studied the construct of integrity and uncovered foundational drives of integrity, honesty was one of these. Barnard et al. defined honesty as "Truthfulness with oneself and others about one's intentions and capacity. This includes telling the truth and declaring one's intentions. It manifests in transparent and open communication and in sharing information proactively" (2008, p. 45). According to Rand (1957, p. 1019) "honesty is the recognition of the fact that you cannot fake existence [i.e., facts regarding the external world]". Therefore, honesty means that one will not consider facts of reality as anything else than what they actually are. Therefore, honesty implies that one will not distort one's perceptions of reality.

However, research has proven that honest behaviour in the work environment can be affected by perceived fair treatment, explicit expectations regarding honest behaviour has been made, and whether honest behaviour is rewarded (Mastilak, Matuszewski, Miller & Woods, 2011). This suggests that people who are not honest can be swayed into acting in an honest manner if companies demonstrate equitable treatment of employees, clearly state the honesty they expect of their employees and reward this behaviour accordingly. This does not imply that honest employees can be manipulated by such practices, as honest employees are loyal to the truth and only the truth.

The HEXACO model includes a personality factor, Honesty-Humility (Lee & Ashton, 2006). The Honesty-Humility factor is primarily related to an individual's moral conscience (Marcus et al., 2007). Individuals who possess the Honesty-Humility personality trait avoid manipulating others for personal gain; do not want to disobey rules; are indifferent towards fortune and material goods; and do not feel that they deserve to be considered to be of high social status (Ashton, Perugini, De Vries, Boies, Lee, Szarota, Di Blas, & De Raad, 2004).

For the purpose of this study, honesty may be defined as acting truthfully and sincerely, free from deceit or fraud.

2.4.2   Measurement of Honesty

People in all context of life have always been interested in establishing if a person is honest or lying. In the work environment honest behaviour is critical and therefore a variety of instruments have been developed. In 1975 the Personnel Selection Inventory (Form 3, PSI) was developed with the objective of screening out job applicants who will potentially display deviant behaviours in their professional capacity. The PSI consists of 108 items and has ten different forms. The honesty subscale was created to specifically test attitudes towards theft and consequently predict theft while at work (Bernardin & Cooke, 1993). Terris and Jones (1982) investigated psychological factors which are related to employee theft in the convenience store industry and found split-half reliability of the honesty subscale of .95. Joy (as cited by Bernardin & Cooke, 1993) reviewed the utilisation of the PSI to reduce employee theft and reported that in 40 of the 60 validity studies in question, the significance of .05 and better was achieved.

John E. Reid was a polygrapher who developed an honesty test named the Reid report in the latter part of the 1940's. This test was initially created to act supplementary to the polygraph analysis and was initially validated based on polygraph interview results. The test consists of 158 items pertaining to attitudes towards theft and admission of theft (Cunningham & Ash, 1988). According to Fortmann, Leslie, and Cunningham (2002) meta-analysis yielded an estimated validity coefficient of .44 for supervisor ratings of performance and .30 for admissions of CWB. Brooks and Arnold (1988) investigated the test-retest reliability of the Reid Report in a research memorandum and found a test-retest reliability coefficient of .69. Ash (1974) investigated convicted felon's attitudes towards theft utilising the Reid Report and found a reliability coefficient of .92.

Ashton and Lee introduced the HEXACO Personality Inventory in 2004. Lexical studies indicated that six factors frequently appeared during factor analysis of personality variables. Accordingly they then proposed a model of personality structure which

comprises six dimensions: Honesty-Humility (H), Emotionality (E), eXtraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O) (Lee and Ashton, 2004). The Honesty-Humility factor is mainly aimed at an individual's moral conscience (Marcus et al., 2007). Facets of Honesty-Humility include fairness, sincerity, greed-avoidance, and modesty (Lee & Ashton, 2004). A range of confirmatory factor analyses were used to choose the items, and the factor patterns confirmed the content and construct validity (Ashton & Lee, 2004). The scale achieved high internal consistency ($α$ = .89 to .92), and the Honesty-Humility subscale indicated a high coefficient alpha of .92.

2.5   Conscientiousness

Chapter one introduces the personality trait of conscientiousness and explains that conscientiousness is often characterised by behaviours such as neatness, meticulously goal-oriented, responsibility, and conformity to ethical norms and values. Therefore, it is clear that conscientiousness is a desirable trait to be displayed in the work environment and one of the key characteristics sought after in the selection of employees. The need for more conscientious employees has become more significant within changing work settings as flatter organisational design is becoming more popular. Structures such as these imply that more employees have the authority to make decisions. This infers the necessity to have responsible, ethical, self-controlled and goal-orientated individuals in positions of power where they can affect positive change in their environments.

2.5.1   Conceptualisation of Conscientiousness

The Oxford English Dictionary defines 'conscientiousness' as the state of being dutiful and loyal to one's conscience. Roget's Thesaurus identifies two groups of definitions, one pertaining to being careful and the other to being scrupulous. These definitions imply that conscientiousness expands over one's personal and social capacity, has a moral component, and requires one to act in a reflective manner regarding one's actions (Werhane, 1995). Moberg (1997) stated that conscientiousness requires that one act's in accordance with one's conscience.

Fayard, Roberts, Robins and Watson (2012) investigated the emotional elements of conscientiousness and the impact of these emotions on life outcomes. They explain that conscientiousness consists of five elements which are largely expressed in behaviours: orderliness, diligence, accountability, impulse control, and conformism. Individuals who are conscientious have the tendency to be orderly, word hard at achieving their goals, strive to act as others expects them to, self-contained, refrain from folding under temptations, and are loyal and obedient to norms and rules. However, those who are low in conscientiousness will often make impulsive decisions, mismanage their lives in a disorderly fashion, and tend not to be able to act with self-control nor to fulfil their responsibilities.

Tracey and Robins (2004) created a process model of self-conscious emotions and explained that conscientious people most probably possess a larger amount of knowledge and exposure to ideal behaviours and have accordingly adopted these principles into their personal values and norms. According to the Big Five Model of Personality by Costa and McCrae (1992), conscientiousness refers to individuals who prefer being principled, controlled and focused. Such individuals are ambitious and self-disciplined. Individuals with high scores are hard-working and may even become perfectionist and compulsive workers. To the contrary, those with low scores may be lazy, disorganised, less goal-orientated and less ambitious.

In terms of the HEXACO personality inventory, the conscientiousness domain consists of four facets, namely organisation, diligence, perfectionism, and prudence (Lee & Ashton, 2004). These facets are further defined in Table 2.7.

Table 2.7

Facets of the Conscientiousness subscale of the HEXACO Personality Inventory

Facet	Definition

Organisation	Assesses a tendency to seek order, particularly in one's physical surroundings. Low scorers tend to be sloppy and haphazard, whereas high scorers keep things tidy and prefer a structured approach to tasks.
Diligence	Assesses a tendency to work hard. Low scorers have little self-discipline and are not strongly motivated to achieve, whereas high scorers have a strong "work ethic" and are willing to exert themselves.
Perfectionism	Assesses a tendency to be thorough and concerned with details. Low scorers tolerate some errors in their work and tend to neglect details, whereas high scorers check carefully for mistakes and potential improvements.
Prudence	Assesses a tendency to deliberate carefully and to inhibit impulses. Low scorers act on impulse and tend not to consider consequences, whereas high scorers consider their options carefully and tend to be cautious and self-controlled.

Lee and Ashton (2004, p. 336)

According to Costa and McCrae (1992), a considerable element of personality theory, especially psychodynamic theory, is concerned with the control of impulses and the ability to resist temptations. Self-control can also refer to the actions of planning, organising and completing tasks. Differences in this tendency between individuals form the basis of conscientiousness. Conscientious individuals are determined, strong-willed and purposeful. High scorers on conscientiousness are punctual, reliable and

scrupulous. However, lower scores are not automatically indicative of a lack of ethical values. Lower scorers are merely not as concerned with acting in accordance to ethical values and do not pursue goals as relentlessly.

For the purpose of this study, conscientiousness may be defined as acting in an orderly, responsible, self-constrained manner and obedient to ethical norms and values.

2.5.2 Measurement of Conscientiousness

Various measures have been designed to measure the personality dimension of conscientiousness. Jackson, Walton, Bogg, Wood, Harms, and Lodi-Smith (2009) developed the Conscientiousness Adjective Checklist (CAC) which consists of 123 items of adjectives which measure five factors of conscientiousness: orderliness, responsibility, impulse control, industriousness, and conventionality. The test is measured on a scale from 1 (strongly disagree) to 5 (strongly agree). The reliabilities of the scales ranged from $\alpha = .51$ to $\alpha = .85$, and the average reliability of $\alpha = .72$.

Chernyshenko (2003) developed a 60 item scale of conscientiousness which includes six 10-item subscales which measure elements of conscientiousness: order, industriousness, responsibility, self-control, traditionality, and virtue. A Likert-type scale ranging from 1 (disagree strongly) to 4 (agree strongly) was used as response indicators. Internal consistency ranged from $\alpha = .62$ to $\alpha = .88$, with an average of $\alpha = .74$. The Chernyshenko Conscientiousness Scales was utilised in a study by Fayard et al. (2012) which investigated the emotional core of conscientiousness and the role of the self-conscious emotions. The results yielded high coefficient alpha of .90.

Costa and McCrae (1992) developed the NEO Personality Inventory Revised to measure personality, founded on the five factor model of personality, including the dimensions of Extraversion, Neuroticism, Agreeableness, Openness to experience and Conscientiousness. Each personality dimension consists of six facets. This questionnaire has 240 items. A Likert-type scale ranging from 1 (disagree strongly) to 5

(agree strongly) is used as response indicators. The Conscientiousness domain yielded internal consistency of α = .90 (McCrae, Kurtz, Yamagata, Terracciano, 2011).

The HEXACO personality inventory was developed by Lee and Ashton (2004). This scale includes a conscientiousness subscale and was defined as having four facets named organization, diligence, perfectionism, and prudence. This subscale consists of 32 items and the response format is a five-point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). They found high internal consistency of .89 for the overall subscale and for the facets within the subscale the reliability ranged from .78 to .85.

2.6   The relationship between Integrity and Counterproductive Work Behaviour

Integrity tests are utilised to predict dishonesty and CWB in the work environment. Integrity tests are constitutive of items that question individuals regarding their attitudes, beliefs and values towards theft and also questions past theft behaviours. Integrity tests are available in two formats: overt tests which test attitudes regarding CWB's, and personality-based tests which test personality traits that are related to CWB's (Sackett et al., 1989). Overt integrity testing is founded in the theory that people who have justifications towards CWB's are more inclined to exhibit such behaviours. On the other hand, personality-based integrity tests tap into more broad personality traits which are empirically related to CWB. Personality-based and overt integrity tests are reasonably inter-related, and both have significant validities for predicting overall CWB in the workplace (rho = .39 and .29 for overt and covert tests, respectively) (Ones et al., 1993).

Several meta-analyses and quantitative-oriented reviews have provided the foundation for the generally favourable view of the validity of integrity tests (Van Iddekinge et al., 2012). Ones et al. (1993) conducted a thorough review of the literature on integrity testing. They found that all types of integrity tests are valid predictors of counterproductive work behaviours. Their meta-analysis revealed observed correlations of .33 and corrected correlations (corrected for predictor range restriction and criterion

unreliability) of .47 between integrity tests and CWB. In comparison, Van Iddekinge et al. (2012) in their meta-analysis found an overall estimated correlation of .26 between integrity and CWB, and an estimated correlation, corrected for unreliability in the criterion, of .32.

Ones and Viswesvaran (2001) established that integrity is substantial in predicting broad counterproductive work behaviours in the work environment. The following studies also demonstrated that integrity tests are significant predictors of counterproductive work behaviours: Ones and Viswesvaran (1998); Schmidt, Viswesvaran and Ones (1997); Sackett, Burris and Callahan (1989); and Ones and Viswesvaran (2001).

It can therefore be hypothesised that integrity has a significant negative influence on CWB.

2.7 The relationship between Honesty and Counterproductive Work Behaviour

Various studies have proven that honesty is significantly conversely correlated with CWB's. The HEXACO personality inventory includes an Honesty-Humility subscale which has been proven to correlate negatively with psychopathology, Machiavellianism, and sexual intimidation (Ashton & Lee, 2008). It has also been established that Honesty-Humility negatively predicts greediness, ethical infringements, and criminal behaviours (Ashton & Lee, 2008). When individuals display high scores in honesty-humility this predicts lower levels of actual CWB's in organisations (Marcus et al., 2007).

Lee, Ashton and De Vries (2005) utilised the HEXACO model in predicting organisational delinquency. The shorter format of the HEXACO-PI was utilised in four samples from three countries (Canada, Netherlands, and Australia). The multiple correlations between the Honesty-Humility subscale of the HEXACO model, and the organisational delinquency measure were $\beta = -.45$ ($p < .01$) in the Australian sample, β

= -.44 (p < .01) in the Canadian sample, and β =- .31 (p < .01) in the Dutch sample. These can be considered as significant correlations.

Lee, Ashton and Shin (2005) also refer to the personality correlates of workplace anti-social behaviour. They found a negative correlation between Honesty-Humility and Interpersonal Anti-social behaviour (r = -.25, p < .01), and a negative correlation between Honesty-Humility and Organisational Anti-social behaviour (r = -.33, p < .01).

A study conducted by Boye and Wasserman (1996) investigated the ability of pre-employment integrity testing to predict future admissions of counterproductive behaviour. The selection battery included the London House Personnel Selection Inventory (PSI). The researchers found that the Honesty subscale correlated significantly negative with cash or merchandise theft (r = - .36, p < .001), counter-productivity (r = -.24, p < .05), and observing the theft of others (r = - .24, p < .05).

A study conducted by O'Neill, Lewis and Carswell (2011) investigated the relationship between the forecasting of CWB, personality and the perceptions of justice. They utilised Lee and Ashton's (2004) HEXACO-PI and found that Honesty-Humility significantly predicted workplace deviance (r = -.36; p < .05).

It can therefore be hypothesised that Honesty has a negative influence on CWB.

2.8   The relationship between Honesty and Integrity

Becker (1998) explains that honesty requires a person to view facts of reality as what they are, and not to distort the facts in any manner. Rand states that "honesty is the recognition of the fact that you cannot fake existence [i.e., facts regarding the external world]", whereas "integrity is the recognition of the fact that you cannot fake your consciousness [i.e., facts regarding one's true principles and values]" (1957, p. 1019). In other words, honesty requires that one refrain from using one's perceptions to misrepresent reality, and integrity necessitates that one does not manipulate one's

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beliefs of one's perceptions in one's behaviour. Therefore, honesty is a necessary requirement in order for an individual to display integrity.

According to Beddoes-Jones (2012, p. 44) "…to be authentic is to be true to your own ethical standards of conduct, to live a life where what you say matches what you do, and importantly, both are consistent with what you believe, your principles and how you feel". Therefore, authentic leadership literature can be used in order to establish the significance of the relationship between honesty and integrity. Beddoes-Jones explains that the honesty trait includes moral courage to voice one's beliefs and to stand up against misconduct of others. It further includes the ability to act fairly and to act with honour and do what is right. Being true to oneself, or honest, is necessary in order for one to be honest towards others (Leroy, Palanski & Simons, 2012). The concept of remaining loyal to one's commitments in relationships with others has established itself as behavioural integrity (Simons, 2002). Therefore, when acting with honesty one will display integrity in one's behaviours.

In a study by Marcus et al. (2007) they found that Honesty-Humility correlated significantly with two different overt integrity tests. Honesty-Humility correlated strongly with overt integrity measured via IBES in Germany (r = .54) and Canada (r = .64), and to another overt measure, the Employee Integrity Inventory (EII), in Germany (r = .62). Lee, Ashton, Morrison, Cordery and Dunlop (2008) investigated the prediction of integrity with the HEXACO personality inventory by utilising self- and observer reports. They found that self-reports of honesty correlated significantly with integrity and ethical decision-making, .44 and .55 respectively.

It can therefore be hypothesised that Honesty has a positive influence on Integrity.

2.9   The relationship between Conscientiousness and Integrity

Conscientiousness reflects such characteristics as organised, goal-oriented, self-inhibited, and follow norms and rules (Fayard et al., 2012). Responsibility could be related to integrity to the extent that it involves reliably doing what one has agreed to

(Becker, 1998). Integrity test scores indicate consistent and moderate correlations with conscientiousness (Marcus et al., 2007; Marcus, Funke & Schuler, 1997; Ones, 1993). In a study conducted by Wanek, Sackett and Ones (2003) it was established that conscientiousness was the major correlate with integrity, within the Big Five/Five Factor Model.

Byle and Holtgraves (2008) investigated integrity testing and personality and utilised the Personnel Reaction Blank (PRB) (Gough, 1972). The PRB is a personality-based integrity test and measures reliability and conscientiousness (Frost & Rafilson, 1989). Their results indicated a positive correlation between conscientiousness and integrity (r = .43).

Murphy and Lee (1994) investigated personality variables related to integrity test scores, as well as the role of conscientiousness. Their results showed that integrity was significantly predicted by conscientiousness measures (r = .33). A study conducted by Horn, Nelson and Brannick (2004) investigated the relationship between integrity, conscientiousness and honesty. They found a positive correlation between Conscientiousness and Integrity (r = .30, p < .05). Lee, Ashton and De Vries (2005) investigated the forecasting of CWB and integrity with the HEXACO personality inventory. Their results yielded a significant positive correlation between conscientiousness and integrity of β = .25 (p < .01).

Marcus et al. (2006) conducted a study with overt and personality-based integrity tests and found relatively strong correlations between integrity and conscientiousness. The literature on integrity has found significant correlations between integrity test scores and conscientiousness, whereby most studies found positive correlations ranging from .30 to .45 (McFarland & Ryan, 2000; Murphy & Lee, 1994). The relative high correlations are rather plausible as integrity and conscientiousness are interrelated constructs and include similar features.

It can therefore be hypothesised that Conscientiousness has a positive influence on Integrity.

2.10 The relationship between Conscientiousness and Honesty

Within the framework of the Big Five theory of personality, conscientiousness "reflects dependability; that is, being careful, thorough, responsible, organized, and planful", and it also "incorporates volition variables, such as hardworking, achievement-oriented, and persevering" (Barrick & Mount, 1991, p. 4). Becker (1998) explains that various writers focusing on the selection of employees stated that integrity tests test various variables, such as conformity, reliability, avoiding the use of drugs, honesty, loyalty towards job, ethical values, depression, aggression, inclination to act violently, self-control, social skills, risk taking, and work values. Based on the above it is clear why numerous authors agree that integrity tests measure conscientiousness or a related construct.

A study conducted by Horn, Nelson and Brannick (2004) investigated the relationship between integrity, conscientiousness and honesty. They found that the correlation between Conscientiousness and Honesty was significant and positive ($r = .23$; $p < .05$). Ashton, Lee, Marcus and De Vries (2007) investigated the personality factors in German studies in relations with the HEXACO Model. They found that the Honesty-Humility scale correlated significantly positively with the Conscientiousness scale ($r = .29$). In the German indigenous adjective factor scales they found that conscientiousness showed correlations with both broad and narrow Honesty-Humility of .47 and .46 respectively.

Lee and Ashton (2004) investigated the psychometric properties of the HEXACO personality inventory in Canada. They found a positive correlation ($r = .28$) between Honesty-Humility and Conscientiousness. Lee, Ashton and De Vries (2005) investigated the prediction of workplace delinquency and Integrity with the HEXACO. They conducted the research on three samples, Australian, Canadian and Dutch and found the following significant positive correlations between Conscientiousness and Honesty in the samples: .38, .33, and .57.

It can therefore be hypothesised that Conscientiousness has a positive influence on Honesty.

2.11   The proposed conceptual structural model

Depicted below in Figure 2.3 is the structural model to be tested as it was derived from the literature together with logical reasoning. The model consists of one exogenous latent variable and three endogenous latent variables.
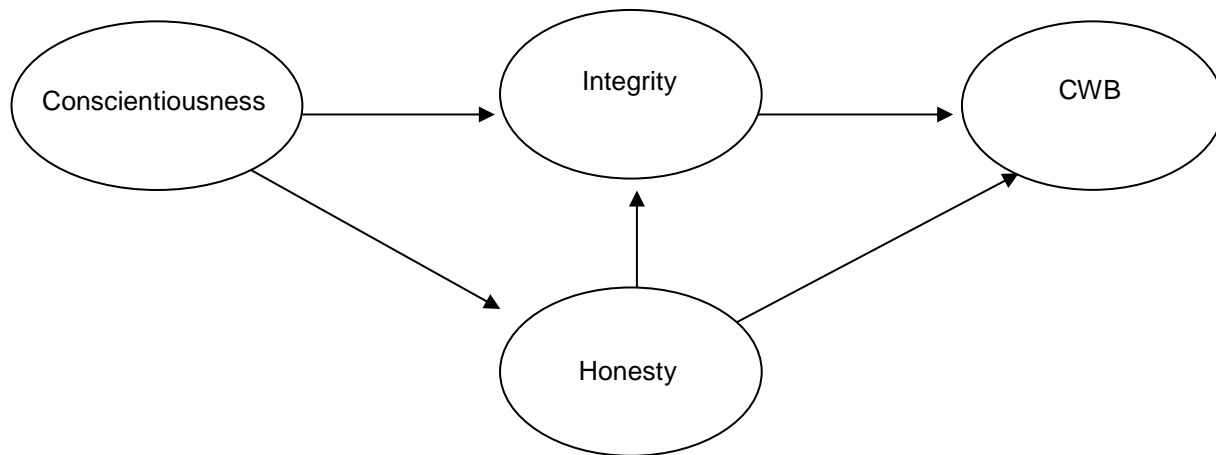
Figure 2.3: **Conceptual structural model representing the relationship between CWB, honesty, integrity and conscientiousness**

2.12   Summary

A theoretical and empirical review of counterproductive work behaviour, integrity, honesty, and conscientiousness was presented in this chapter, with the focus on the various definitions found in the literature and the instruments that were used to measure integrity. Possible postulations were developed from the research conducted on these constructs and based on the relationships that have been derived. The following chapter focuses on the research methodology used to empirically measure the credibility of the proposed hypotheses.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1   Introduction

After an in-depth study on the respective constructs that were highlighted in the literature overview (Chapter 2), relationships between integrity and CWB, and personality correlates and integrity were suggested. These relationships are based on indirect and direct associations between these concepts as outlined in the literature. The theoretical argument presented in the literature review led to a conceptual model with structural relationships between the latent variables. This is depicted in Figure 3.1. In order to determine the specific nature of these relationships, it is necessary to fit the conceptual structural model and to empirically investigate the hypotheses. Suitable methods to analyse and explore the data are also necessary for accurate inferences. In applying the scientific method of investigation, careful reflection is required at various points in the process of analysing the data. It is also essential to take appropriate steps in instances where the soundness of the explanations is potentially threatened in order to maximise the possibility of valid findings (Babbie & Mouton, 2004).

This chapter presents the research design, sampling, measuring instruments and statistical analysis procedure that was used to establish the model fit and the strength and paths of the envisaged hypotheses.

3.2   Research design

The conceptual structural model of this study (see Figure 3.1) represents and theorises certain relationships between the latent variables in the model. To empirically test the merit of the structural relationships requires a plan which will direct the empirical evidence to test the operational hypotheses. This plan or strategy refers to the research design (Kerlinger & Lee, 2000). The research problem and the type of evidence that is required to address the problem determine the design that will best suit the intended

research. The objective of the research design is to ensure empirical evidence can be understood specifically for or against the hypothesis being tested.

An *ex post facto* correlational research design is utilised in this study to test the substantive research hypotheses. The *ex post facto* correlational design enables the researcher to gather measures on the observed variables and compute the observed covariance matrix (Kerlinger & Lee, 2000). The *ex post facto* correlational design can be used where the independent and the dependent variables are only observed by individuals to confirm the degree to which they co-vary. This design is used in this structural model because the latent variables cannot be controlled. Estimates for the structural and measurement model parameters are obtained in a repetitive manner with the aim of replicating the observed covariance matrix as closely as possible (Diamantopoulos & Siguaw, 2000).

3.3   Sampling

There are two methods available for sampling. The first is probability sampling. Babbie and Mouton (2001) refer to probability sampling as selecting randomly from a list which includes the names of all the people in the population of interest. Probability sampling is the most popular and precise sampling method, specifically for research of large samples. However, this is not as practical or possible. Non-probability sampling is a more convenient method for obtaining a sample. This method selects individuals who present their availability to partake in the study. This study utilised the non-probability convenience sampling method to obtain the appropriate sample. Numerous organisations were contacted to ask for permission in order to perform the research study using employees of the organisation. Due to the sensitive nature of the study the confidentiality of the participants were protected.

3.3.1   The Data Collection Procedure

The research hypotheses described in Chapter 2 were empirically tested using a sample size of 318 employees employed in the retail industry (N=183) and in the

manufacturing industry (N=135) in South Africa. The relationship between integrity and counterproductive work behaviour; personality and counterproductive work behaviour; and personality and integrity was measured by analysing responses from employees with the use of the appropriate measuring instruments.

With regard to the manufacturing sample, the questionnaires were distributed via the Stellenbosch University Surveys system. With regard to the retail sample, the electronic questionnaires were distributed via the talent management department of the company. In order to ensure confidentiality, participants were informed that their completed tests will be handled anonymously, as no names were required for completion of the test. The participants were also informed that this study did not foresee any risks nor any potential discomfort and that the results will not be shared with their team or managers. The results will only be visible to the researcher.

Confidentiality was conserved by guaranteeing participants that their responses would be treated anonymously and that no names would be revealed in the study. Participants were also guaranteed that the study envisaged no potential risks or discomforts and that the responses would not be revealed to their managers, but would be directed to the researcher.

Respondents evaluated their own personality, integrity and counterproductive work behaviour. The data were then used as input for the statistical analysis programmes. Kelloway (1998) stated that a sample size of 200 respondents is suitable for most structural equation modelling (SEM) submissions, but that also depends on the amount of parameters to be estimated.

3.3.2   The Demographic Profile of the Sample

The overall sample consisted of 318 employees operating within the retail (N = 183) and manufacturing (N = 135) industries within South Africa. The composition of the sample is set out in Table 3.1. Table 3.1 indicates that 45.28% of the sample consisted of male and 54.72% of female employees. The sample predominantly consisted of Whites

(62.90%), with 37.10% from the other ethnic groups in South Africa (i.e. African, Asian, and Coloureds). Regarding the job levels, 48.74% are non-managerial, 21.38% lower level management, 18.87% middle level management, and 11.01% upper level management. The mean age of 38.49 years indicated a relatively young group of employees.

Table 3.1

Biographical information on the sample

Sample profile			%
Gender	Male	144	45.28
	Female	174	54.72
Age	Mean	38.49 years	
Ethnicity	African	29	9.12
	Asian	3	0.94
	Coloured	85	26.73
	White	200	62.90
Job level	Non-managerial	155	48.74
	Lower-level management	68	21.38
	Middle management	60	18.87
	Upper level management	35	11.01
Industry	Manufacturing	135	42.45
	Retail	183	57.55

3.4   Missing values

It is important to address missing values before data are analysed. The method that is used depends on the number of missing values, as well as the nature of the data. It is especially the case when data follows a multivariate normal distribution. Missing values are the result of the unwillingness of the respondent to answer a particular item in the questionnaire.

Different methods can be used to address missing values. List-wise deletion is one of the most popular methods for dealing with missing values. In this instance, all cases that contain missing values are excluded from the analysis (Byrne, 1998). The final sample which was used in the analysis therefore only includes complete data records. One of the disadvantages of this method is the decrease in sample size. Pair-wise deletion refers to the deletion of cases only on the variables where the values are missing. The case is therefore not deleted on the entire set of analysis, but only of the particular analysis involving variables for which there are no observed scores (Byrne, 1998).

Another method for dealing directly with missing values is to replace it with some estimated value. Mean imputation is one strategy by which the arithmetic mean is substituted for a missing value. This method can be problematic because the arithmetic mean represents the most likely score, which may reduce the variance of the variable (Byrne, 1998). A second imputation strategy is regression-based imputation. Here every missing value is replaced by a predicted score using multiple regression based on the values on the other variables (Kline, 2011).

Although there are various options that one could make use of to address missing values, it was intended to solve this problem through the multiple imputation procedure. The multiple imputation procedure entails the process whereby a number of imputations are made that each creates a completed data set. In LISREL 8.80 the missing values are substituted by average values imputed in the data set and therefore credible values are created that also reflects the uncertainties of these estimates as these values are

not the true obtained scores but only approximations (Du Toit & Du Toit, 2001). The main assumptions made by multiple imputation method are that the data is missing at random and that the data follows an underlying multivariate normal distribution. For the purpose of this study the multiple imputation method was used to deal with the few missing values that were present.

3.5   Measuring instruments

Three different instruments were used, i.e. one for measuring integrity, one for measuring counterproductive work behaviour, and one for measuring the specific personality characteristics. The instruments for measuring counterproductive behaviour and personality (two dimensions of the HEXACO) were used in their original form while the instrument for measuring integrity was developed to fit the purpose of this study.

3.5.1   Integrity

A new Ethical Integrity Test (EIT) was developed for the purpose of this study. After dealing with missing values, the remaining sample (N = 318) was used to develop, refine, and validate the new EIT. The Ethical Integrity Test was systematically developed through different stages based on specific guidelines in the literature (Babbie & Mouton, 2004; Kline 2011). Each of these stages is discussed below.

Phase 1: Aim of the instrument and construct domain

The Ethical Integrity Test is designed to be utilised for personnel selection in order to predict counterproductive work behaviour. This test is composed of items that query job applicants about their attitudes toward work related counterproductive behaviour and inquire about any past counterproductive behaviour. Integrity testing has greatly increased and has become a mainstream selection practice for a wide variety of jobs in which employees have access to cash or merchandise or perform security functions (Camara & Schneider, 1994).

For the purpose of this study ethical integrity was defined as acting in accordance with universally accepted ethical principles, values and norms. The components of ethical integrity are behavioural consistency, righteousness, frankness, credibility and fairness.

Phase 2: Item Generation

The purpose of this phase was to create a large, inclusive pool of items, so that they together would reflect the domain of behaviours that meet the definition of ethical integrity. On the basis of previously published theoretical and empirical investigations of behaviours revealing integrity in the workplace (see section 2.3.2, Chapter 2), an initial pool of 70 items was generated.

Thirty-five (35) items were adapted from a variety of measures, which measure different aspects of (moral) integrity: Brown, Trevino and Harrison (2005) (3 items), Butler (1991) (11 items), Kalshoven, Den Hartog and De Hoogh (2011) (4 items), Mayer, Aquino, Greenbaum and Kuenzi (2012) (5 items), Neider and Schriesheim (2011) (3 items), Simons, Friedman, Liu and Parks (2007) (3 items) and Yukl, Mahsud, Hassan and Prussia (2011) (6 items). Another thirty-five (35) items were developed particularly for the purpose of the new integrity scale.

Respondents were asked to indicate the extent to which they agreed with a specific item on a 5-point Likert scale. The scale anchors varied from 1 (disagree strongly) to 5 (agree strongly).

Phase 3: Item Review

The next phase in the development process was to subject the experimental instrument to expert scrutiny (Huysamen, 1980). The initial pool of 70 items and five dimensions were reviewed by 15 judges who have acquired expertise in the field of Industrial Psychology in South Africa. All the judges have at least attained Master's degrees in Industrial Psychology and have gained experience in management consultation.

The judges reviewed the items on the basis of several criteria. Firstly, the judges evaluated each dimension in terms of whether it was consistent with the definition of integrity used in this study. Secondly, the judges selected the most representative dimension per item. The experts were further requested to make recommendations in order to improve the measure. Based on the feedback from the panel of experts, four (4) items were deleted due to too much overlap with other items, eight items were moved to more appropriate dimensions, and five items were rewritten to improve their level of comprehension. The number of items per dimension after the item review phase, as well as example items is illustrated in Table 3.2.

Table 3.2

Number of items per subscale of the EIT after the item review phase

Subscale	No of items	Example of item
Behavioural consistency	10	Item 5: I consistently behave in an ethical way Item 19: I practice what I preach
Righteousness	14	Item 20: I use my moral beliefs to make decisions Item 35: My behaviour is guided by sound principles
Frankness	14	Item 7: I shall tell the truth, even under pressure from others Item 16: People can believe what I say
Credibility	15	Item 22: People can depend on me Item 37: I keep promises that I make to others
Fairness	13	Item 23: My major concern is always what is best for the other person Item 28: I treat people with dignity and

		respect
Total	66	

Phase 4: Item analysis

The 66 items generated from the item generation and item review phases were subjected to item analysis to determine their internal consistency (see section 3.6). The results of the item analysis are presented in Chapter 4.

Phase 5: Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) is used to determine whether the dimensionality of each scale contributes to an internally consistent description of the relevant measuring model. Exploratory factor analysis can further be used as a process to refine and reduce items by identifying and removing items with inadequate factor loadings (Pallant, 2007). Nunnally (1978) refers to factor analysis as a "broad category of approaches to conceptualizing groupings (or clusterings) of variables and an even broader collection of mathematical procedures for determining which variables belong to which group" (p. 327).

The first step is to perform an Exploratory Factor Analysis (EFA) on all the items comprising the sub-scales. Exploratory Factor Analysis (EFA) was done to examine the uni-dimensionality of the sub-scales and identify items contributing to the lack of coherency. The purpose was to confirm the uni-dimensionality of each scale and subscale and to remove items with inadequate factor loadings (Theron et al*., 2004). SPSS (Version 20) was used to perform the uni-dimensionality test.

Principal axis factor analysis was used as the extraction technique. This technique was utilized rather than the principal components analysis because the statistical calculation of the Principal factor analysis allows for the presence of measurement error. The extracted solution was then subjected to oblique rotation. Although oblique rotation is

slightly more difficult than orthogonal rotation, it allows the underlying factors to be correlated (Pallant, 2007).

As soon as the number of significant factors had been established, the factor loadings on the rotated matrix were investigated. Poor items should be identified and subjected to elimination according to the EFA decision criteria. A factor loading was considered acceptable if $\lambda_{ij} > 0.30$ (Tabachnick & Fidell, 2001).

The decision rules that were followed to determine the number of factors to be extracted, and the items to be included in each factor when conducting exploratory factor analyses were as follows:

- The number of factors to be extracted had to have eigenvalues > 1.00, according to Kaiser's (1961) criterion.

- An item not loading > 0.30 on any factor would be excluded (Pallant, 2007; Tabachnick & Fidell, 2001).

- An item loading > 0.30 on more than one factor would be excluded if the difference between the higher and the lower loading was < 0.25 (Tabachnick & Fidell, 2001).

A Kaiser-Meyer-Olkin measure of sampling adequacy (KMO index) is used to compare the magnitudes of the observed correlation coefficients in relation to the magnitudes of the partial correlation coefficients. Large values are good because correlations between pairs of variables (i.e. potential factors) can be explained by the other variables. A value close to 1 indicates that patterns of correlations are relatively compact and factor analysis should therefore present distinct and reliable factors (Field, 2009). Kaiser (as cited in Field, 2009) recommends accepting values greater than 0.5 as acceptable; values between 0.5 and 0.7 as mediocre; and values between 0.7 and 0.8 as good, while values between 0.8 and 0.9 are great and values above 0.9 are superb.

Bartlett's test of sphericity is used to test the hypothesis that the correlation matrix is an identity matrix (all diagonal terms are one and all off-diagonal terms are zero). Significance values less than .05 are acceptable (Field, 2009). The scree plot can be

used to provide further information when deciding on the factors which should be reserved. The use of the scree plot entails inspecting the point at which the shape of the curve changes direction and becomes horizontal (Pallant, 2007). According to Catell (1966), all factors above the elbow, or break, in the plot should be retained, as these factors contribute the most to the explanation of the variance in the data set.

Phase 6: Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is a technique whereby hypotheses or theories relating to the structure underlying a set of variables are tested (Pallant, 2007) (see Section 3.6.2). LISREL 8.80 (Jöreskog & Sörbom, 1996) was used to perform separate confirmatory factor analyses (CFA) on the different sub-scales of the Ethical Integrity Test. The results of CFA are discussed per sub-scale in terms of important fit indices (see Chapter 4).

3.5.2   Conscientiousness and Honesty

Lee and Ashton's (2004) HEXACO Personality Inventory-Revised (HEXACO-PI-R) was administered to participants to measure Conscientiousness and Honesty. The Honesty-Humility (16 items) and Conscientiousness (16 items) subscales were utilised for the purpose of the study. Responses were given on a 5-point rating scale; from 1 (strongly disagree) to 5 (strongly agree) where higher scores indicate a higher degree of the personality dimension. HEXACO-PI-R factor scales show high internal consistency reliabilities and show adequate convergent validities with external variables (Ashton & Lee, 2009). Table 3.2 depicts the internal consistency reliabilities of the Honesty-Humility and Conscientiousness subscales.

Table 3.3

Internal Consistency Reliabilities of the HEXACO-PI Scales (Coefficient Alpha)

Scale	Reliability	Scale	Reliability
Honesty-Humility	.92	Conscientiousness	.89
Sincerity	.79	Organization	.85
Fairness	.85	Diligence	.79
Greed Avoidance	.87	Perfectionism	.79
Modesty	.83	Prudence	.78

Note. N= 409. Each facet-level scale has 8 items, and each of the factor-level scales has 32 items.

Adapted from Lee and Ashton (2004)

3.5.3   Counterproductive Work Behaviour (CWB).

Counterproductive work behaviour was measured by means of the Interpersonal and Organisational Deviance Scale developed by Bennett and Robinson (2000). The scale contains items tapping into various kinds of CWB, including theft, absenteeism, bullying, vandalism and alcohol abuse. According to Bennett and Robinson (2000), the internal reliabilities for the Organisational Deviance Scale and Interpersonal Deviance Scale are 0.81 and 0.78 respectively.

3.6   Statistical analyses of data

The statistical techniques that were utilised in this study were item analysis; exploratory factor analysis (EFA) (used for the Integrity Scale only, see Section 3.5.1); and confirmatory factor analysis (CFA) to evaluate the fit of the measurement models; and structural equation modelling (SEM) to measure the fit of the structural model. It was possible through utilising the Statistical Package for the Social Science (SPSS) and LISREL.

3.6.1 Item Analysis

The structural model comprises of latent variables and various scales were used to measure specific dimensions in the model. The purpose of item analysis is to determine whether a measurement is reliable and to identify items in these scales that do not represent the specific latent variable. These items are referred to as poor items because of their inability to differentiate between various states of the latent variable they are meant to reflect. Elimination of these items will then be considered (Theron et al., 2004). Nunnally (1978) stated that a measurement is reliable to the extent to which a measurement provides the same result, regardless of any opportunities for variation that might occur.

Coefficient alphas were calculated to determine the reliability of these scales based on internally consistency. The size of the reliability coefficient is based on both the average correlation among items (internal consistency) and the number of items (Nunnally, 1978). Cronbach's alphas ranges from 0 – 1 and the closer the values is to 1 the greater the internal consistency of the items in the scale. According Kline (as cited in Field, 2009) items with a Cronbach's alpha of 0.7 is satisfactory. Every scale went through item analysis through the SPSS Reliability Procedure (version 20) to identify and possibly eliminate the poor items.

Item-total correlations for specific items can be determined to further ensure that the measuring instruments are internally consistent. Item-total correlations were calculated for all the scales. Item-total correlations above 0.20 were seen as satisfactory and those below 0.20 qualified for elimination (Nunnally, 1978).

3.6.2   Confirmatory Factor Analysis.

Confirmatory factor analysis (CFA) is a technique where hypotheses or theories relating to the structure underlying a set of variables are tested (Pallant, 2007). LISREL 8.80 (Jöreskog & Sörbom, 1996) was used to perform separately confirmatory factor analysis

(CFA) on the different scales used in this study. The results of CFA are discussed per scale in terms of important fit indices (see Section 3.7).

As an initial test of model fit, the fit index of Root Mean Square Error of Approximation (RMSEA) was observed. The RMSEA is regarded as one of the most informative fit indices (Diamantopoulos & Siguaw, 2000). An acceptable fit is indicated when RMSEA < 0.08 (See Table 3.4).

If the initial test of model fit demonstrates poor fit (RMSEA > 0.08), the modification indices of THETA-DELTA were investigated in order to determine the possibility of increasing model fit. Model modification indices can indicate whether any of the presently fixed parameters, when freed in the model, would meaningfully improve the parsimonious fit of the model. Modification indices (MI) indicate the extent to which the chi-square fit statistic decreases when a currently fixed parameter in the model is freed and the model re-estimated (Jöreskog & Sörbom, 1996). Large modification index values (> 6.6349 at a significance level of 0.01) are indicative of parameters that, if set free, would improve the fit of the model significantly (p<0.01) (Diamantopoulos & Siguaw, 2000; Jöreskog & Sörbom, 1996).

After acceptable initial fit was found, each item should be evaluated in terms of its completely standardised factor loadings (LAMDA-X). Significant item factor loadings will have a value >0.50 (Diamantopoulos & Siguaw, 2000), but for the purpose of this study, factor loadings of >0.30 will be regarded as acceptable, which will indicate that the item successfully contributes to the coherency of the sub-scale.

3.6.3   Structural Equation Modelling.

The statistical technique that was used in this study is Structural Equation Modelling (SEM). This technique is also referred to as covariance structure analysis or covariance of structure modeling (Kline, 2011). SEM is a confirmatory technique and is performed by means of a computer program, namely LISREL 8.80. Kelloway (1998) provided three reasons why this statistical technique is increasingly being used in social science

research. Firstly, SEM deals directly with how the measure reflects the intended constructs through Confirmatory factor analysis. It is also used to evaluate the measurement properties of psychological measures. Secondly, SEM allows for the specification and testing of path models. Lastly, SEM simultaneously assesses the quality of measurement and examines the predictive relationships among constructs by performing confirmatory factor analysis and path analysis at the same time. Kelloway (1998) further stated that SEM allows researchers to develop more detailed questions in their field of study and to be able to test them. Therefore, complex questions about data can be answered.

The purpose of SEM is to summarise the interrelationships between variables (Weston & Gore, 2006). The unreliability of measurement in the model can be captured through SEM, which allows the structural relationships between the latent variables to be accurately estimated. Researchers can develop complex relationships and test it through SEM if the relationships are reflected in the sample data. If any weaknesses are found, the researcher would explore further, using a modified model and a new sample (Weston & Gore, 2006).

SEM comprises five stages:
1.   Model specification
2.   Model Identification
3.   Parameter Estimation
4.   Testing model fit
5.   Model Re-specification

Model specification refers to the demonstration of the hypotheses in the form of a structural equation model. The model can be presented as a series of equations which re-count the supposed relations among variables (Kline, 2011). According to Diamantopoulos and Siguaw (2000), model specification involves describing of the number and nature of the parameters to be estimated; it is an important step that has to be fully constructed before any data analysis can be done.

Model identification involves a process by which the information provided by the data is examined to determine whether it is sufficient for parameter estimation. A model is identified when it is possible for the computer to obtain a unique estimate of every parameter of the model (Kline, 2011). A single unique value for every parameter should be attained from the observed data.

After the model is thoroughly identified, parameter estimation can occur. During parameter estimation the LISREL programme attempts to calculate and obtain the implied covariance matrix which is compared to the observed covariance matrix and adjusted until it is equivalent to the actual covariance matrix (Diamantopoulos & Siguaw, 2000).

In order to assess model fit the parameter estimation occurs. This determines that the implied covariance matrix is equivalent to the covariance matrix of the observed data. The various fit indices to determine the model fit via LISREL and model fit will be discussed in the following section.

Model modification follows when the results obtained through the investigation of model fit has determined that it is necessary to modify the model. Kelloway (1998) explains model re-specification as the deletion of non-significant paths from the model or adding paths to the model on the basis of empirical results. This is necessary when the fit of the model, as revealed in the previous step is poor and implies that model identification to test the fit should be repeated.

3.6.4   The Structural Model

The structural model consists of a set of linear structural equations which "specifies the causal relationships among the latent variables, describes the causal effects and assigns the explained and unexplained variance" (Jöreskog & Sörbom, 1996, p.1).

The structural model illustrated in Figure 3.1 is based on the theoretical arguments presented in Chapter 2. Honesty, ethical integrity and CWB are the dependent or endogenous variables in the study and are indicated by the symbol ETA (η). Conscientiousness is the independent or exogenous latent variable. This is indicated by the symbol KSI (ξ).

The structural model also consists of various paths between the variables. These paths represent the relationships between different constructs. The paths between the exogenous and endogenous variables are indicated with the symbol GAMMA (γ), while the paths between the endogenous variables are indicated with BETA (β). ZETA (ζ) represents the errors in structural equations and describes the error terms of η_1, η_2 and η_3. ZETA therefore represents residual error in the latent endogenous variables.
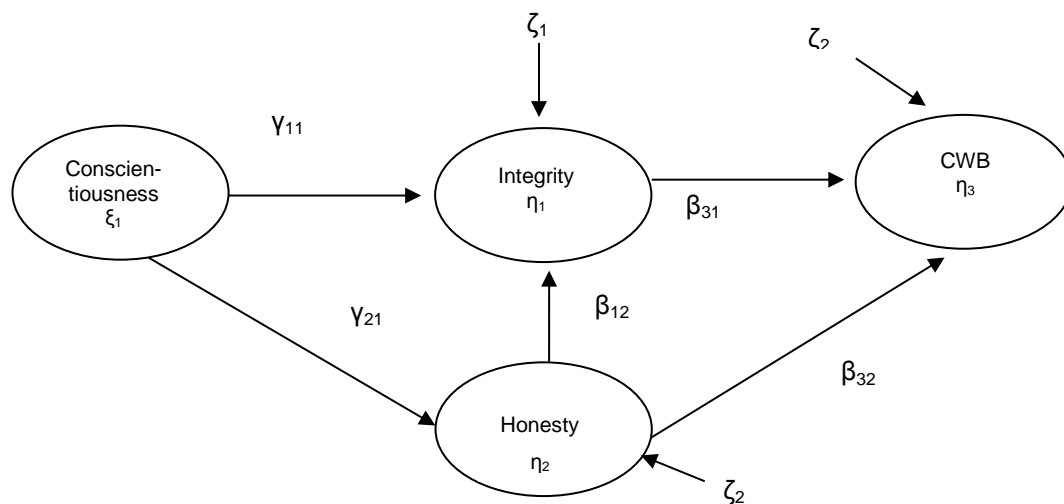
Figure 3.1: **The structural model representing the relationships between the personality correlates, integrity and counterproductive workplace behaviour with LISREL symbols**

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The structural model in matrix form

$$
\begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \end{bmatrix} = \begin{bmatrix} 0 & \beta_{12} & 0 \\ 0 & 0 & 0 \\ \beta_{31} & \beta_{32} & 0 \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \end{bmatrix} + \begin{bmatrix} \gamma_{11} \\ \gamma_{21} \end{bmatrix} \begin{bmatrix} \xi_1 \end{bmatrix} + \begin{bmatrix} \zeta_1 \\ \zeta_2 \\ \zeta_3 \end{bmatrix}
$$

$\eta = B\eta + \Gamma\xi + \zeta$

The matrix equation can be developed when looking at the exogenous and endogenous latent variables. The gammas and betas should also be taken in consideration in the matrix equation.

$[X_{11}]$	$[X_{21}]$	Y_{11}	Y_{21}	Y_{31}	Y_{41}	Y_{51}	Y_{61}
$[X_{12}]$	$[X_{22}]$	Y_{12}	Y_{22}	Y_{32}	Y_{42}	Y_{52}	Y_{62}
$[X_{13}]$	$[X_{23}]$	Y_{13}	Y_{23}	Y_{33}	Y_{43}	Y_{53}	Y_{63}
...	...	...	...	...	...	…	…
$[X_{1i}]$	$[X_{2i}]$	Y_{1i}	Y_{2i}	Y_{3i}	Y_{4i}	Y_{5i}	Y_{6i}
...	...	...	...	...	...	…	…
$[X_{1n}]$	$[X_{2n}]$	Y_{1n}	Y_{2n}	Y_{3n}	Y_{4n}	Y_{5n}	Y_{6n}

3.6.5   The Statistical Hypotheses

The overarching substantive research hypothesis of this study was to investigate the nature of the influence of integrity and personality on counterproductive work behaviour. Existing research provides a substantive basis for this research study. The theoretical argument presented in the literature study resulted in the identification of integrity, personality and counterproductive work behaviour as latent variables in the structural model depicted in Figure 3.1. If the overarching substantive research hypothesis is interpreted to indicate that the structural model provides a perfect explanation of the manner in which integrity and personality influence counterproductive behaviour, the

substantive research hypothesis translates into the following exact fit null hypothesis (Hypothesis 1):

H_{01}: RMSEA = 0
H_{a1}: RMSEA > 0

If the overarching substantive research hypothesis is interpreted to indicate that the structural model provides an approximate account of the way in which integrity and personality influence counterproductive work behaviour, the substantive research hypothesis translates into the following close fit null hypothesis (Hypothesis 2):

H_{02}: RMSEA ≤ 0.05
H_{a2}: RMSEA > 0.05

The overarching substantive research hypothesis was divided into five more detailed, specific substantive research hypotheses. These five detailed research hypotheses were converted into the path coefficient statistical hypotheses (See Table 3.3):

Substantive research hypothesis 3: Ethical Integrity (η_1) has a significant negative influence on CWB (η_3)

Substantive research hypothesis 4: Honesty (η_2) has a significant negative influence on CWB (η_3)

Substantive research hypothesis 5: Honesty (η_2) has a significant positive influence on Ethical Integrity (η_1)

Substantive research hypothesis 6: Conscientiousness (ξ_1) has a significant positive influence on Ethical Integrity (η_1)

Substantive research hypothesis 7: Conscientiousness (ξ_1) has a significant positive influence on Honesty (η_2)

fits the model good and the model can reproduce the population covariance matrix. The null hypothesis of exact fit is unrealistic, however, and therefore it is more appropriate to test the close fit null hypothesis. Acceptable values for the p-value of close fit (RMSEA < 0.05) must exceed .05 (Diamantopoulos & Siguaw, 2000).

The chi-square, however, is sensitive to sample size and in order to avoid an increase in the χ2 with an increase in sample size; the χ2 should be expressed in terms of its degrees of freedom (i.e. χ2/df). Disagreement about the interpretation of the values for χ2/df is evident in the literature, but good fit is generally indicated by values between 2 and 5. A value less than 2 indicates over-fitting of the model (Kelloway, 1998).

LISREL reports a number of absolute fit indices. The Goodness-of-fit Index (GFI) directly assesses how well the covariances predicted from the parameter estimates reproduce the sample covariance. The GFI ranges from 0 (poor fit) to 1 (perfect fit), with values exceeding 0.9 assumed to indicate a good fit of the model to the data (Kelloway, 1998).

The Root Mean Square Residual (RMR) is a measure of the average value of the difference between the sample covariance matrix and a fitted covariance matrix reproduced by the theoretical model (Diamantopoulos & Siguaw, 2000). It is generally accepted that the lower the index, the better the fit of the model to the data. The standardised RMR comprises fitted residuals divided by their estimated standard errors and has a lower bound of 0 and an upper bound of 1, with values less than 0.05 interpreted as indicating a good fit to the data (Kelloway, 1998).

The Root Mean Square Error of Approximation (RMSEA) is regarded as one of the most informative fit indices. Smaller values indicate a better fit to the data. Values lower than 0.08 indicate a reasonable fit and a value lower than 0.05 indicates a good fit, while values below 0.01 indicate outstanding fit to the data (Diamantopoulos & Siguaw, 2000).

3.7.2   Comparative Fit

Comparative fit (also called incremental fit) represents the comparative enhancement in fit of the model in comparison to the statistical baseline model. The baseline model refers to the independence (null) model. According to Kelloway (1998), the null model indicates that there is no relationship between the variables comprising the model. Reported comparative fit measures are the Normed-fit Index (NFI), the Non-normed Fit Index (NNFI), the Incremental Fit Index (IFI), the Comparative Fit Index (CFI), and the Relative Fit Index (RFI). All of these fit indices have a range of 0 to 1. Values closer to one, especially values > 0.90, represent good fit (Kelloway, 1998).

The goodness-of-fit indices described above are summarised in Table 3.4. These indices were used to reach a meaningful conclusion regarding model fit.

Table 3.5

Criteria of goodness-of-fit indices

Goodness-of-fit indices	Criteria
Absolute fit measures	
Minimum fit function Chi-Square	A non-significant result indicates model fit.
χ2/df	Values between 2 and 5 indicate good fit.
Root Mean Square Error of Approx (RMSEA)	Values of 0.08 or below indicate acceptable fit, those below 0.05 indicate good fit, and values below 0.01 indicate outstanding fit.
P-Value for Test of Close Fit (RMSEA < 0.05)	Values > 0.05 indicate good fit.
90% Confidence Interval for RMSEA	This is a 90% confidence interval of RMSEA testing the closeness of fit, i.e., testing the hypothesis H0: RMSEA < 0.05).
Root Mean Square Residual (RMR)	Lower values indicate better fit, with values below 0.08 indicative of good fit.
Standardised RMR	Lower values indicate better fit, with values less than 0.05 indicating good fit.
Goodness of Fit Index (GFI)	Values closer to 1 and > 0.90 represent good fit.
Incremental fit measures	

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Normed Fit Index (NFI)	Values closer to 1 indicate better fit, with values > 0.09 indicative of good fit.
Non-Normed Fit Index (NNFI)	Higher values indicate better fit, with values > 0.90 indicative of good fit.
Comparative Fit Index (CFI)	Values closer to 1 indicate better fit, with values > 0.90 indicative of good fit.
Incremental Fit Index (IFI)	Values closer to 1 indicate better fit, with values > 0.90 indicative of good fit.
Relative Fit Index (RFI)	Values closer to 1 indicate better fit, with values > 0.09 indicative of good fit.

(adapted from Diamantopoulos & Siguaw, 2000; Kelloway, 1998)

3.8   Summary

The hypotheses relevant to the study and the research methodology to be used to test the hypotheses have been stated in this chapter. An overview of the research design, sampling technique and the resultant measuring instruments and statistical analysis techniques was provided. The results of the data analyses are presented in Chapter 4.

CHAPTER 4
RESEARCH RESULTS

4.1   Introduction

In Chapter 4 the statistical results of the analyses performed will be discussed. A review of the item analysis will be presented, which was conducted to establish the psychometric integrity of the indicator variables intended to represent the various latent dimensions, followed by the evaluation of how the data corresponded to the statistical data assumptions relevant to the data analysis techniques utilised. The measurement models fit will be discussed, and if acceptable, the structural model will be evaluated.

4.2   Missing values

There are various options that could be used to address missing values, such as list-wise deletion. In this case all cases with missing values are excluded from the analysis. Pair-wise deletion refers to the deletion of cases only on the variables where the values are missing. Mean imputation can also be used, whereby the arithmetic mean is substituted for a missing value. Regression-based imputation replaces missing values with a predicted score using multiple regression based on the values of the other variables. The intention was to solve this problem of missing values through the imputation by matching procedure. In this method the missing values were replaced by substitute values which were derived from other cases with similar response patterns (Theron et al., 2004). The PRELIS program was used for this purpose (Jöreskog & Sörbom, 1996).

4.3   Item analysis

Item analysis was performed on the conscientiousness and honesty-humility subscales of the HEXACO personality inventory questionnaire (HEXACO PI), the new Ethical Integrity Test (EIT), and the Interpersonal and Organisational Deviance Scale using the

SPSS Reliability procedure (SPSS Inc, 2009). The aim of conducting item analysis was to detect and remove items not contributing to an internally consistent description of the latent variables measured by these scales. The removal of these items should be considered as it may lead to a higher Cronbach's alpha.

4.4 Reliability analysis of the conscientiousness subscale

Table 4.1 portrays the reliability analysis output from the Conscientiousness HEXACO subscale. The Cronbach's alpha coefficient for the Conscientiousness subscale is 0.816, which is good. According to Nunnally's (1967) reliability assessment guidelines, a value between 0.80 and 0.89 is good, while values above 0.90 are regarded as excellent. Table 4.1 indicates that item Cons27 is a poor item since the Corrected Item-Total Correlation is less than 0.20 (Nunnally, 1967). Deleting this item will increase the value of the Cronbach's alpha coefficient to 0.823. The removal of the item is therefore warranted.

In Table 4.2 the refined reliability analysis of the Conscientiousness subscale is displayed. After deleting the poor item (Cons27) the refined Cronbach's alpha coefficient has increase to O.823. All the items indicate a high correlation with the total score, based on the fact that all the Corrected Item-Total Correlation values are above 0.20.

Table 4.1

Reliability and Item-Total statistics of the Conscientiousness subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.816	.820	16

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Cons17	59.78	46.000	.384	.321	.808
Cons18	59.68	46.882	.410	.376	.807
Cons19	59.78	46.975	.371	.269	.809
Cons21	59.65	44.517	.593	.404	.795
Cons22	59.47	45.404	.583	.527	.797
Cons27	59.87	49.038	.151	.182	.823
Cons28	60.01	46.694	.382	.252	.808
Cons31	60.39	44.301	.449	.307	.804
RCONS20	60.10	46.826	.308	.228	.814
RCONS23	59.74	44.766	.477	.334	.802
RCONS24	59.58	45.519	.498	.375	.801
RCONS25	59.53	45.549	.416	.304	.806
RCONS26	59.52	45.121	.548	.437	.798
RCONS29	59.75	44.564	.520	.379	.799
RCONS30	59.32	47.788	.327	.154	.811
RCONS32	59.96	46.907	.360	.217	.810

Table 4.2

Reliability Analysis of the revised Conscientiousness subscale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Cons17	55.92	43.504	.377	.315	.818
Cons18	55.81	44.244	.413	.375	.815
Cons19	55.91	44.594	.349	.248	.819
Cons21	55.79	41.841	.608	.400	.802
Cons22	55.60	42.815	.586	.525	.805
Cons28	56.14	44.467	.347	.164	.819
Cons31	56.52	41.695	.454	.307	.813
RCONS20	56.23	44.076	.320	.219	.822
RCONS23	55.87	42.230	.476	.332	.810
RCONS24	55.71	42.899	.504	.375	.809
RCONS25	55.67	42.898	.423	.304	.814
RCONS26	55.65	42.360	.569	.432	.805
RCONS29	55.89	41.874	.534	.378	.806
RCONS30	55.45	45.144	.329	.153	.820
RCONS32	56.09	44.206	.368	.216	.818

4.5 Reliability analysis of the Honesty-humility subscale

The honesty-humility HEXACO subscale has a moderate internal consistency coefficient of 0.722. In the first round of item analysis, Items Hon8 and Hon13 have been flagged as being problematic and correlating lowly with the other items (see Table 4.3). In the second round of item analysis, Items Hon 10, and Hon5 also showed lower than .20 item-total correlations. The deletion of the four poor items substantially increased the Cronbach's alpha coefficient. Therefore, a decision was made to delete these items. Table 4.4 illustrates the reliability output of the revised honesty-humility subscale. After the removal of the problematic items the Cronbach's alpha coefficient increased to 0.779. All the items' Corrected Item-Total Correlations are above the appropriate level of 0.20, which indicates that these items correlate satisfactorily with the total score of the subscale.

Table 4.3

Reliability and Item-Total statistics of the Honesty-Humility subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.722	.744	16

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Hon3	58.99	47.243	.382	.272	.702
Hon4	58.43	48.744	.332	.217	.708
Hon5	58.64	47.753	.276	.222	.714
Hon8	58.91	51.178	.071	.237	.738
Hon10	58.30	48.739	.242	.183	.718
Hon13	59.16	48.409	.188	.249	.728
RHON1	59.19	48.398	.282	.216	.713
RHON2	58.12	48.833	.317	.223	.709
RHON6	58.22	49.749	.216	.241	.719
RHON7	59.28	46.415	.390	.448	.701
RHON9	58.43	49.211	.337	.295	.708
RHON11	58.87	46.304	.442	.460	.695

RHON12	58.43	47.558	.450	.282	.697
RHON14	57.91	50.161	.354	.323	.709
RHON15	58.83	45.481	.504	.526	.689
RHON16	58.37	47.496	.507	.455	.694

Table 4.4

Reliability Analysis of revised Honesty-Humility subscale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Hon3	43.85	34.236	.328	.203	.773
Hon4	43.29	34.994	.323	.203	.773
RHON1	44.04	34.058	.323	.198	.775
RHON2	42.98	34.425	.369	.205	.768
RHON6	43.08	35.294	.253	.216	.781
RHON7	44.13	31.585	.499	.421	.754
RHON9	43.29	34.419	.433	.274	.762
RHON11	43.72	31.980	.517	.455	.752
RHON12	43.28	33.976	.444	.256	.761
RHON14	42.76	35.817	.399	.319	.767
RHON15	43.68	31.145	.595	.521	.742
RHON16	43.23	33.091	.597	.446	.748

4.6   Reliability analysis of the Ethical Integrity Test (EIT)

The Ethical Integrity Test consists of 66 items which are related to the five subscales namely Behavioural Consistency, Credibility, Frankness, Fairness, and Righteousness. Each of these subscales was subjected to item analysis.

4.6.1   Reliability Analysis of the Behavioural Consistency subscale

Table 4.5 depicts the reliability analysis output from the Behavioural Consistency subscale. The Cronbach's alpha coefficient for the Behavioural Consistency subscale is 0.736, which is moderate. Item Int54 has been flagged as being problematic and correlating lowly with the other items; its deletion substantially increases the Cronbach's alpha coefficient to 0.837. Therefore, a decision was made to delete the item. Table 4.6 depicts the output of the revised Behavioural Consistency subscale.

Table 4.5

Reliability and Item-Total statistics of the Behavioural Consistency subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.736	.827	10

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int5	37.69	14.667	.470	.349	.708
Int14	37.92	13.789	.514	.355	.697
Int19	37.79	14.501	.525	.476	.702
Int24	38.04	14.424	.327	.139	.726
Int29	37.64	14.351	.609	.531	.694
Int34	37.74	14.061	.661	.599	.687
Int39	37.71	14.131	.641	.531	.689
Int44	37.68	13.971	.495	.352	.701
Int49	37.45	14.999	.473	.335	.711
Int54	39.18	14.007	.085	.044	.837

Table 4.6

Reliability Analysis of the revised Behavioural Consistency subscale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int5	34.78	11.493	.542	.345	.820
Int14	35.00	10.893	.530	.345	.823
Int19	34.87	11.337	.602	.470	.814
Int24	35.12	11.559	.317	.133	.855
Int29	34.72	11.305	.662	.531	.809
Int34	34.82	11.025	.720	.598	.803
Int39	34.79	11.099	.696	.531	.805
Int44	34.76	11.045	.513	.348	.825
Int49	34.53	11.884	.527	.333	.823

4.6.2   Reliability Analysis of the Credibility subscale

The Credibility subscale has a good internal consistency coefficient of 0.852. According to Table 4.7 item Int3 has been flagged as being problematic and correlating lowly with the other items; its deletion substantially increases the Cronbach's alpha coefficient to 0.866. Therefore, a decision was made to delete the item. Table 4.8 depicts the output of the revised Credibility subscale.

Table 4.7

Reliability and Item-Total statistics of the Credibility subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.852	.872	15

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int3	61.54	27.398	.188	.157	.866
Int8	61.08	26.543	.480	.377	.843
Int12	60.90	27.199	.453	.396	.845
Int17	61.02	26.507	.530	.518	.841
Int22	60.94	26.583	.595	.446	.839
Int27	61.17	27.212	.327	.195	.852
Int32	61.00	26.539	.555	.448	.840
Int37	61.18	26.049	.577	.537	.838
Int42	61.23	25.408	.684	.569	.833
Int47	61.19	25.729	.663	.537	.834
Int52	61.07	25.569	.746	.623	.831
Int57	61.28	25.710	.518	.343	.841
Int61	61.31	25.823	.573	.395	.838
Int64	61.89	26.195	.296	.232	.861
Int66	61.27	25.833	.533	.338	.840

Table 4.8

Reliability Analysis of the revised Credibility subscale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int8	57.04	24.106	.499	.377	.859
Int12	56.86	24.748	.472	.396	.860
Int17	56.98	24.053	.554	.518	.856
Int22	56.90	24.185	.611	.446	.854
Int27	57.13	24.756	.341	.195	.867
Int32	56.96	24.090	.580	.448	.855
Int37	57.14	23.733	.578	.536	.855
Int42	57.19	23.115	.688	.567	.849
Int47	57.15	23.413	.669	.536	.850
Int52	57.03	23.220	.761	.623	.847
Int57	57.24	23.383	.523	.343	.858
Int61	57.27	23.485	.580	.395	.854
Int64	57.85	24.330	.242	.135	.883
Int66	57.24	23.512	.537	.338	.857

4.6.3   Reliability Analysis of the Frankness subscale

The Frankness subscale has an excellent internal consistency coefficient of 0.912. None of the items were flagged as being problematic. As indicated in Table 4.9, none of the items would result in an increase in the Cronbach's alpha when deleted. Therefore, it was decided not to delete any of the items in the Frankness subscale.

Table 4.9

Reliability and Item-Total statistics of the Frankness subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items

.912	.915	14

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int2	58.25	27.244	.539	.381	.909
Int7	58.09	26.825	.678	.536	.904
Int11	58.04	27.115	.691	.526	.903
Int16	58.04	27.210	.690	.536	.903
Int21	58.00	26.716	.787	.698	.900
Int26	57.85	27.876	.651	.522	.905
Int31	57.96	27.147	.740	.597	.902
Int36	57.99	27.779	.540	.348	.909
Int41	57.80	28.639	.505	.354	.910
Int46	58.05	27.730	.469	.333	.912
Int51	58.19	26.513	.704	.516	.902
Int56	58.19	27.062	.651	.457	.905
Int60	58.28	26.928	.587	.406	.907
Int65	58.33	27.024	.570	.379	.908

4.6.4 Reliability Analysis of the Fairness subscale

The Fairness subscale has a good internal consistency coefficient of 0.862. None of the items were flagged as being problematic. As indicated in Table 4.10, none of the items would result in an increase in the Cronbach's alpha when deleted. Therefore, it was decided not to delete any of the items in the Fairness subscale.

Table 4.10

Reliability and Item-Total statistics of the Fairness subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.862	.876	13

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int4	50.57	24.397	.403	.215	.861
Int9	50.59	24.526	.574	.368	.851
Int13	51.03	24.044	.458	.361	.858
Int18	50.74	23.542	.652	.499	.845
Int23	51.25	24.555	.377	.268	.863
Int28	50.36	24.939	.562	.411	.852
Int33	50.74	23.220	.620	.440	.847
Int38	50.79	24.451	.427	.231	.859
Int43	51.12	23.661	.438	.239	.861
Int48	50.57	24.037	.663	.536	.846
Int53	50.63	24.317	.668	.525	.847
Int58	50.60	23.989	.657	.537	.846
Int62	50.48	24.364	.638	.515	.848

4.6.5   Reliability Analysis of the Righteousness subscale

The Righteousness subscale has an excellent internal consistency coefficient of 0.911. None of the items were flagged as being problematic. As indicated in Table 4.11, none of the items would result in an increase in the Cronbach's alpha when deleted. Therefore, it was decided not to delete any of the items in the Righteousness subscale.

Table 4.11

Reliability and Item-Total statistics of the Righteousness subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.911	.916	14

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int1	56.40	30.355	.412	.242	.914
Int6	56.44	29.963	.585	.405	.906

Int10	56.50	29.727	.543	.395	.908
Int15	56.52	29.500	.633	.439	.904
Int20	56.58	28.831	.632	.457	.905
Int25	56.50	29.834	.594	.384	.906
Int30	56.98	29.189	.487	.318	.912
Int35	56.58	28.869	.768	.614	.900
Int40	56.56	29.604	.607	.425	.905
Int45	56.57	29.628	.654	.481	.904
Int50	56.56	29.237	.730	.576	.901
Int55	56.60	29.048	.757	.593	.900
Int59	56.57	29.375	.693	.533	.902
Int63	56.49	29.367	.737	.626	.901

4.6.6 Reliability Analysis of the Total Ethical Integrity Test

The 66-item Ethical Integrity Test comprises five subscales measuring behavioural consistency, credibility, frankness, fairness, and righteousness. An initial reliability analysis of the subscale resulted in the deletion of two poor items (Int3 and Int54). Reliability analysis was then performed on the revised total scale and yielded a Cronbach's alpha of 0.971. The corrected item-total correlations are generally moderate. This is shown in Table 4.12.

Table 4.12

Reliability and Item-Total statistics of the Revised Total Ethical Integrity Test

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.971	.974	64

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Int1	274.62	554.010	.340	.	.972
Int2	274.84	548.636	.528	.	.971
Int4	274.74	548.768	.450	.	.971
Int5	274.73	548.881	.588	.	.971

Int6	274.65	549.047	.602	.	.971
Int7	274.67	547.414	.628	.	.971
Int8	274.63	552.386	.452	.	.971
Int9	274.76	549.728	.587	.	.971
Int10	274.72	548.752	.542	.	.971
Int11	274.63	547.244	.690	.	.971
Int12	274.45	554.633	.441	.	.971
Int13	275.19	549.665	.428	.	.972
Int14	274.95	545.553	.564	.	.971
Int15	274.73	546.860	.656	.	.971
Int16	274.62	547.416	.699	.	.971
Int17	274.57	551.331	.528	.	.971
Int18	274.91	545.954	.635	.	.971
Int19	274.82	547.775	.643	.	.971
Int20	274.80	545.816	.600	.	.971
Int21	274.58	546.603	.733	.	.971
Int22	274.49	550.629	.629	.	.971
Int23	275.42	552.819	.333	.	.972
Int24	275.07	551.783	.337	.	.972
Int25	274.71	549.542	.572	.	.971
Int26	274.43	551.502	.608	.	.971
Int27	274.72	554.424	.346	.	.972
Int28	274.53	550.433	.624	.	.971
Int29	274.67	546.789	.727	.	.971
Int30	275.19	547.285	.478	.	.971
Int31	274.54	547.883	.713	.	.971
Int32	274.55	550.482	.590	.	.971
Int33	274.91	544.440	.612	.	.971
Int34	274.77	545.376	.758	.	.971
Int35	274.79	545.389	.736	.	.971
Int36	274.58	549.999	.556	.	.971
Int37	274.73	548.790	.592	.	.971
Int38	274.96	550.525	.424	.	.971
Int39	274.74	545.126	.767	.	.971
Int40	274.77	545.629	.693	.	.971
Int41	274.38	554.584	.479	.	.971
Int42	274.78	546.197	.681	.	.971
Int43	275.29	545.612	.480	.	.971
Int44	274.71	547.145	.531	.	.971
Int45	274.78	548.355	.639	.	.971
Int46	274.63	550.897	.457	.	.971
Int47	274.74	547.558	.664	.	.971
Int48	274.74	545.410	.748	.	.971
Int49	274.48	550.799	.599	.	.971
Int50	274.78	545.411	.759	.	.971
Int51	274.77	544.341	.714	.	.971
Int52	274.62	546.337	.759	.	.971
Int53	274.80	547.513	.724	.	.971
Int55	274.82	546.345	.717	.	.971
Int56	274.77	545.748	.701	.	.971
Int57	274.83	544.943	.615	.	.971
Int58	274.77	547.043	.672	.	.971
Int59	274.79	546.219	.716	.	.971

Int60	274.86	545.249	.638	.	.971
Int61	274.86	545.680	.663	.	.971
Int62	274.65	547.375	.709	.	.971
Int63	274.71	546.176	.757	.	.971
Int64	275.44	551.193	.308	.	.972
Int65	274.92	545.649	.622	.	.971
Int66	274.82	546.549	.597	.	.971

4.7 Reliability analysis of the interpersonal and organisational deviance scale

The Interpersonal deviance subscale has an adequate internal consistency coefficient of 0.70. None of the items were flagged as being problematic. As indicated in Table 4.13 none of the items would result in an increase in the Cronbach's alpha when deleted. Therefore, it was decided not to delete any of the items in the Interpersonal deviance subscale.

The Organisational deviance subscale has an adequate internal consistency coefficient of 0.761. None of the items were flagged as being problematic. As indicated in Table 4.14 none of the items would result in an increase in the Cronbach's alpha when deleted. Therefore, it was decided not to delete any of the items in the Organisational deviance subscale.

Table 4.13

Reliability and Item-Total statistics of the Interpersonal deviance subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.696	.696	7

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Inper1	7.58	4.736	.517	.288	.635
Inper2	8.29	5.681	.516	.297	.631
Inper3	8.29	6.011	.401	.168	.663
Inper4	8.36	6.218	.401	.191	.663
Inper5	8.35	6.259	.372	.177	.670
Inper6	8.34	6.553	.392	.220	.668
Inper7	8.52	7.071	.273	.081	.692

Table 4.14

Reliability and Item-Total statistics of the Organisational deviance subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.761	.792	12

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Org8	13.32	7.990	.413	.215	.746
Org9	12.85	6.440	.523	.370	.731
Org10	13.39	8.509	.300	.272	.758
Org11	12.88	6.576	.512	.360	.731
Org12	13.09	6.887	.450	.285	.741
Org13	13.31	7.925	.470	.328	.742
Org14	13.12	7.153	.430	.238	.742
Org15	13.23	7.490	.484	.296	.735
Org16	13.35	8.235	.383	.258	.751
Org17	13.36	8.458	.201	.084	.762
Org18	13.20	7.095	.500	.335	.731
Org19	13.40	8.593	.399	.375	.758

4.8   Summary of the item analysis results

The results of the item analysis performed on the various scales are summarized in Table 4.15. After examination of all the scales and removal of items it was concluded

that all the final Cronbach's alpha values exceed the required .70 cut-off and all items present high item-total correlations. Each scale was therefore considered to be internally consistent and reliable.

Table 4.15

Summary of the item analysis results (N = 318)

Scale	Mean	Variance	Number of items in scale	Number of items deleted	Number of items retained	Cronbach's alpha
Conscientiousness	59.87	49.038	16	1	15	.823
Honesty-humility	47.39	39.375	16	4	12	.779
Behavioural Consistency	42.09	17.139	10	1	9	.837
Credibility	65.58	29.860	15	1	14	.866
Frankness	62.54	31.416	14	0	14	.912
Fairness	54.96	28.030	13	0	13	.862
Righteousness	60.91	33.942	14	0	14	.911
Interpersonal CWB	9.62	7.871	7	0	7	.696
Organisational CWB	14.41	8.867	12	0	12	.761

4.9　　　Dimensionality analysis

The purpose of the dimensionality analysis is to evaluate how each item individually and along with the rest of the items in the scale or subscale, measures the specific latent variable it was intended to reflect. Exploratory Factor Analysis (EFA) was therefore performed to examine the uni-dimensionality assumption. The objective was therefore to confirm the uni-dimensionality of each scale and subscale and to remove items with inadequate factor loadings (Theron, Spangenberg, & Henning, 2004). SPSS (version 20) was used to perform the uni-dimensionality test. Unrestricted Principal Axis Factor analyses with oblique rotation were performed on the various scales and subscales.

The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy assists with the measuring of the factorability of the data. When the KMO value exceeds 0.60, the correlation matrix can be regarded as adequate for factor analysis (Pallant, 2007).

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Investigating the eigenvalues was imperative because it determined which factors remain in the analysis. Any factors with an eigenvalue of less than 1 were excluded (Kinnear & Gray, 2004). Factor loadings of items on the factor they were designated to reflect was considered substantial if they were greater than 0.50. However, for the purpose of this study, factor loadings of 0.30 were still being considered as satisfactory. The higher the value of the loading, the more the factor explains the total variance of scores on the variable concerned (Kinnear & Gray, 2004).

The sufficiency of the extracted solution was evaluated by calculating the percentage large residual correlations (> 0.05). The residuals indicate the differences between the reproduced correlations and the original correlations (Kinnear & Gray, 2004). It is regarded that smaller residuals indicates a better fit. Thus, a low percentage (< 50%) of large residuals would support the uni-dimensionality of the scale (Kinnear & Gray, 2004).

4.9.1   Dimensionality analysis: Ethical Integrity Test

Ethical integrity is a latent variable that was conceptualised as a multidimensional construct comprising five latent dimensions. These dimensions are Behavioural Consistency, Credibility, Frankness, Fairness, and Righteousness. Since the EIT was a new developed test, each of these subscales was subjected to Exploratory Factor Analysis (EFA). All five latent dimensions were conceptualised as uni-dimensional constructs that are not further dividable into more specific factors.

4.9.1.1   Dimensionality analysis: Behavioural Consistency subscale

The suitability of the data for factor analysis was assessed using the Keiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO was found to be 0.884 which is above the required 0.6 level and this suggests that factor analysis could be performed on the data (Pallant, 2007). After inspection of the eigenvalues, two factors obtained an eigenvalue greater than 1 (4.240; 1.013), which imply that two factors was extracted. The factor matrix is presented in Table 4.16.

Table 4.16

Factor matrix for the Behavioural Consistency subscale

	Factor	
	1	2
Int5	.603	-.078
Int14	.594	-.202
Int19	.677	-.218
Int24	.332	.145
Int29	.744	.003
Int34	.811	-.210
Int39	.769	-.030
Int44	.593	.523
Int49	.569	.259

It was decided to eliminate the following item, Int 24, due to the relatively low factor loading on Factor 1. The refined subscale items were subjected to Exploratory Factor Analysis. After inspection of the eigenvalues, only one factor obtained an eigenvalue greater than 1 (4.118), which imply that only one factor was extracted. The factor matrix is presented in Table 4.17.

Table 4.17

Factor matrix for the Refined Behavioural Consistency subscale

	Factor
	1
Int5	.611
Int14	.594
Int19	.677
Int29	.759
Int34	.805
Int39	.776
Int44	.531
Int49	.556

93

The exploratory factor analyses results indicate that only one underlying factor was needed to adequately explain the observed inter-item correlation matrix for the Consistency subscale. The factor matrix demonstrates that all eight items in the Consistency subscale loaded reasonably satisfactory (> 0.30) on the single underlying factor. There are 8 (28.0%) non-redundant residuals with absolute values greater than 0.05. This did not raise a concern and the factor solution was considered to provide a credible explanation for the observed correlation matrix (< 50%).

4.9.1.2   Dimensionality analysis: Credibility subscale

The suitability of the data for factor analysis was assessed using the Keiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO was found to be 0.897, which is above the required 0.6 level and this suggests that factor analysis could be performed on the data (Pallant, 2007). After inspection of the eigenvalues, two factors obtained an eigenvalue greater than 1 (5.705; 1.399), which imply that two factors was extracted. The factor matrix is presented in Table 4.18.

Table 4.18

Factor matrix for the Credibility subscale

	Factor	
	1	2
Int8	.550	.332
Int12	.530	.392
Int17	.630	.518
Int22	.664	-.005
Int27	.374	.141
Int32	.643	.182
Int37	.652	-.278
Int42	.743	-.164
Int47	.715	-.216
Int52	.816	-.123
Int57	.552	-.209
Int61	.607	-.111
Int64	.255	-.164
Int66	.571	-.177

It was decided to eliminate item Int64, due to the insignificant loadings on both Factor 1 and Factor 2. In the second round of EFA, Items Int8 and Int17 were also deleted because these items were regarded as complex items, which loaded high on both factors. The refined subscale items were subjected to Exploratory Factor Analysis. After inspection of the eigenvalues, only one factor obtained an eigenvalue greater than 1 (4.997), which imply that only one factor was extracted. The factor matrix is presented in Table 4.19.

Table 4.19

Factor matrix for the Refined Credibility subscale

	Factor
	1
Int52	.826
Int42	.758
Int47	.739
Int37	.679
Int22	.669
Int32	.619
Int61	.611
Int66	.581
Int57	.570
Int12	.450
Int27	.352

The eleven items in the Credibility subscale loaded substantially (> 0.50) on the single underlying factor, except for Int12 and Int27, which still loaded satisfactorily (> 0.30). Furthermore, the results indicated that there were 13 (23.0%) non-redundant residuals with absolute values greater than 0.05. This did not raise a concern and the factor solution was considered to provide a credible explanation for the observed correlation matrix (< 50%).

4.9.1.3   Dimensionality analysis: Frankness subscale

The suitability of the data for factor analysis was assessed using the Keiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO was found to be 0.941 which is above the required 0.6 level and this suggests that factor analysis could be performed on the data (Pallant, 2007). After inspection of the eigenvalues, two factors obtained an eigenvalue greater than 1 (6.760; 1.119), which imply that two factors was extracted. The factor matrix is presented in Table 4.20.

Table 4.20

Factor matrix for the Frankness subscale

	Factor	
	1	2
Int2	.575	-.271
Int7	.717	-.218
Int11	.728	-.152
Int16	.730	.079
Int21	.837	-.119
Int26	.700	.314
Int31	.782	.084
Int36	.568	.049
Int41	.540	.366
Int46	.499	.328
Int51	.730	.005
Int56	.676	-.039
Int60	.608	-.157
Int65	.586	-.156

It was decided to eliminate item Int46, because the item was regarded as a complex item. In the second round of EFA, Item Int26 was also deleted as a complex item. The refined subscale items were subjected to Exploratory Factor Analysis. After inspection of the eigenvalues, only one factor obtained an eigenvalue greater than 1 (6.044), which imply that only one factor was extracted. The factor matrix is presented in Table 4.21.

Table 4.21

Factor matrix for the Refined Frankness subscale

	Factor
	1
Int2	.590
Int7	.723
Int11	.739
Int16	.719
Int21	.851
Int31	.769
Int36	.560
Int41	.492
Int51	.730
Int56	.678
Int60	.620
Int65	.597

The twelve items in the Frankness subscale loaded substantially (> 0.30) on the single underlying factor, except for item Int41, which still loaded satisfactorily (> 0.30). Furthermore, the results indicated that there were 15 (22.0%) non-redundant residuals with absolute values greater than 0.05. This did not raise a concern and the factor solution was considered to provide a credible explanation for the observed correlation matrix (< 50%).

4.9.1.4   Dimensionality analysis: Fairness subscale

The suitability of the data for factor analysis was assessed using the Keiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO was found to be 0.912, which is above the required 0.6 level and this suggests that factor analysis could be performed on the data (Pallant, 2007). After inspection of the eigenvalues, two factors obtained an eigenvalue greater than 1 (5.384; 1.312), which imply that two factors was extracted. The factor matrix is presented in Table 4.22.

Table 4.22

Factor matrix for the Fairness subscale

	Factor	
	1	2
Int4	.444	-.120
Int9	.610	.008
Int13	.497	.500
Int18	.692	.374
Int23	.392	.465
Int28	.628	-.161
Int33	.664	-.022
Int38	.464	-.027
Int43	.465	.020
Int48	.736	-.173
Int53	.736	-.105
Int58	.742	-.279
Int62	.716	-.155

It was decided to eliminate items Int13 and Int18, because the items were regarded as complex items. The refined subscale items were subjected to Exploratory Factor Analysis. After inspection of the eigenvalues, only one factor obtained an eigenvalue greater than 1 (4.742), which imply that only one factor was extracted. The factor matrix is presented in Table 4.23.

Table 4.23

Factor matrix for the Refined Fairness subscale

	Factor
	1
Int4	.456
Int9	.605
Int23	.308
Int28	.642
Int33	.659
Int38	.475
Int43	.461
Int48	.748
Int53	.747
Int58	.768
Int62	.727

98

The eleven items in the Fairness subscale loaded satisfactory (> 0.30) on the single underlying factor. Furthermore, the results indicated that there were 15 (27.0%) non-redundant residuals with absolute values greater than 0.05. This did not raise a concern and the factor solution was considered to provide a credible explanation for the observed correlation matrix (< 50%).

4.9.1.5   Dimensionality analysis: Righteousness subscale

The suitability of the data for factor analysis was assessed using the Keiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO was found to be 0.945, which is above the required 0.6 level and this suggests that factor analysis could be performed on the data (Pallant, 2007). After inspection of the eigenvalues, only one factor obtained an eigenvalue greater than 1 (6.822), which imply that only one factor was extracted. The factor matrix is presented in Table 4.24.

Table 4.24

Factor matrix for the Righteousness subscale

	Factor
	1
Int1	.433
Int6	.616
Int10	.572
Int15	.660
Int20	.659
Int25	.617
Int30	.513
Int35	.799
Int40	.648
Int45	.682
Int50	.771
Int55	.795
Int59	.731
Int63	.787

The fourteen items in the Righteousness subscale loaded substantially (> 0.30) on the single underlying factor, except for item Int1, which still loaded satisfactorily (> 0.30). Furthermore, the results indicated that there were 24 (26.0%) non-redundant residuals with absolute values greater than 0.05. This did not raise a concern and the factor solution was considered to provide a credible explanation for the observed correlation matrix (< 50%).

4.10   Evaluating the measurement models

Confirmatory factor analysis (CFA) was performed on all the scales and subscales used in this study. This was done in order to investigate the goodness-of-fit between the measurement models and the obtained data. LISREL 8.80 (Jöreskog & Sörbom, 1996) was used to perform separate confirmatory factor analyses on all three scales.

The results of the CFA are explained in terms of each scale with reference to two fit indices. Firstly, the p-value Test of Close Fit where p > 0.05 indicates good model fit. The Root Mean Square Error of Approximation is the second index where RMSEA < 0.08 indicates a reasonable good model fit and RMSEA < 0.05 indicates a very good fit of the data (Diamantopoulos & Siguaw, 2000). The results therefore indicated whether the measurement model achieved good fit or fitted poorly in terms of the p-value Test of Close Fit and RMSEA. Different steps were followed depending on whether the results indicated a good or poor model fit. In the case of poor fit, modification indices was examined to establish if the model fit could be increased.

The fit of the model can be improved through the freeing of model parameters (Diamantopoulos & Siguaw, 2000). This involves looking at the theta-delta modification indices. Large modification index values (> 6.6349 at a significance level of 0.01) are indicative of parameters that, if set free, would improve the fit of the model significantly (p<0.01) (Diamantopoulos & Siguaw, 2000; Jöreskog & Sörbom, 1993). Hence in each of the measurement models described in this chapter attempts have been made to improve the goodness-of-fit indices through the use of the theta-delta modification indices.

4.10.1 Evaluating the measurement model fit of the HEXACO PI Scale

Confirmatory factor analysis was performed separately on the two subscales of the HEXACO Personality Inventory in order to assess whether the measurement model sufficiently fits the data. This was done by testing the null hypotheses of exact fit [H_{01}: RMSEA = 0] and close fit [H_{02}: RMSEA ≤ 0.05].

4.10.1.1 Evaluating the Measurement Model Fit of the Conscientiousness subscale

CFA was performed on the fifteen items in the Conscientiousness subscale of the HEXACO-PI (items retained after the item analysis). After initial inspection of the fit statistics, it was found that a mediocre model fit had been achieved (p-value Test of Close Fit = 0.00; RMSEA = 0.0908). According to the above-mentioned criteria, the model's RMSEA furthermore suggests poor model fit (> 0.08).

One of the methods to improve the fit of the model is attained through the freeing of model parameters (Diamantopoulos & Siguaw, 2000). This led to the investigation of the modification indices of THETA-DELTA and some concerns were highlighted. Large modification index values (> 6.6349 at a significance level of 0.01) are indicative of parameters that, if set free, would improve the fit of the model significantly (p<0.01) (Diamantopoulos & Siguaw, 2000; Jöreskog & Sörbom, 1996). The modification indices magnitudes for THETA-DELTA for Cons19, Cons20, Cons22, and Cons24 were a cause for concern. A decision was made after an examination of the items to delete the item with lower loadings on the completely standardised solution matrix. Cons19, Cons20, Cons22, and Cons24 were consequently deleted.

After the deletion of items Cons19, Cons20, Cons22, and Cons24, CFA was performed on the remaining items in the Conscientiousness subscale. The model fit improved considerably, indicating a RMSEA value of 0.0549 and the P-value Test of Close Fit of 0.301 (see Table 4.25). The RMSEA value is below the critical cut-off value of 0.08 and

this reflected reasonable fit of the refined Conscientiousness scale. The goodness-of-fit statistics for the revised Conscientiousness measurement model are indicated in Table 4.25 and discussed in the following section.

Table 4.25

Goodness-of-fit: Refined Conscientiousness scale

Indices	Conscientious
Absolute Fit measures	
Satorra-Bentler Scaled Chi-Square	86.055 (p< 0.05)
χ^2/df (Degrees of Freedom = 44)	1.9558
Root Mean Square Error of Approximation (RMSEA)	0.0549
P-Value for Test of Close Fit (RMSEA < 0.05)	0.301
Root Mean Square Residual (RMR)	0.0405
Standardized RMR	0.0510
Goodness-of-fit Index (GFI)	0.943
Incremental Fit Measures	
Normed Fit Index (NFI)	0.943
Non-Normed Fit Index (NNFI)	0.964
Comparative Fit Index (CFI)	0.971
Incremental Fit Index (IFI)	0.971
Relative Fit Index (RFI)	0.929

Results: Absolute Fit Measures

The reported indices indicated that satisfactory measurement model fit has been achieved. The RMSEA (0.0549) and p-value Test of Close Fit (0.301) achieved values that were indicative of close fit. In terms of the χ^2/df index, which is calculated with the Satorra-Bentler Scaled Chi-Square, the measurement model marginally did not reach the 2 - 5 range with a ratio of 1.9558. The RMR value of 0.0405 is below 0.08 and the Standardised RMR value of 0.0510 is marginally above 0.05, which indicates reasonable fit. The GFI value succeeded to exceed 0.90, which is satisfactory and indicates that the model comes close to reproduce the sample covariance matrix.

Results: Incremental Fit Measures

The incremental fit indices namely the NFI, NNFI, CFI, IFI, and RFI indices exceeded the critical value of 0.90. These comparative indices therefore portray a positive picture of model fit. The results further seem to indicate that the model can be ascribed to more than chance. In addition the completely standardised LAMBDA-X matrix for the revised Conscientiousness scale is indicated in Table 4.26. All items loaded satisfactory (> 0.30) on the latent variable.

Table 4.26

Completely standardised LAMBDA-X matrix for the refined Conscientiousness subscale

	Conscientiousness
Cons17	0.495
Cons18	0.416
Cons21	0.682
Cons28	0.362
Cons31	0.526
RCONS23	0.520
RCONS25	0.584
RCONS26	0.656
RCONS29	0.685
RCONS30	0.489
RCONS32	0.412

Conclusion

Through examination of the reported fit indices, it was found that the null hypothesis of close fit for the Conscientiousness measurement model was not rejected (H_{02}: RMSEA ≤ 0.05). This is an indication that the measurement model fit the data well and that the quality of the fit is good. The measurement model can thus be said to provide a credible explanation of the observed covariance matrix.

4.10.1.2   Evaluating the Measurement Model Fit of the Honesty-humility subscale

All twelve items of the Honesty-humility subscale were subjected to confirmatory factor analysis in order to measure the fit of the measurement model to the data. It was found that a mediocre model fit had been achieved with a p-value Test of Close Fit of 0.00 and RMSEA of 0.127 and that the null hypothesis of close fit is rejected. The RMSEA value was above the value of 0.08 which is indicative of mediocre model fit.

One of the methods to improve the fit of the model is attained through the freeing of model parameters (Diamantopoulos & Siguaw, 2000). This led to the investigation of the modification indices of THETA-DELTA and some concerns were highlighted. Large modification index values (> 6.6349 at a significance level of 0.01) are indicative of parameters that, if set free, would improve the fit of the model significantly (p<0.01) (Diamantopoulos & Siguaw, 2000; Jöreskog & Sörbom, 1996). The modification indices magnitudes for THETA-DELTA for the scale items were a cause for concern. A decision was made after an examination of the items to delete the following items: Hons6, Hons7, Hons11, and Hons14. CFA was performed on the remaining items in the Honesty subscale. The model fit improved considerably, indicating a RMSEA value of 0.0696 and the P-value Test of Close Fit of 0.0823 (see Table 4.27). The RMSEA was below the critical cut-off value of 0.08, and this reflected reasonable fit of the refined Honesty-humility scale.

Table 4.27:

Goodness- of- fit: Refined Honesty-humility scale

Indices	Honesty
Absolute Fit measures	
Satorra-Bentler Scaled Chi-Square	50.674 (p<0.01)
χ^2/df (Degrees of Freedom = 20)	2.5337
Root Mean Square Error of Approximation (RMSEA)	0.0696

P-Value for Test of Close Fit (RMSEA < 0.05)	0.0823
Root Mean Square Residual (RMR)	0.0550
Standardized RMR	0.0587
Goodness-of-fit Index (GFI)	0.950
Incremental Fit Measures	
Normed Fit Index (NFI)	0.931
Non-Normed Fit Index (NNFI)	0.939
Comparative Fit Index (CFI)	0.957
Incremental Fit Index (IFI)	0.957
Relative Fit Index (RFI)	0.904

Results: Absolute Fit Measures

The reported indices indicated that satisfactory measurement model fit has been achieved. The null Hypothesis of exact fit is rejected (p ≤ .05). The RMSEA (0.0696) and p-value Test of Close Fit (0.0823) achieved values that were indicative of close fit. The null hypothesis of close fit is therefore not rejected. In terms of the χ_2/df index, which is calculated with the Satorra-Bentler Scaled Chi-Square, the measurement model did reach the 2 - 5 range with a ratio of 2.5337. The RMR value of 0.0550 and the Standardised RMR value of 0.0587 are above 0.05, which indicates relative poor fit. The GFI value succeeded to exceed 0.90, which is satisfactory and indicates that the model comes close to reproduce the sample covariance matrix.

Results: Incremental Fit Measures

The incremental fit indices namely the NFI, NNFI, CFI, IFI, and RFI indices exceeded the critical value of 0.90. These comparative indices therefore portray a positive picture of model fit. The results further seem to indicate that the model can be ascribed to more than chance. The completely standardised LAMBDA-X matrix is indicated in Table 4.28. All the items loaded satisfactory (> 0.30) on the latent variable.

Table 4.28

Completely standardised LAMBDA-X matrix for the refined Honesty-humility subscale

	HONESTY
Hon3	0.405
Hon4	0.512
RHON1	0.327
RHON2	0.392
RHON9	0.480
RHON12	0.547
RHON15	0.658
RHON16	0.795

Conclusion

Through examination of the reported fit indices, it was found that the null hypothesis of close fit for the Honesty-humility measurement model was not rejected (H_{02}: RMSEA ≤ 0.05). This is an indication that the measurement model fit the data well and that the quality of the fit is good. The measurement model can thus be said to provide a credible explanation of the observed covariance matrix.

4.10.1.3   Evaluating the measurement model fit of the Ethical Integrity Test

Confirmatory factor analysis via LISREL was also performed on the 56 item Ethical Integrity Test (after EFA) in order to assess whether the measurement model sufficiently fits the data. The initial examination of the fit statistics, led to the conclusion that the measurement model fits the data reasonably well with a P-value Test of Close Fit of 0.100 and RMSEA of 0.0523 (see Table 4.29).

Table 4.29

Goodness-of- fit: Refined Ethical Integrity Test

Indices	EIT
Absolute Fit measures	

Satorra-Bentler Scaled Chi-Square	2754.369(p <0.01)
χ^2/df (Degrees of Freedom = 1474)	1.8686
Root Mean Square Error of Approximation (RMSEA)	0.0523
P-Value for Test of Close Fit (RMSEA < 0.05)	0.100
Root Mean Square Residual (RMR)	0.0199
Standardized RMR	0.0522
Goodness-of-fit Index (GFI)	0.714
Incremental Fit Measures	
Normed Fit Index (NFI)	0.968
Non-Normed Fit Index (NNFI)	0.984
Comparative Fit Index (CFI)	0.985
Incremental Fit Index (IFI)	0.985
Relative Fit Index (RFI)	0.967

Results: Absolute Fit Measures

The reported indices indicate that satisfactory measurement model fit has been achieved. The null Hypothesis of exact fit is rejected ($p \leq .05$). The p-value Test of Close Fit (0.100) achieved a value that is indicative of close fit. The null hypothesis of close fit is therefore not rejected. The RMSEA (0.0523) is also indicative of reasonable good fit. In terms of the χ^2/df index, the measurement model did not completely reach the 2 - 5 range of good fit with a value of 1.8686 that falls marginally below the critical range. The RMR value of 0.0199 is below 0.08, but the Standardised RMR value of 0.0522 is marginally above 0.05 which indicates reasonable fit. The GFI failed to exceed 0.90, but still reached a satisfactory value close to 1 which indicates that the model comes close to reproducing the sample covariance matrix.

Results: Incremental Fit Measures

The incremental fit indices namely the NFI, NNFI, CFI, IFI, and RFI indices exceeded the critical value of 0.90. These comparative indices therefore portray a positive picture of model fit. The results further seem to indicate that the model indicates good comparative fit. The completely standardised LAMBDA-X matrix for the refined (final)

EIT is indicated in Table 4.30. All the items loaded satisfactory (> 0.30) on the latent variable.

Table 4.30

Completely standardised LAMBDA-X matrix for the refined EIT

	Righteousness	Frankness	Credibility	Fairness	Behavioural Consistency
Int1	0.455	-	-	-	-
Int2	-	0.599	-	-	-
Int4	-	-	-	0.527	-
Int5	-	-	-	-	0.633
Int6	0.630	-	-	-	-
Int7	-	0.709	-	-	-
Int9	-	-	-	0.587	-
Int10	0.599	-	-	-	-
Int11	-	0.733	-	-	-
Int12	-	-	0.466	-	-
Int14	-	-	-	-	0.644
Int15	0.668	-	-	-	-
Int16	-	0.751	-	-	-
Int19	-	-	-	-	0.667
Int20	0.676	-	-	-	-
Int21	-	0.825	-	-	-
Int22	-	-	0.678	-	-
Int23	-	-	-	0.317	-
Int25	0.604	-	-	-	-
Int26	-	0.675	-	-	-
Int27	-	-	0.376	-	-
Int28	-	-	-	0.656	-
Int29	-	-	-	-	0.754
Int30	0.518	-	-	-	-
Int31	-	0.782	-	-	-
Int32	-	-	0.624	-	-
Int33	-	-	-	0.638	-
Int34	-	-	-	-	0.793
Int35	0.783	-	-	-	-
Int36	-	0.625	-	-	-
Int37	-	-	0.655	-	-
Int38	-	-	-	0.481	-
Int39	-	-	-	-	0.788
Int40	0.689	-	-	-	-
Int41	-	0.518	-	-	-
Int42	-	-	0.733	-	-
Int43	-	-	-	0.473	-
Int44	-	-	-	-	0.541
Int45	0.680	-	-	-	-
Int47	-	-	0.701	-	-
Int48	-	-	-	0.784	-
Int49	-	-	-	-	0.591
Int50	0.791	-	-	-	-
Int51	-	0.740	-	-	-
Int52	-	-	0.808	-	-

Int53	-	-	-	0.749	-
Int55	0.773	-	-	-	-
Int57	-	-	0.657	-	-
Int58	-	-	-	0.735	-
Int59	0.749	-	-	-	-
Int60	-	0.646	-	-	-
Int61	-	-	0.662	-	-
Int62	-	-	-	0.750	-
Int63	0.797	-	-	-	-
Int65	-	0.622	-	-	-
Int66	-	-	0.635	-	-

Conclusion

Through examination of the reported fit indices, it was found that the null hypothesis of close fit for the EIT measurement model was not rejected (H_{02}: RMSEA ≤ 0.05). This is an indication that the measurement model fits the data well and that the quality of the fit is good. The measurement model can thus be said to provide a credible explanation of the observed covariance matrix.

4.10.1.4 Evaluating the measurement model fit of the counterproductive work behaviour Scale

Confirmatory factor analysis via LISREL was also performed on the CWB scale in order to assess whether the measurement model sufficiently fits the data. Initial examination of the fit statistics led to the conclusion that the measurement model fits the data reasonably well with a P-value Test of Close Fit of 0.609 and RMSEA of 0.0482. All items comprising the scale appeared to load satisfactorily (> 0.30) on the latent variable, except Item Org17 (0.273). Therefore, it was decided to delete Item Org17.

Goodness-of-fit: CWB

The goodness-of-fit statistics for the CWB measurement model are indicated in Table 4.31 and discussed in the following section.

Table 4.31

Fit statistics for the revised CWB scale measurement model

Indices	CWB
Absolute Fit measures	
Satorra-Bentler Scaled Chi-Square	238.193 (p <0.01)
χ^2/df (Degrees of Freedom = 134)	1.7776
Root Mean Square Error of Approximation (RMSEA)	0.0495
P-Value for Test of Close Fit (RMSEA < 0.05)	0.517
Root Mean Square Residual (RMR)	0.0213
Standardized RMR	0.0717
Goodness-of-fit Index (GFI)	0.871
Incremental Fit Measures	
Normed Fit Index (NFI)	0.910
Non-Normed Fit Index (NNFI)	0.952
Comparative Fit Index (CFI)	0.958
Incremental Fit Index (IFI)	0.959
Relative Fit Index (RFI)	0.897

Results: Absolute Fit Measures

The reported indices indicate that satisfactory measurement model fit has been achieved. The null Hypothesis of exact fit is rejected (p ≤ .05). The p-value Test of Close Fit (0.517) achieved a value that is indicative of close fit. The null hypothesis of close fit is therefore not rejected. The RMSEA (0.0495) is also indicative of reasonable good fit. In terms of the χ^2/df index, the measurement model did not completely reach the 2 - 5 range of good fit with a value of 1.7776 that falls marginally below the critical range. The RMR value of 0.0213 indicates good fit, whereas the Standardised RMR value of 0.0717 is above 0.05 which indicates poor fit. The GFI marginally failed to exceed 0.90, but still reached a satisfactory value close to 1 which indicates that the model comes close to reproducing the sample covariance matrix.

Results: Incremental Fit Measures

The incremental fit indices presented in Table 4.31 exceeded the critical value of 0.90 except the RFI which is marginally below the critical value (0.897) This is, however, still satisfactory and therefore the model indicates good comparative fit. The completely

standardised LAMBDA-X matrix for the refined CWB scale is indicated in Table 4.32. All the items loaded satisfactory (> 0.30) on the latent variable.

Table 4.32

Completely standardised LAMBDA-X matrix for the revised CWB scale

	CWB
Inper1	0.611
Inper2	0.605
Inper3	0.500
Inper4	0.496
Inper5	0.441
Inper6	0.512
Inper7	0.403
Org8	0.540
Org9	0.553
Org10	0.380
Org11	0.502
Org12	0.44
Org13	0.576
Org14	0.527
Org15	0.580
Org16	0.478
Org18	0.642
Org19	0.491

Conclusion

Through examination of the reported fit indices, it was found that the null hypothesis of close fit for the CWB measurement model was not rejected (H_0: RMSEA ≤ 0.05). This is an indication that the measurement model fits the data well and that the quality of the fit is good. The measurement model can thus be said to provide a credible explanation of the observed covariance matrix.

4.11   Fitting the overall measurement model

A Confirmatory Factor Analysis, using item parcels, was performed to evaluate the fit of the overall measurement model. The subscales of the ethical integrity test and the CWB scale were used to form the parcels whilst random parceling was used to identify two indicators per uni-dimensional latent variable. Robust maximum likelihood estimation was used since normalisation failed to achieve multivariate normality in the observed data.

The fit of the overall measurement model is satisfactory with a P-value for Close fit of 0.773 and a RMSEA value of 0.0400. The RMSEA is an important value to consider when evaluating model fit. According to Diamantopoulos and Siguaw (2000), values smaller than 0.05 indicate good fit and values below 0.08 indicate reasonable fit. The RMSEA value of the measurement model resulted in 0.0400 which represents good fit.

The Satorra-Bentler Scaled Chi-Square of 57.306 (p < 0.05), indicates that the null hypothesis of exact fit could be rejected. The χ2/df ratio was calculated using the Satorra-Bentler Scaled Chi-Square divided by the degrees of freedom. The χ2/df ratio of 1.508 falls outside the range of 2 – 5 indicating poor fit.

The RMR of the measurement model was found to be 0.00548. According to Kelloway (1998), low values are an indication of good fit. This scale is, however, sensitive to the scale of measurement of the model variables and it is therefore difficult to determine what qualifies as a low value. Kelloway further states that LISREL provides the standardised RMR which is a better index and indicates that values lower than .05 represents good fit. The standardised RMR value of this measurement model was 0.0219. The GFI value of 0.964 for the measurement model was also above the criterion for good fit.

Comparative fit is an incremental fit index that "measures the relevant improvement in the fit of the researcher's model over that of a baseline model, typically the independence model" (Kline, 2011). The incremental fit indices namely, NFI, NNFI, CFI,

IFI, and RFI values, are all above .90, indicating good comparative fit relative to the independence model. Overall, the examination of the goodness-of-fit indices resulted in the conclusion that the measurement model displayed reasonable fit with the data. The fit statistics can be seen in Table 4.33.

The path diagram for the overall refined measurement model is presented in Figure 4.1. The path diagram for the measurement model is an illustration showing that all items comprising each of the scales and subscales used in this study, appeared to load significantly on the respective latent variables.

Table 4.33

Fit statistics for the overall Measurement Model

Indices	
Absolute Fit measures	
Satorra-Bentler Scaled Chi-Square	57.306 (p <0.051)
χ^2/df (Degrees of Freedom = 39)	1.508
Root Mean Square Error of Approximation (RMSEA)	0.0400
P-Value for Test of Close Fit (RMSEA < 0.05)	0.773
Root Mean Square Residual (RMR)	0.00548
Standardized RMR	0.0219
Goodness-of-fit Index (GFI)	0.964
Incremental Fit Measures	
Normed Fit Index (NFI)	0.985
Non-Normed Fit Index (NNFI)	0.993
Comparative Fit Index (CFI)	0.995
Incremental Fit Index (IFI)	0.995
Relative Fit Index (RFI)	0.979
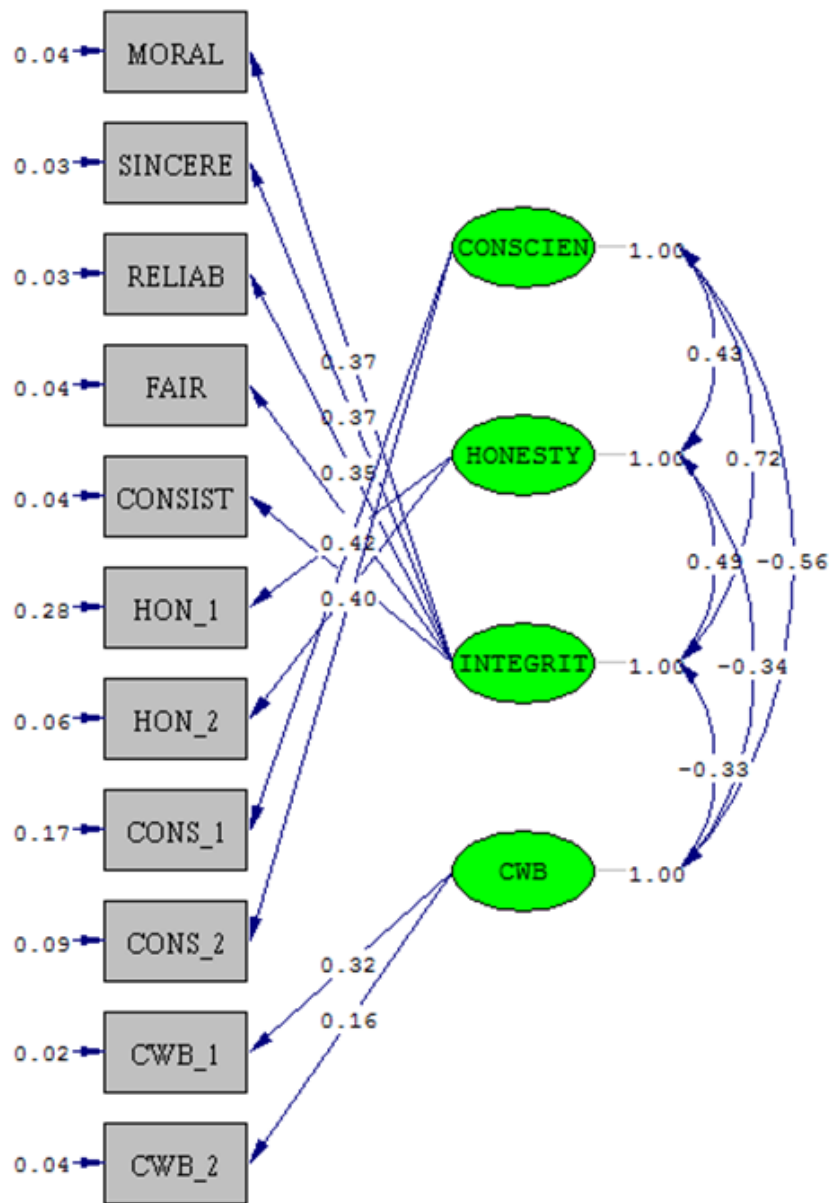
Chi-Square=57.31, df=38, P-value=0.02297, RMSEA=0.040

Figure 4.1: **Fitting the overall Measurement Model**

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4.12   Structural model fit

According to Jöreskog and Sörbom (1996, p. 171), the overall model is a "combination of a structural equation system among latent variables η's and ξ's and measurement models for observed y's and x's where all variables, observed and latent, are assumed measured in deviations from their means". All the fit statistics of the structural model is shown in Table 4.34.

Table 4.34

Fit statistics for the structural model

Degrees of Freedom = 39
Minimum Fit Function Chi-Square = 101.740 (P = 0.0)
Normal Theory Weighted Least Squares Chi-Square = 95.328 (P = 0.0)
Satorra-Bentler Scaled Chi-Square = 84.795 (P = 0.0)
Chi-Square Corrected for Non-Normality = 90.850 (P = 0.000)
Estimated Non-centrality Parameter (NCP) = 45.795
90 Percent Confidence Interval for NCP = (22.998 ; 76.333)
Minimum Fit Function Value = 0.321
Population Discrepancy Function Value (F0) = 0.144
90 Percent Confidence Interval for F0 = (0.0725 ; 0.241)
Root Mean Square Error of Approximation (RMSEA) = 0.0609
90 Percent Confidence Interval for RMSEA = (0.0431 ; 0.0786)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.147
Expected Cross-Validation Index (ECVI) = 0.438
90 Percent Confidence Interval for ECVI = (0.366 ; 0.534)
ECVI for Saturated Model = 0.416
ECVI for Independence Model = 12.326
Chi-Square for Independence Model with 55 Degrees of Freedom = 3885.450
Independence AIC = 3907.450
Model AIC = 138.795
Saturated AIC = 132.000
Independence CAIC = 3959.832
Model CAIC = 267.370
Saturated CAIC = 446.295
Normed Fit Index (NFI) = 0.978
Non-Normed Fit Index (NNFI) = 0.983
Parsimony Normed Fit Index (PNFI) = 0.694
Comparative Fit Index (CFI) = 0.988
Incremental Fit Index (IFI) = 0.988
Relative Fit Index (RFI) = 0.969
Critical N (CN) = 234.386
Root Mean Square Residual (RMR) = 0.00938
Standardized RMR = 0.0489
Goodness-of-fit Index (GFI) = 0.948
Adjusted Goodness-of-fit Index (AGFI) = 0.912
Parsimony Goodness-of-fit Index (PGFI) = 0.560

The Satorra-Bentler Scaled Chi-Square of 84.795 (p < 0.01), indicates that the null hypothesis of exact fit can be rejected. Thus, null Hypothesis 1 was not supported. The RMSEA is an important value to consider when evaluating model fit. According to Diamantopoulos and Siguaw (2000) values smaller than 0.05 indicate good fit and values below 0.08 indicate reasonable fit. The RMSEA value of this model (0.0609) therefore presents reasonable fit. The p-value for test of Close fit (0.147) indicates that the null hypothesis of close fit is not rejected, and therefore the structural model shows close fit. Thus, Hypothesis 2 was supported.

The Root Mean Square Residual (RMR) of the structural model is found to be 0.00938. According to Kelloway (1998) low values are an indication of good fit. This scale is however sensitive to the scale of measurement of the model variables and it is therefore difficult to determine what qualifies as a low value. Kelloway further states that LISREL provides the standardised RMR, which is a better index and indicates that values lower than 0.05 represents good fit. The standardised RMR value of this structural model is 0.0489, which is below the cut-off value and therefore indicates a good fit.

The goodness-of-fit index ranges from 0 to 1 and "is based on the ratio of the sum of the squared discrepancies to the observed variance" (Kelloway, 1998, p. 27). Values above 0.90 indicate a good fit of the model. According to this criterion the structural model achieves good fit (GFI = 0.948).

Comparative fit is an incremental fit index that "measures the relevant improvement in the fit of the researcher's model over that of a baseline model, typically the independence model" (Kline, 2011, p.208). The incremental fit indices namely the NFI (0.978), NNFI (0.983), CFI (0.988), IFI (0.988) and RFI (0.969) are all above 0.90, which indicate good comparative fit relative to the independence model.

The examination of the goodness-of-fit indices resulted in the conclusion that the structural model fits the data reasonably well. The null hypothesis of exact fit is rejected

(p < 0.05) in favour of the null hypothesis of close fit. The structural model therefore displays reasonably good fit.

4.13   Relationships between latent variables

According to the results of the fit indices it is concluded that the structural model fit the data reasonable well. At this stage it is necessary to test the relationships between the endogenous and exogenous latent variables in order to assess whether these linkages, specified at the conceptualisation phase, were in fact supported by the data (Diamantopoulos & Sigauw, 2000). In order to assess these relationships, three relevant issues should be looked at.

The first issue is to examine the signs of the parameters representing the paths between the latent variables to determine whether the direction of the hypothesised relationships is as theoretically determined. Secondly it is essential to investigate the magnitudes of the estimated parameters because it provides important information regarding the strength of these relationships. Lastly the squared multiple correlations (R^2) indicate the amount of variance in the endogenous variables that is explained by the latent variables that are linked to it (Diamantopoulos & Sigauw, 2000).

The parameters to be assessed are the freed elements of the gamma (Γ) and beta (B) matrices. The unstandardised gamma matrix is used to evaluate the strength of the estimated path coefficients γ_{ij} which express the significance of the influence of ξ_j on η_i. These unstandardised γ_{ij} estimates are significant if t > |1.96| or < |-1.96| (Diamantopoulos & Sigauw, 2000). A significant γ estimate would entails that the related H_0-hypothesis will be rejected in favour of the relevant H_a-hypothesis.

T-values are obtained by dividing the value of the parameter with the standard error (Jöreskog & Sörbom, 1996). T-values are used to determine whether a particular parameter is significantly from zero in the population, i.e. to test the null hypothesis that states there is not a significant relationship between latent variables in the population.

T-values of between -1.96 and 1.96 suggest that the corresponding population parameter is not significantly different from zero (with 5% significance level) (Diamantopoulos & Siguaw, 2000).

Table 4.35

Unstandardised GAMMA (Γ) Matrix

	CONSCIENTIOUSNESS
HONESTY	0.462
	(0.092)
	5.031
INTEGRITY	0.618
	(0.066)
	9.328

Table 4.35 presents the unstandardised gamma matrix. Conscientiousness is the only exogenous latent variable, which implies that the only hypotheses relevant to the Γ matrix are hypothesis 6 (H_{06}) and hypothesis 7 (H_{07}). The top value in the matrix represents the unstandardised gamma coefficients as an estimate of the slope of the regression of η_j on ξ_i. The second value is the standard error and the bottom value the test statistic t. The values in this matrix indicate that there is a significant ($p < 0.05$) relationship between Conscientiousness (ξ_1) and Honesty (η_2) because t (5.031) is above the 1.96 value. Thus, null hypothesis 7 (H_{07}: γ21 = 0) can be rejected in favour of alternative hypothesis 7 (H_{a7}: γ21 > 0).

Table 4.35 further indicates that the t value of the link between conscientiousness and integrity > 1.96. A significant ($p < 0.05$) relationship is therefore evident between Conscientiousness (ξ_1) and Integrity (η_1). H_{06}: γ11 = 0 can be rejected in favour of H_{a6}: γ11 > 0, which suggests that the proposed relationship between these two latent variables was supported.

It is also imperative to investigate the unstandardised beta (B) matrix which describes the relationships between the endogenous variables and reflects the slope of the

regression of η_i and η_j. The results presented in Table 4.34 can be used to assess the hypothesised relationships between the endogenous variables in the structural model. According to Diamantopoulos and Sigauw (2000), unstandardised B_{ij} estimates are also significant ($p < 0.05$) if $t > |1.96|$. A significant B estimate would entail that the related H_0-hypothesis will be rejected in favour of the relevant H_a-hypothesis.

Table 4.36

Unstandardised BETA (B) Matrix

	HONESTY	INTEGRITY
INTEGRITY	0.215	-
	(0.064)	
	3.345	
CWB	-0.254	-0.214
	(0.077)	(0.069)
	-3.288	-3.089

Table 4.36 represents the unstandardised BETA Matrix. The hypotheses relevant here are hypotheses 3, 4, and 5. The values in this matrix indicate that there is a significantly negative ($p < 0.05$) relationship between Ethical Integrity (η_1) and CWB (η_3) as the t-value (-3.089) is above the 1.96 value. Thus, null hypothesis 3 (H_{03}: $\beta_{31} = 0$) is therefore rejected in favour of alternative Hypothesis 3 (H_{a3}: $\beta_{31} > 0$).

From the B matrix it can also be concluded that Honesty (η_2) has a significantly negative effect on CWB (η_3). Null hypothesis 4 (H_{04}: $\beta_{32} = 0$) can be rejected as the t-value (-3.288) falls above below 1.96.

Null hypothesis 5 of the significantly positive relationship between Honesty (η_2) and Ethical Integrity (η_1) (H_{05}: $\beta_{12} = 0$), can also be rejected in favour of alternative hypothesis 5 (H_{a5}: $\beta_{12} > 0$). The null hypothesis is rejected because of the t-value (3.345) that falls above 1.96. The β_{12} path is thus significant.

4.14 Structural model modification indices

The modification indices are also investigated in order to determine the extent to which the structural model is successful in explaining the observed covariance's amongst the variables. According to Jöreskog and Sörbom (1996), a modification index (MI) indicates the minimum decrease in the model's chi-square value, if a previously fixed parameter is released and the model is re-estimated. This means that a modification index for a particular fixed parameter indicates that if this parameter were allowed to be freed in a subsequent model, then the chi-square goodness-of-fit value would be predicted to decrease by at least the value of the index. Large modification index values (> 6.64) indicate the parameters that could be set free and may in turn potentially improve the fit of the model (p < 0.01). However, one should take note of the fact that any adjustment to the model, as suggested by parameters with high MI values, should only be freed if it makes theoretical sense to do so (Kelloway, 1998).

The standardised expected changes are the expected values in the standardised solution if the parameters were unrestricted. In this study the proposed structural model seems to fit the data reasonably well. Inspection of the modification indices for the Beta matrix, as portrayed in Table 4.37, suggests that there are two additional paths between endogenous latent variables that would improve the fit of the proposed structural model. However, it was decided not to include these paths due to the fact that it did not make theoretical sense.

Table 4.37

Modification and standardised expected change calculated for the Beta matrix

Modification Indices for BETA			
	HONESTY	INTEGRITY	CWB
HONESTY	-	-	11.223
INTEGRITY	-	-	18.886
CWB	-	-	-
Standardized Expected Change for BETA			

	HONESTY	INTEGRITY	CWB
HONESTY	-	-	0.428
INTEGRITY	-	-	0.308
CWB	-	-	-

The LISREL output presented modification indices for Gamma. This indicates that one additional path between conscientiousness and CWB exist that would improve the fit of the proposed structural model. However, it was decided not to include this path due to the fact that it did not make theoretical sense.

4.15   Summary

The aim of this chapter was to convey the results attained by this study. The chapter commenced with an investigation and refinement of the measuring scales used. This was followed by examining the data, and correcting where possible. The statistical outcome of the hypothesised relationships was also determined. The next chapter will discuss in more detail the general conclusions drawn from the results. Recommendations for future research and possible managerial implications will be presented in conclusion.

CHAPTER 5
DISCUSSION OF RESULTS, CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

5.1   Introduction

After a detailed discussion of the constructs of conscientiousness, honesty, integrity, and counterproductive work behaviour in Chapter 2, Chapter 3 then described the techniques utilised for analysing the data and to yield the results. In Chapter 4 clarification of the results yielded by the data analysis process was offered. Chapter 4 therefore presented the findings, while Chapter 5 clarifies the value of the results and the effects thereof. Chapter 5 entails the focal goals of the research, a description of the findings yielded by the data analysis process, limitations of the study, suggestions for future research in this field, and the managerial implications of the findings of this study.

5.2   Purpose of the study/background

The initial purpose of the study was to identify the influence of conscientiousness, honesty, and ethical integrity on CWB. This study also aimed to develop an ethical integrity test and to present preliminary evidence of construct validity and reliability. The literature documents the devastating consequences of CWB to organisations and their constituents and therefore organisations have to investigate manners in which to prevent this phenomenon (Nasir & Bashir, 2012).

A possible prevention is the utilisation of ethical integrity testing as part of the selection process. Thereby unethical individuals are screened out of the application process and cannot enter the organisation. The Ethical Integrity Test is developed based on a moral perspective – therefore, items included tap into individual's ethical values and norms. Therefore, individuals who pass this screening test will exhibit socially acceptable ethical behaviours and will contribute to the organisation's effectiveness by refraining from engaging in CWB's. Thus, it was the purpose of this study to investigate the extent to which conscientiousness and honesty contribute to ethical integrity, and how ethical

integrity then affects CWB. Further to this, an Ethical Integrity Test is developed and preliminary evidence of construct validity and reliability is presented. Five substantive hypotheses were deduced from the literature study presented in Chapter 2, in order to empirically evaluate the postulated relationships. The results obtained in the data analysis process were then discussed in terms of these hypotheses in Chapter 4.

5.3 Summary of the findings

The objective of the present study was firstly to provide evidence of construct validity and internal reliability of the measurement scales used to assess the relationships which were hypothesised. Item analysis was performed on all the measures using the SPSS programme. The purpose of conducting item analysis was to detect and remove items which do not contribute to an internally consistent description of the latent variables measured by these scales. It was also very important to conduct dimensionality analysis on the newly developed Ethical Integrity Test. The purpose of the dimensionality analysis was to estimate how accurately each item measures the relevant latent variable it was created to measure. Exploratory Factor Analysis (EFA) was therefore performed to examine the uni-dimensionality assumption of the Ethical Integrity Test. Separate Confirmatory Factor Analyses were then performed in order to establish whether the individual measurement models of all the instruments, as well as the overall structural model, yielded acceptable fit to the data.

5.3.1 Conclusions regarding reliability analysis

Reliability analysis of all the measurement scales was performed in order to establish that the items comprising these instruments added to a consistent internal account of the relevant latent variable. Nunnally (1978) stated that instruments have to demonstrate modest reliability in order to be utilised to collect data with the purpose of testing hypotheses. A Cronbach's alpha (which indicates the reliability of the measure) higher than .90 is regarded as excellent, between .80 and .89 is regarded as good, and between .70 and .79 was regarded as acceptable, and reliability values of scales below .70 was regarded as eligible for removal of poor items (Pallant, 2007). Item-total

correlations with values exceeding 0.20 were also regarded as indications of internal consistency (Nunnally, 1978).

According to the guidelines mentioned above, the reliability analyses delivered acceptable results of all the measures. The final reliability analysis of the Ethical Integrity Test yielded excellent results for two subscales and good results for three. The total Ethical Integrity Test provided excellent reliability results of .971. Table 5.1 provides a summary of the final reliability results for each of the measuring scales as well as the Ethical Integrity Test's subscales. All the scales produced final reliability values that surpassed the recommended value of 0.70, except for the Interpersonal CWB which reached .696. The results also yielded Item-Total correlations which exceeded the cut-off value of 0.20 for all the scales.

The following items were removed in order to produce these results: one item in the Conscientiousness scale, four items in the Honesty-Humility scale, one item in the Behavioural Consistency scale, and one item in the Credibility scale. Thus, two items were deleted in the total Ethical Integrity Test. After the removal of these items the measurement scales did not raise any concerns. It was thus found that all the measurement instruments could be considered reliable for gathering information to test hypotheses.

Table 5.1

Reliability results for the measurement scales

Scale	Number of items	Item-Total correlations	Cronbach's alpha
Conscientiousness	15	.320 - .608	.823
Honesty-humility	12	.253 - .597	.779
Behavioural Consistency	9	.317 - .720	.837
Credibility	14	.242 - .761	.866
Frankness	14	.469 - .787	.912
Fairness	13	.377 - .668	.862
Righteousness	14	.412 - .768	.911

Ethical Integrity Test	64	.308 - .767	.971
Interpersonal CWB	7	.273 - .517	.696
Organisational CWB	12	.201 - .523	.761

5.3.2   Conclusions regarding construct validity of Ethical Integrity Test

The purpose of dimensionality analysis was to confirm the uni-dimensionality of the subscales of the Ethical Integrity Test, and if necessary, remove items with insufficient factor loadings. To examine this uni-dimensionality assumption, Exploratory Factor Analysis (EFA) was performed on the newly developed Ethical Integrity Test. It was found that all the measurement subscales utilised in the Ethical Integrity Test satisfied the uni-dimensionality assumption. All items comprising these subscales also displayed highly satisfactory factor loadings on the first factor. Item factor loadings larger than 0.50 indicates that these items do in fact reflect the designated factors they were intended to (Kinnear & Gray, 2004). However, for the purpose of this study, factor loadings of 0.30 were still being considered as acceptable. In all cases, the factor loadings for each item comprising the integrity dimensions achieved the > 0.30 level. This is an indication that each item successfully explains the total variance of scores on the variable concerned. Table 5.2 presents a summary of the final factor loadings obtained for each of the subscales of the EIT.

Table 5.2

Ethical Integrity Test factor loadings

Dimension	Number of items	Factor loading
Behavioural Consistency	8	.531 - .805
Credibility	11	.352 - .826
Frankness	12	.492 - .851
Fairness	11	.308 - .768
Righteousness	14	.433 - .799

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5.3.3   Conclusions regarding fit of measurement models

In order to establish how well the indicator variables operationalise the latent variables, analysis was performed on all four of the measurement models in order to determine fit to the data. Information gathered from the measuring instruments were evaluated utilising Structural Equation Modelling (SEM). Confirmatory Factor Analysis (CFA) was performed on each scale and subscale of the various measures in order to analyse the measurement model fit.

The initial results of the confirmatory factor analysis (CFA) were evaluated per scale in terms of the p-value Test of Close Fit, where $p > 0.05$ indicates good model fit; and the Root Mean Square Error of Approximation, where RMSEA < 0.08 indicates reasonably good model fit and RMSEA < 0.05 indicates a very good fit of the data (Diamantopoulos & Siguaw, 2000). If the original structure, including all subscale items, produced a poor fit with the data (in terms of the p-value Test of Close Fit < 0.05; RMSEA > 0.08), and certain items displayed insignificant completely standardised factor loadings (< 0.30), poor items were removed and a further CFA was performed on the data.

However, the modification indices of THETA-DELTA were evaluated when poor fit was still evident. Modification indices are indicators of fixed parameters that could be freed in order to improve the parsimonious fit of the model and decreasing of the chi-square fit statistic (Jöreskog & Sörbom, 1996). Where large modification indices (> 6.6349 at a significance level of 0.01) were found, they were set free in order to improve the fit of the model significantly ($p < 0.01$). More CFA's were executed on the refined scale and subscale items pending all items demonstrating satisfactory factor loadings and the measurement model indicated good fit. The following section presents a summary of the goodness-of-fit indices obtained from the confirmatory factor analyses performed on each of the measurement models obtained from the data of the total sample ($n = 318$). Four items were deleted in both the Conscientiousness scale and Honesty-Humility scale based on the CFA output and none items were deleted in the remaining scales. Therefore it can be accepted that the refined measures can be regarded as reliable for gathering data in order to test the relevant hypotheses.

Absolute and incremental fit measures

Based on large modification indices found, four items in the Conscientiousness scale were deleted. After the removal of the problematic items it was found that the refined structure of Conscientiousness presented a good fit with the data. However the χ^2/df ratio (1.9558) marginally missed the 2 - 5 range indicative of acceptable fit. The model managed to achieve good fit in terms of the p-value Test of Close Fit (0.301) and the RMSEA (0.0549). The null hypothesis of close fit was not rejected, indicating that the measurement model fits the data well and can reproduce the observed sample covariance matrix. The RMR of 0.0405 indicated good fit and the standardised RMR value was 0.05, providing evidence of a reasonable model fit. The Goodness of Fit Index (GFI) value for the measurement model was close to 1 and above 0.90. This indicated that good absolute fit had been achieved for the measurement model. When compared to a baseline model, Conscientiousness achieved NFI, NNFI, CFI, IFI and RFI indices above 0.90, which represented good fit.

Large modification indices led to a decision to delete four items from the Honesty-humility scale. The refined Honesty-humility scale presented satisfactory results in terms of the goodness-of-fit indices (See Table 4.27). In terms of the p-value Test of Close Fit (p > 0.05), the Honesty-humility scale obtained a value indicative of good fit (0.0823). The measurement model also obtained reasonable good fit in light of the RMSEA index (0.0696). The χ^2/df ratio, achieved the required 2 - 5 range indicative of good fit (2.5337). All the other absolute goodness-of-fit indices indicated that the Honesty-humility scale obtained good fit. The Honesty-humility scale was able to reject the null hypothesis of exact fit (H0: $\Sigma = \Sigma(\theta)$) and not reject the null hypothesis of close fit (H0: RMSEA ≤ 0.05). The measurement model also achieved NFI, NNFI, CFI, IFI and RFI indices above 0.90, which represents good fit.

The goodness-of-fit indices for the refined 56-item Ethical Integrity Test (EIT), as reported in Table 4.29, indicated that satisfactory fit had been achieved in terms of the p-value Test of Close Fit (0.100) and the RMSEA (0.0523). Consequently, the null

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hypothesis of exact fit was rejected (H0: Σ = Σ(θ)), and the null hypothesis of close fit was not rejected (H0: RMSEA ≤ 0.08). Unfortunately, the X^2/df ratio (1.8686) for the EIT failed to reach the 2 - 5 range. Another concern is that the GFI failed to exceed the 0.90 level required to indicate good fit. The RMR of 0.0199 indicated good fit and the standardised RMR value was 0.05, providing evidence of a reasonable model fit. In terms of the incremental fit measures, the measurement model obtained NFI, NNFI, CFI, IFI and RFI indices of above 0.90, which represents good fit.

In terms of the absolute fit indices of the Counterproductive work behaviour scale (CWB) as reported in Table 4.31, the $χ^2$/df ratio failed to reach the required 2 - 5 range indicative of acceptable fit (1.7776). In terms of the p-value Test of Close Fit, the CWB scale obtained a value indicative of good fit (p > 0.05). The null hypothesis of close fit is therefore not rejected. The RMSEA (0.0495) is also indicative of reasonable good fit. The RMR value of 0.0213 indicates good fit, but the Standardised RMR value of 0.0717 is above 0.05 which indicates poor fit. The GFI marginally failed to exceed 0.90, but still reached a satisfactory value close to 1 which indicates that the model comes close to reproducing the sample covariance matrix. The incremental fit indices exceeded the critical value of 0.90. These comparative indices therefore portray a positive picture of model fit.

5.3.4　　Evaluation of structural model

Once it was established that the overall measurement model fitted the data reasonably well (RMSEA = .04; Standardised RMR = .02; GFI = .96; NFI = .99) a CFA, using robust maximum likelihood and item parcelling, was completed to assess the structural model. This was done to investigate the goodness-of-fit between the structural model and the data. The data was also analysed to determine the significance of the hypothesised paths in the structural model.

The research objective was to analyse the relationships between honesty, conscientiousness, ethical integrity and CWB, as well as to validate an Ethical Integrity Test. It was decided to utilise the Structural Equation Modelling (SEM) as the statistical

technique. The goodness-of-fit indices for the structural model are presented in Table 4.32. Conclusions drawn regarding the overall structural model fit are presented in the following section.

Goodness-of-Fit Indices for the Structural Model

Concluding a detailed review of all the fit indices it was determined that the structural model fitted the data reasonably well. A summary of the most important fit indices is presented in Table 5.3. With regards to the results of the absolute fit measures, the Satorra-Bentler Scaled chi-square statistic (χ^2/df = 2.1742) for the structural model, suggested that the model did fit the data well as it fell in the 2 - 5 range indicative of good model fit. In light of the relative RMSEA index (0.0609), the structural model achieved good fit. Table 5.3 indicates that the obtained p-value (0.147) for the test of close fit (RMSEA < 0.05) supported the assumption of good fit, as a p-value > 0.05 is indicative that the model fits the data well. The null hypothesis of exact fit was rejected (H_0: $\Sigma = \Sigma(\theta)$), while the null hypothesis of close fit was not rejected (H0: RMSEA ≤ 0.05). The reported RMR (0.00938), standardised RMR (0.0489), and GFI (0.948) indicated good fit. With regard to the incremental fit measures it was found that, when compared to a baseline model, the structural model achieved NFI, NNFI, CFI, IFI and RFI indices that were > 0.90.

Table 5.3

Summary of goodness-of-fit indices for the structural model

Indices	Structural model
Absolute Fit measures	
Satorra-Bentler Scaled Chi-Square	84.795 (p <0.001)
χ^2/df (Degrees of freedom = 39)	2.1742
Root Mean Square Error of Approximation (RMSEA)	0.0609
P-Value for Test of Close Fit (RMSEA < 0.05)	0.147
Root Mean Square Residual (RMR)	0.00938
Standardized RMR	0.0489

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Goodness of Fit Index (GFI)	0.948
Incremental Fit Measures	
Normed Fit Index (NFI)	0.978
Non-Normed Fit Index (NNFI)	0.983
Comparative Fit Index (CFI)	0.988
Incremental Fit Index (IFI)	0.988
Relative Fit Index (RFI)	0.969

In order to warrant a comprehensive appraisal of the structural model, it was deemed imperative to consider the modification indices so as to estimate the success of the model in explaining the observed covariances amongst the latent variables. No additional paths between any latent variables could be theoretically justified nor could significantly improve the fit of the proposed structural model. Consequently, these results indicated that the structural model was successful in its attempt to explain the observed covariances amongst the apparent variables.

The Beta (B) and Gamma (Γ) matrices was examined in order to establish the significance of the theoretical linkages proposed by the structural model, as illustrated in Figure 3.1. By examining these results one can establish if the theoretical relationships determined during conceptualisation were ultimately supported by the data gathered. The interpretation was based on the proposed linkages between the various endogenous and exogenous variables. The following section provides a discussion regarding the interpretation of these results.

5.3.4.1   Gamma matrix

The unstandardised gamma matrix was analysed and reported in order to describe the relationships between the exogenous and endogenous variables and to evaluate the strength of the estimated path coefficients. The results are discussed in the following section.

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The relationship between conscientiousness and honesty-humility

A positive relationship between conscientiousness (ξ_1) and honesty-humility (η_2) was postulated. Results that were obtained through SEM statistical analysis presented support to confirm the relationship between these two constructs as the path was found to be significant in the structural model. This consequently led to the rejection of the null hypothesis. It can therefore be concluded that the positive relationship between conscientiousness and honesty-humility was confirmed through the statistical techniques utilised in the present study.

The support obtained in this study for the positive relationship between conscientiousness and honesty is also portrayed in the literature. Studies have confirmed the significant positive relationship between conscientiousness and honesty (Ashton et al., 2007; Lee and Ashton, 2004; Lee et al., 2005). Within the framework of the Big Five theory of personality, conscientiousness "reflects dependability; that is, being careful, thorough, responsible, organized, and planful," and it also "incorporates volitional variables, such as hardworking, achievement-oriented, and following norms and rules" (Barrick & Mount, 1991, p.4). Honesty on the other hand can be defined as the quality of being upright, fair, truthful, sincere and being free from deceit or fraud. Ahearne (2011) explains that honesty requires that one abide to all known truths and that one should even be truthful in ones thoughts. Rand (as cited in Becker, 1998) stated that honest individuals will refuse to accept the distortion of any facts. One can therefore assume that conscientious individuals will refrain from acting dishonestly, as this will defy the societal norms which they adhere to.

Horn et al. (2004) reported that conscientiousness, as measured by the NEO Five Factor Inventory personality test, more effectively predicted dishonesty compared to the Personnel Selection Inventory integrity test. They theorised that conscientiousness may be the common core in explaining the relationships between integrity and honesty. However, this was not supported by their finding as the dishonest behaviour in their study was not related to the stealing of an employer's property or cash – therefore the criterion was not viewed as dishonesty. This study aimed to position conscientiousness

as a necessary personality trait which determines honest behaviours. In the study by Horn et al. (2004) this was also postulated. Their study provides valuable information regarding the predictive validity of conscientiousness and how this affects honesty and integrity.

Lee and Ashton (2004) introduced the six-dimensional personality model, the HEXACO personality inventory. In their article they introduce the measure by stating the psychometric properties as well as the inter-correlations amongst the dimensions. They found that conscientiousness was significantly inter-correlated to honesty-humility. In their study Lee et al. (2005) utilised two different measures to operationalize the dimensions of the Five Factor Model. They utilised the Goldberg's (1999) International Personality Item Pool and the NEO Five-Factor Inventory (NEO-FFI). They reported significant inter-correlations between conscientiousness (International Personality Item Pool) and honesty-humility; as well as conscientiousness (NEO-FFI) and honesty-humility.

Becker (1998) explains that a conscientious individual is no less than cautious, accountable, and well-organised. Conscientiousness can be regarded as a principle which indicates the notion that mindfulness, accountability, and orderliness are socially acceptable and desirable styles of behaviour. This leads one to understand that conscientious individuals are rule and norm abiding by nature and will be inclined to act on principled beliefs and will therefore refrain from acting dishonestly, as this infringes upon socially acceptable norms. This study managed to support Becker's view on the importance of conscientiousness and how this relates to honesty of employees within the work environment.

The relationship between conscientiousness and ethical integrity
It was hypothesised that a statistically significant positive relationship exists between conscientiousness (ξ_1) and ethical integrity (η_1). In the present study support was found for a positive relationship between these two constructs. When the postulated structural model consisting of all the latent variables was subjected to SEM, this path was found to

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be significant in the model. This subsequently led to the rejection of the null hypothesis. Consequently, it could be concluded that the positive relationship between conscientiousness and ethical integrity was confirmed through the statistical techniques.

The positive relationship between conscientiousness and ethical integrity is highly reflected in the literature and this finding in the current study therefore supports various researchers' views on this relationship (Byle & Holtgraves, 2008; Horn et al., 2004; Lee et al., 2005; Marcus et al., 2007; Marcus et al., 2006; Wanek et al., 2003). Hogan and Ones (1997) investigated the utilisation of conscientiousness and integrity measures in applied psychology. They stated that there are two main reasons why the personality dimension, conscientiousness, steered the revitalisation of the measurement of personality in applied psychology in the early 1990's. Firstly, within an organisation the absence of conscientiousness amongst employees have detrimental consequences. Employees who are conscientious display good organisational citizenship behaviours; whereas delinquent employees do not engage in productive work behaviours and do not contribute to the effectiveness of the company. Employers plead the psychology community to develop measures of honesty and integrity in order to address this problem.

Ones (1993) conducted the most comprehensive evaluation of personality instruments, conscientiousness measures, and integrity tests. Within this study she was able to present the most extensive research on construct validity of conscientiousness measures up until that point in time. She found that the majority of integrity tests are utilised in pre-employment and measure characteristics such as responsibility, reliability, attitude towards violent behaviour, ethics in work environment, and moral reasoning. Based on these descriptions one understands that conscientiousness is the common construct underlying integrity tests. She found that conscientiousness, in terms of the Big Five personality model, is strongly correlated with integrity tests.

Wanek et al. (2003) investigated the similarities and differences between seven integrity tests: London House Personnel Selection Inventory-7ST, the Reid Report, the Stanton

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Survey, Employee Reliability Inventory, the Personnel Reaction Blank, Personnel Decisions, Inc.'s Employment Inventory, and the Inwald Personality Inventory. They created thematic composites of the integrity test items through multiple steps. They concluded with 23 distinct thematic composites. The authors then examined the relationships amongst the 23 thematic integrity item composites and integrity-scale scores; they also examined the associations between the four main constituents that lie beneath the 23 composites and integrity scale scores. Their findings support these of Ones (as cited in Hogan & Ones, 1997) and Hogan and Brinkmeyer (1997) that integrity tests tap into conscientiousness.

The finding in this study was an important contribution, as the results clearly support the notion that conscientiousness is an important predisposition which positively influences ethical integrity. A possible reason for this conclusion is that conscientiousness is strongly related to the constructs that pre-employment integrity tests are designed to measure. Conscientious individuals are considered as dependable, responsible, thorough, hard-working, and careful and it is very clear that such individuals will be good corporate citizens and will add to the economic well-being of the organisation by refraining from acting unethically (Murphy & Lee, 1994).

5.3.4.2   Beta matrix

The unstandardised beta (B) matrix was examined and reported in order to define the relations between the endogenous variables. The B matrix reflects the slope of the regression of ηi and ηj and the results are discussed in the following section.

The relationship between ethical integrity and CWB
It was hypothesised that a significantly negative relationship exists between ethical integrity (η_1) and counterproductive work behaviour (η_3). This hypothesis was corroborated, as the results indicated a strong negative and significant relationship between the two variables. This finding suggests that an individual with integrity will avoid engaging in counterproductive work behaviours. This result was confirmed by

various studies in the literature (Ones et al., 1993; Ones & Viswesvaran, 2001; Van Iddekinge et al. 2012).

It is well known that integrity tests validly predict numerous job-related criteria. Ones et al. (1993) conducted one of the largest meta-analyses on instruments used in personnel selection, including integrity tests. Their meta-analysis revealed significant correlations between integrity tests and measures of counterproductive work behaviour. Van Iddekinge et al. (2012) recognised that researchers have stated their uneasiness regarding criterion-related validity results of integrity tests due to the apparent absence of procedural thoroughness within the literature. They responded by conducted a meta-analysis on 104 studies which were authored by test publishers and non-publishers who act in accordance to professional standards for test validation. Their meta-analysis supported the results obtained from various other researchers over the past decades; they also found a significant negative relationship between integrity and CWB.

Marcus et al. (2007) investigated which personality constructs contributes to the criterion-related validity of integrity tests as well as how this influences CWB. In order to understand the constructs assessed by integrity tests the authors' approach was inductive of nature and they accordingly evaluated the scores of the tests. They were therefor not interested in the meaning of integrity – their objective was to comprehend the meaning of integrity test scores and their behavioural correlates. The authors focused on CWB as this is the main criterion which integrity tests are intended to forecast. In their analysis they found strong negative correlations between CWB and four different integrity tests. The results in this study support the research findings by various authors in this regard. It can therefore be concluded that employees with ethical integrity will refrain from engaging in CWB.

The relationship between Honesty-humility and CWB
It was further postulated that a statistically significant negative relationship exists between Honesty-humility (η_2) and CWB (η_3). Support was found in the present study for a negative relationship between these two constructs. Through SEM, this path was

found to be significant in the model. This subsequently led to the rejection of the null hypothesis. Consequently, it can be concluded that the negative relationship between Honesty-humility and CWB was confirmed through the study.

Honesty-humility has been found to be inversely correlated with counterproductive behaviours (Johnson, Rowatt, & Petrini, 2011; O'Neill et al., 2011). The Honesty–Humility HEXACO dimension has correlated negatively with psychopathy and Machiavellianism (Ashton & Lee, 2008; Lee & Ashton, 2005; Lee, Ogunforwora, & Ashton, 2005). Honesty–Humility has also proven to predict self and other-reported greediness, ethical defilements, and delinquency (Ashton & Lee, 2008). Honesty–Humility has predicted lower levels of actual CWB within the workplace (Marcus et al., 2007), as well as workplace crime (Lee & Ashton, 2005). These results have been found in persons of various nationalities, including Germans, Canadians, Americans, and Dutch (Lee & Ashton, 2005; Marcus et al., 2007). Therefore, the negative significant relationship found in this study between honesty-humility and CWB, contributes to similar findings by various researchers.

The relationship between Honesty-humility and Ethical Integrity
A significantly positive relationship was hypothesised to exist between Honesty-humility ($\eta2$) and ethical integrity ($\eta1$). Support was found in the present study for a positive relationship between these two constructs. Through SEM, this path was found to be significant in the model. This subsequently led to the rejection of the null hypothesis. Consequently, it can be concluded that the positive relationship between Honesty-humility and Ethical Integrity was confirmed through the study.

Consistent with this result, various researchers found that Honesty-Humility correlated significantly with integrity tests (Lee et al., 2005; Lee et al. 2008; Marcus et al., 2007). By definition, employees with high integrity are more rational, honest, independent, and just than employees with less integrity. Rand (as cited in Becker, 1998) explained that this is true because a person of integrity understands that acting on principles of rationality, honesty, and so on leads to greater self-esteem and, hence, to his or her

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long-term survival and well-being. Lee et al. (2005) found that the HEXACO model substantially outperformed the Five Factor Model in predicting integrity; this is because of the addition of the Honesty-Humility dimension. Therefore, such employees do not steal organisational resources, treat others unfairly or deceive themselves or others.

Being honesty towards oneself is an important prerequisite in order to be true to others. This implies to stay true to one's word and not to falsify oneself (Leroy et al., 2012). The concept of being true to oneself has manifested itself in of the form of authentic leadership, which emphases conduct which resembles leaders' self-awareness and regulation accordingly (Avolio and Gardner, 2005). Similarly, the concept of acting in accordance to one's commitments when interacting with others has manifested itself as behavioural integrity, the perceived alignment between an actor's words and actions (Simons, 2002). Badaracco and Ellsworth (as cited in Worden, 2003) stated that honesty requires a moral comprehension which is integral in integrity. Several scholars exclaim that honesty is required for integrity (Worden, 2003). In this study it was confirmed that an honest individual will also have ethical integrity.

5.4   Limitations of this study and suggestions for future research

This study suggests valuable insight into the importance of the following constructs: counterproductive work behaviour, integrity, honesty, and conscientiousness, however some limitations need to be considered in order to provide information as to the manner in which future research can be improved and put forward. The first limitation of this study is with regards to the confidentiality of the survey. Conscientiousness, honesty, integrity, and CWB are sensitive constructs in the organisational context. Although the investigation was seen as a low risk study, which means that respondents who participated in this study were exposed to minimum risks, it was discovered in some cases that the variance in the data was limited. One possible explanation for this phenomenon might be that participants experienced anxiety concerning the confidentiality of their responses. As part of the survey process, participants were informed initially that their direct results would not be available and that it would not be possible to trace responses to particular individuals. However, participants may have

been inclined to provide the most positive responses on the survey. Consequently, the social desirability issue could have influenced the results. Future research ought to emphasise using measures that would safeguard that all participants felt comfortable and confident about divulging confidential information.

Secondly, this study made use of a single source. This study investigated employee's perceptions of their behaviours and personality, therefore this study did not consider other sources of information. Therefore, multiple sources of data could be considered in future studies. This could include leader assessments of follower's personality and counterproductive work behaviours. As a result, peer ratings could also be considered (Kalshoven & Boon, 2012). According to Avey et al. (2012), single source bias can artificially increase the estimated beta weights.

This study is an attempt to understand the interrelations between conscientiousness, honesty, integrity, and CWB. It is established that these constructs are extensively studied and defined in literature; however it is impractical to establish the extent of their influence. This is the third limitation of the study. Further studies may consider the inclusion of other mediating and moderating constructs in order to gain a more comprehensive understanding of the relationships between conscientiousness, honesty, integrity, and CWB (e.g. authenticity, agreeableness, job satisfaction, procedural justice, abuse, organisational citizenship behaviour).

A fourth limitation is with regards to the sampling method. The non-probability sampling procedure that was used may have limited the capacity to generalise the results of the study. Due to the online nature of the survey, the link was sent out by a contact person in a specific organisation to various employees. The researcher was therefore not in control of how many employees the link was sent to; therefore the participation rate could not be accurately calculated. This resulted in not being able to evaluate the impact of non-response bias. In future studies it is advised to evade utilising a convenient sample, and rather to utilise a sample which is chosen based on greater

probability and chance. By doing so one ensures that the sample is more characteristic of the general organisational population.

Another limitation of the study is the race distribution of the sample. This study aims to provide some provisional evidence for the validity and reliability of a newly created Ethical Integrity Test. The current sample does not represent the demographic distribution of the country. This is due to the fact that the sampling was conducted in the Western Cape. In this province the race distribution is not similar to that of the country. It is therefore recommended that future studies conduct sampling in provinces where the race distribution is more similar to that of the country in order to ultimately have a representative sample.

The last limitation of this study concerns the statistical procedure that was followed. Numerous recommendations regarding the methodology that should be used in future studies are conceivable. In this study, factor analysis was performed on the entire data set. Ideally, a random split of the sample from the start would have enabled the researcher to subject the data to a second factor analysis. It is recommended that, in order to cross validate the results, future studies should empirically test the structural model on another sample to determine whether the structural model also fits a second set of the data. It is also suggested that a longitudinal study of the proposed conceptual model should be embarked on to facilitate more convincing causal inferences.

5.5 Managerial implications

This study emerged from the ever increasing interest in CWB in the organisational setting. It is extensively proven that CWB holds devastating consequences for organisations and their constituents (Peng, 2012). This begs the necessity to further understand what causes CWB within the organisational context from a personality perspective and how organisations could possibly safeguard against such individuals who could potentially engage in CWB.

The present framework of the relationships between conscientiousness, honesty-humility, ethical integrity, and CWB is useful in identifying leadership practices which could protect the organisation from selecting, promoting, nor retaining unethical individuals who will potentially engage in CWB. This study found that ethical integrity is considered a predisposition that inhibits employees from engaging in CWB. Integrity is a complex and very important concept in organisational psychology. This study focuses on ethical integrity, which is a distinct concept as highlighted in previous chapters. Ethical integrity necessitates morality in one's decision-making and behaviours. Employees who possess ethical integrity act upon universally accepted values, norms, and principles and will therefore refrain from engaging in CWB.

With such knowledge Human Resource practitioners could implement a variety of organisational development interventions to stress management's commitment towards ethical behaviour and zero tolerance for unethical behaviours of all employees. Such possible interventions could be targeted to current and potential employees. For potential employees organisations may consider the addition of integrity testing as part of their selection battery of all employees, managers and non-managers, in order to screen out such individuals who are inclined to act dishonestly. Organisations may further consider using multiple levels of selection methods for the management population which could include integrity tests, tests of ethical values, and measuring general compassion. By incorporating integrity testing, in-basket activities, and predetermined interview questions which emphasises ethical decision making, could increase the probability that ethical employees will be selected into an organisation (Mayer et al., 2009).

In terms of current employees, Brown et al. (2005) explained the importance of moral management. Organisations need moral people who are in management positions who are capable of implementing their moral values in the development of policies, practices and codes of conduct and who visibly drive an ethical vision. Potential interventions aimed for management may include training on ethical role modelling, creating performance measures which incentivise ethical behaviour, training on ethical conflict

resolution strategies, and training on ethical conduct in the business environment (Yukl, 2010).

In the light of the results of this study, ethical integrity of employees is proven to be influenced by the degree of their conscientiousness. Conscientious individuals tend to be orderly, work hard at achieving their goals, strive to act as others expects them to, refrain from giving in to temptations, and are loyal and obedient to norms and rules (Fayard et al., 2012). These attributes will make an individual more inclined to act with ethical integrity. This study presents an explanation of these dimensions and the understanding thereof could assist management in developing a variety of organisational development programmes in order to attract and retain such individuals. Such interventions could be targeted at potential employees in the form of the addition of a personality questionnaire into the selection battery which taps into this personality construct. A possible personality inventory could include the HEXACO as well as the Occupational Personality Questionnaire. This will ensure that organisations identify individuals who will potentially be inclined to act with ethical integrity.

As confirmed through this study, employees who are honest are likely to display ethical integrity in the work environment. Becker (1998) stated that an honest individual will consider facts of reality as what they are exclusively. They will not manipulate nor falsify any facts in any manner. Therefore, such employees will also display ethical integrity, as honesty is an essential element in integrity. Managers should therefore put various mechanisms in place to promote honesty in the work environment. A whistle blowing policy could promote the sharing of important information and give employees the opportunity to share their honesty in a safe manner. Line managers should attend honesty awareness training in order to assist them to consistently display honesty in their activities so as to role model the desired behaviours.

Weaver, Treviño and Cochran (as cited in Mayer et al., 2009) explained that an opportunity for organisations is to invest in ethics training programs to communicate to all employees how to advance ethical behaviour. Organisations often concentrate

training efforts on non-management employees and focus a reduced amount of attention on training managers at different levels of an organisation. Training topics may comprise subjects such as the importance of ethics, rewarding and supporting employees who behave in an ethical manner, and acting as ethical role models (Mayer et al., 2009).

5.6   Conclusion

Chapter four presented the results from the statistical analyses as obtained from the sample. In Chapter five these results were interpreted and potential explanations were offered. Significant positive relationships were found to exist between conscientiousness and honesty-humility, conscientiousness and ethical integrity, and honesty-humility and ethical integrity. Significant negative relationships were found to exist between ethical integrity and CWB, and honesty-humility and CWB. These results add insightful learning to the current literature by providing insights into the relationships between these relevant constructs. Practically, this offers valuable information regarding managerial recommendations as well as some potential interventions in order to decrease CWB in the work environment.

Counterproductive work behaviour is a common problem faced by almost all organisations, particularly in under-developed and developing countries where literacy rate is low and poverty is high (Nasir & Bashir, 2012). CWB has become a hot topic in management and organisational research in recent years because it has enormous negative effects, such as reducing productivity, destroying organisational rules, and violating organisational members' interests (Peng, 2012). Large international companies have gone under because of unethical practices in the leading and managing of organisations. South Africa is also victim to leaders failing neither to understand nor to recognise the importance of ethical leadership and not complying with ethical codes of conduct in their business practices (Caldwin & Hays, 2011). Given the devastating losses in terms of revenue, productivity and resources each year as a result of CWB, maximizing the prediction of workplace deviance is an important priority for research and practice (O'Neill & Hastings, 2011). Companies are becoming more aware of the

critical role of ethical conduct in their business practices as this adds to the ability of the organisation to meet the challenging and erratic work environment. Therefore, it is important for organisations to know and understand what personal factors contribute to the occurrence of CWB and how they can avoid this phenomenon through proper screening of potential future talent.

As substantiated in this study, conscientious and honest individuals will most probably display ethical integrity and will thereby refrain from engaging in CWB. Organisations therefore can gain advantages in utilising personality and integrity testing within a selection process in order to successfully screen out potentially unethical individuals and will thereby avoid the negative effects of CWB. Management has to take the full responsibility for recruiting, retaining and rewarding ethical employees and to ensure that ethical leaders are groomed and developed to display moral awareness through the presence of moral business practices and business systems. Organisations can benefit from introducing some of the interventions mentioned in order to address the ethical awareness within the company and to reinforce their commitment to ethical conduct.

REFERENCE LIST

Ahearne, John F. (2011). Honesty. *American Scientist*, 99, 116-119.

Appelbaum, S.H. & Shapiro, B.T. (2006). Diagnosis and remedies for deviant workplace behaviours. *The Journal of American Academy of Business*, 9(2), 14-20.

Aquino, K. & Reed, A. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology*, 83, 1423-1440.

Ash, P. (1974). Attitudes of convicted felons toward theft. *Criminal Justice and Behavior*, 7(1), 21-29.

Ash, P. (1991). The construct of employee theft proneness. Park Ridge, IL: SRA/London House.

Ashforth, B. E., Gioia, D. A., Robinson, S. L., & Treviño, L. K. (2008). Reviewing organizational corruption. *Academy of Management Review*, 33(3), 670–684.

Ashton, M.C. & Lee, K. (2008). An Investigation of Personality Types within the HEXACO Personality Framework. *Journal of Individual Differences*, 30, 181–187.

Ashton, M.C., Lee, K., Marcus, B., De Vries, R.E. (2007). German lexical personality factors: Relations with the HEXACO model. *European Journal of Personality*, 21 (1), 23-43.

Ashton, M.C., Perugini, M., De Vries, R.E., Boies, K., Lee, K., Szarota, P., Di Blas, L. & De Raad, B. (2004). A Six-Factor Structure of Personality-Descriptive Adjectives: Solutions From Psycholexical Studies in Seven Languages. *Journal of Personality and Social Psychology,* 86 (2), 356-366.

Audi, R., & Murphy, P. E. (2006). The many faces of integrity. *Business Ethics Quarterly*, 16, 3−21.

Avey, J.B., Wernsing, T.S., & Palanski, M.E. (2012). Exploring the process of ethical leadership: The mediating role of employee voice and psychological ownership. *Journal of Business Ethics*, 107, 21-34.

Avolio, B. J., & Gardner, W. L. (2005). Authentic leadership development: Getting to the root of positive forms of leadership. *The Leadership Quarterly*, 16, 315–338.

Babbie, E. & Mouton J. (2001). *The practice of social research*. Cape Town: Oxford University Press.

Barnard, A., Schurink, W., & De Beer, M. (2008). A Conceptual Framework of Integrity. *South African Journal of Industrial Psychology*, 40-49.

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44: 1-26.

Bauman, D.C. (2013). Leadership and the three faces of integrity. *The Leadership Quarterly*, 24, 414–426.

Becker, G.K. (2009). Integrity as a moral ideal and business benchmark. *Journal of International Business Ethics*, 2(2), 70-88.

Becker, T.E. (1998). Integrity in organisations: Beyond honesty and conscientiousness. *Academy of Management Review*, 23, 154-161.

Beddoes-Jones, F. (2012). Authentic Leadership: the key to building Trust. *People Management*, Aug, 44-47.

Bennett, R.J. & Robinson, S.L. (2000). Development of a measure of workplace deviance. *Journal of Applied Psychology*, 85, 349-360.

Bernardin, H.J., & Cooke, D.K. (1993). Validity of an Honesty Test in Predicting Theft among Convenience Store Employees. *The Academy of Management Journal*, 36, 1097-1108

Berry, C. M., Sackett, P. R. and Wiemann, S. (2007), A review of recent developments in integrity test research. *Personnel Psychology*, 60, 271–301.

Blonigen, D. M., Patrick, C. J., Gasperi, M., Steffen, B., Ones, D. S., Arvey, R. D., Nascimento, E. (2011). Delineating the construct network of the Personnel Reaction Blank: Associations with externalizing tendencies and normal personality. *Psychological Assessment*, 23, 18–30.

Boye, M.W. and Wasserman, A. R. (1996). Predicting Counterproductivity among Drug Store Applicants. *Journal of Business and Psychology*, 10 (3), 337-349.

Brenkert, G.G. (2004). The need for corporate integrity. In *Corporate integrity and accountability* (ed.). Sage: Thousand Oaks.

Brooks, P. and Arnold, D. (1988) *Reid Report Test-Retest Reliability* (Research Memorandum No. 27). Chicago: Reid Psychological Systems.

Brown, M. E., & Treviño, L. K. (2006). Ethical leadership: A review and future directions. *The Leadership Quarterly*, 17, 595-616.

Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational behavior and human decision processes*, 97(2), 117-134.

Butler, J. K. (1991). Toward Understanding and Measuring Conditions of Trust. *Journal of Management*, 17, 643-663.

Butler, J. K., & Cantrell, R. S. (1984). A behavioral decision theory approach to modeling dyadic trust in superiors and subordinates. *Psychological Reports*, 55, 19-28.

Byle, K.A. and Holtgraves, T.M. (2008). Integrity Testing, Personality, and Design: Interpreting the Personnel Reaction Blank. *Journal of business and psychology*, 22 (4), 287-295.

Byrne, B.M. (1998). *Structural Equation Modeling with LISREL, PRELIS and SIMPLIS: Basic Concepts, Applications, and Programming*. New Jersey: Lawrence Erlbaum.

Caldwin, C., & Hays, L.A. (2011). Leadership, trustworthiness, and the mediating lens. *Journal of Management Development*, 26(3), 261-281.

Camara, W.J. and Schneider, D.L. (1994). Integrity Tests: Facts and Unresolved Issues. *American Psychologist*, 49 (2), 112-119.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioural Research*, 1, 245–276.

Chernyshenko, O. S. (2003). Applications of ideal point approaches to scale construction and scoring in personality measurement: The development of a six-faceted measure of conscientiousness. *Dissertation Abstracts International: Section B. Sciences and Engineering*, 63, 5556.

Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO Personality Inventory–Revised (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) Professional Manual.* Odessa, FL: Psychological Assessment Resources.

Craig, S., & Gustafson, S. (1998). Perceived leader integrity scale: An instrument for assessing employee perceptions of integrity. *Leadership Quarterly*, 9(2) , 127-145.

Cunningham, M.R. (1989). Test-taking motivations and outcomes on standardized measure of on-the-job integrity. *Journal of Business and Psychology*, 4(1), 119-127.

Cunningham, M.R., & Ash, P. (1988). The Structure of Honesty: Factor Analysis of the Reid Report. *Journal of Business and Psychology*, 3, 54-66.

De Goede, J. (2004). *An investigation into the internal structure of the Learning Potential construct as measured by the APIL-B*. Unpublished Master's dissertation, University of Stellenbosch: Cape Town.p

Diamantopoulos, A. & Siguaw, J.A. (2000). *Introducing LISREL*. London: Sage Publications.

Du Toit, M. & Du Toit, S.H.C. (2001). *Interactive LISREL user's guide*. Lincolnwood, IL: Scientific Software International.

Fayard, J.V., Roberts, B.W., Robins, & R.W., Watson, D. (2012). Uncovering the Affective Core of Conscientiousness: The Role of Self-Conscious Emotions. *Journal of Personality*, 80(1), 1-32.

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage Publications.

Fine, S., Horowitz, I., Weigler, H., Basis, L. (2010). Is good character good enough? The effects of situational variables on the relationship between integrity and counterproductive work behaviors. *Human Resource Management Review*, 20, 73–84.

Fortmann, K., Leslie, C., & Cunningham, M. (2002). Cross-Cultural Comparisons of the Reid Integrity Scale in Latin America and South Africa. *International journal of selection and assessment*, 10, 98-108.

Frost, A. G., & Rafilson, F. M. (1989). Overt integrity tests versus personality-based measures of delinquency: An empirical comparison. *Journal of Business and Psychology,* 3, 269–277.

Gough, H. G. (1972). *Manual for the personnel reaction blank*. Palo Alto, CA: Consulting Psychologists Press.

Gruys, M.L. (2000). *The dimensionality of deviant employee behavior in the workplace.* Unpublished doctoral thesis, University of Minnesota, Minnesota.

Gruys, M.L. & Sackett, P.R. (2003). Investigating the Dimensionality of Counterproductive Work Behavior. *International Journal of Selection and Assessment*, 11(1), 30-42.

Ho, V.T. (2012). Interpersonal Counterproductive Work Behaviors: Distinguishing Between Person-Focused Versus Task-Focused Behaviors and Their Antecedents. *Journal of Business Psychology*, 27, 467–482.

Hogan, J., & Brinkmeyer, K. (1997). Bridging the gap between overt and personality-based integrity tests. *Personnel Psychology*, 50(3), 587-599.

Hogan, J., & Ones, D. (1997). Conscientiousness and integrity at work. *Handbook of personality psychology*, 32, 849-870.

Hollinger, R. C., & Clark, J. P. (1982). Formal and informal social controls of employee deviance. *Sociological Quarterly*, 23, 333– 343.

Horn, J., Nelson, C.E., and Brannick, M.T. (2004). Integrity, Conscientiousness, and Honesty. *Psychological Reports*, 95, 27-38.

Hunter, WFJR. (2014). *The role of integrity and personality in counterproductive work behaviour*. Doctoral Thesis, Stellenbosch: Stellenbosch University.

Huysamen, G.K. (1980). *Psychological test theory*. Durbanville: Uitgewery Boschendal.

Jackson, J.J., Walton, K.E., Harms, P.D., Bogg, T., Wood, D., Lodi-Smith, J., Edmonds, G.W., & Roberts, B.W. (2009). Not all Conscientiousness Scales Change Alike: A Multimethod, Multisample Study of Age Differences in the Facets of Conscientiousness. *Journal of Personality and Social Psychology*, 96(2), 446-459.

Johnson, M.K., Rowatt, W.C., and Petrini, L. (2011). A new trait on the market: Honesty–Humility as a unique predictor of job performance ratings. *Personality and Individual Differences*, 50, 857–862

Jöreskog, K.G., & Sörbom, D. (1993). *LISREL 8: Structural Equation modeling with the SIMPLIS command language*. United States of America: Scientific Software International, Inc.

Jöreskog, K.G., & Sörbom, D. (1996). *LISREL 8: User's reference guide*. Chicago: Scientific Software International.

Kaiser, H. (1961). A note on Guttman's lower bound for the number of common factors. *Multivariate Behavioural Research*, 1, 249–276.

Kalshoven, K., & Boon, C.T. (2012). Ethical leadership, employee well-being, and helping: The moderating role of human resource management. *Journal of Personnel Psychology*, 11(1), 60-68.

Kalshoven, K., Den Hartog, D. N., & De Hoogh, A. H. (2011). Ethical leadership at work questionnaire (ELW): Development and validation of a multidimensional measure. *The Leadership Quarterly*, 22(1), 51-69.

Kelloway, E.K. (1998). *Using LISREL for structural equation modeling: A researcher's guide*. United States of America: SAGE.

Kelloway, E.K., Francis, L., Prosser, M. and Cameron, J.E. (2010). Counterproductive work behavior as protest. *Human Resource Management Review*, 20, 18–25.

Kerlinger, F.N., & Lee, H.B. (2000). *Foundations of behavioural Research* (4th ed.). USA: Fort Worth.

Kinnear, P.R., & Gray, C.D. (2004). *SPSS 12 made simple*. New York: Psychology Press.

Kline, R. B. (2011). *Principles and practice of structural equation modelling* (3rd ed.). New York: The Guilford Press.

Koehn, D. (2005). Integrity as a business asset. *Journal of Business Ethics*, 58, 125-136.

Lapidot, Y., Kark, R. and Shamir, B. (2007). The impact of situational vulnerability on the development and erosion of followers' trust in their leader. *The Leadership Quarterly*, 18 (1), 16-34.

Lee, K. & Ashton, M.C. (2004). Psychometric properties of the HEXAGO Personality Inventory. *Multivariate Behavioural Research*, 39, 329-358.

Lee, K. & Ashton, M.C. (2005). Honesty-Humility, the Big Five, and the Five-Factor Model. *Journal of Personality*, 73 (5), 1321-1354.

Lee, K. & Ashton, M.C. (2006). Further Assessment of the HEXACO Personality Inventory: Two New Facet Scales and an Observer Report Form. *Psychological Assessment*, 18(2), 182-191.

Lee, K., Ashton, M.C., de Vries, R.E. (2005). Predicting workplace delinquency and integrity with the HEXAGO and five-factor models of personality structure. *Human Performance*, 18, 179-197.

Lee, K., Ashton, M.C., Morrison, D.L., Cordery, J., Dunlop, P.D. (2008). Predicting integrity with the HEXAGO personality model: Use of self- and observer reports. *Journal of Occupational and Organisational Psychology*, 81, 147-167.

Lee, K., Ashton, M.C., Shin, K.H. (2005). Personality correlates of workplace anti-social behaviour. *Applied Psychology: An International Review*, 54, 81-98.

Lee, K., Ogunfowora, B., & Ashton, M. C. (2005). Personality traits beyond the Big Five: Are they within the HEXACO space? *Journal of Personality*, 73, 1437–1463.

Lennick, D. & Kiel, F. (2005). *Moral intelligence*. Upper Saddle River, NJ: Wharton School.

Leroy, H., Palanski, M.E., & Simons, T. (2012). Authentic Leadership and Behavioral Integrity as Drivers of Follower Commitment and Performance. *Journal of Business Ethics*, 107, 255-264.

MacCallum, R.C., Browne, M.B., & Sugawara, H.M. (1996). Power analysis and determination of sampling size for covariance structure modeling. *Psychological Methods*, 1(2), 130-149.

Marcus, B., Funke, U. & Schuler H. (1997). Integrity tests als spezielle Gruppe eignungsdiagnostischer Verfahren: Literaturüberblick und metaanalytische Befunde zur Konstruktvalidität [Integrity tests as a specific group of instruments in personnel selection: A literature review and meta-analytic findings on construct validity]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 41, 2-15.

Marcus, B., Höft, S. & Riediger, M. (2006). Integrity tests and the Five-factor model of personality: a review and empirical test of two alternative positions. *International Journal of Selection and Assessment*, 14, 113-130.

Marcus, B., Lee, K. and Ashton, M.C. (2007). Personality dimensions explaining relationships between integrity tests and counterproductive behaviour: Big Five, or one in addition? *Personnel Psychology*, 60, 1-34.

Martin, E.M., Brock, M.E., Buckley, M.R., & Ketchen (Jr), D.J. (2010). Time banditry: Examining the purloining of time in organizations. *Human Resource Management Review*, 20, 26-34.

Mason, M. (2001). The ethics of integrity: Educational values beyond postmodern ethics. *Journal of Philosophy of Education*, 35(1), 47-69.

Mastilak, C, Matuszewski, L., Miller, F., & Woods, A. (2011). Designing Honesty into your organisation. *Strategic Finance*, 93, p. 35-40.

Mayer, D.M., Aquino, K., Greenbaum, R.L., & Kuenzi, M. (2012). Who displays ethical leadership, and why does it matter? An examination of antecedents and consequences of ethical leadership. *Academy of Management Journal*, 55 (1), 151-171.

Mayer, R. C, J. H. Davis and F. D. Schoorman (1995). An Integrative Model of Organizational Trust. *Academy of Management Review*, 20(3), 709-734.

Mayer, D. M., Kuenzi, M., Greenbaum, R., Bardes, M., & Salvador, R. (2009). How low does ethical leadership flow? Test of a trickle-down model. *Organisational Behavior and Human Decision Processes*, 108, 1–13.

McCrae, R.R., Kurtz, J.E., Yamagata, S., and Terracciano, A. (2011). Internal Consistency, Retest Reliability, and their Implications For Personality Scale Validity. *Personality and Social Psychology Review*, 15(1), 28-50.

McFall, L. (1987). Integrity. *Ethics*, 98, 5–20.

McFarland, L.A. and Ryan, A. (2006). Toward an Integrated Model of Applicant Faking Behavior. *Journal of Applied Social Psychology*, 36 (4), 979-1016.

McLane, C.N., & Walmsley, P.T. (2010). Reducing counterproductive work behaviour through employee selection. Human Resource Management Review, 20, 62-72.

Miller, M.L. & Schlenker, B.R. (2011). Integrity and Identity: Moral identity differences and preferred interpersonal reactions. *European Journal of Personality*, 25, 2-15.

Moberg, D.J. (1997). Trustworthiness and Conscientiousness as Managerial Virtues. *Business and Professional Ethics Journal*, 16, 171-194.

Mount, M., Ilies, R. & Johnson, E. (2006). Relationship of personality traits and counterproductive work behaviours: the mediating effects of job satisfaction. *Personnel Psychology*, 59, 591-622.

Murphy, K.R. (1993). *Honesty in the workplace*. Belmont, CA: Brooks/Cole.

Murphy, K & Lee, S. (1994). Personality Variables Related to Integrity Test Scores: The Role of Conscientiousness. *Journal of Business and Psychology*, 8, 413-424

Nasir, M. & Bashir, A. (2012). Examining workplace deviance in public sector organisations of Pakistan. *International Journal of Social Economics*, 39 (4), 240-253.

Neider, L. L., & Schriesheim, C. A. (2011). The authentic leadership inventory (ALI): Development and empirical tests. *The Leadership Quarterly*, 22(6), 1146-1164.

Nunnally, J.C. (1967). *Psychometric theory*. New York: McGraw-Hill.

Nunnally, J.C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

O'Neil, T.O. and Hastings, S.E. (2011). Explaining workplace deviance behavior with more than just the "Big Five". *Personality and Individual Differences*, 50, 268–273

O'Neil, T.A., Lewis, R.J., Carswell, J.J. (2011). Employee personality, justice perceptions, and the prediction of workplace deviance. *Personality and Individual Differences*, 51, 595–600.

Ones, D. S., & Viswesvaran, C. (1998). Gender, age and race differences on overt integrity tests: Analyses across four large-scale applicant data sets. *Journal of Applied Psychology*, 83, 35–42.

Ones, D. and Viswesvaran, C. (2001). Integrity Tests and Other Criterion-Focused Occupational Personality Scales (COPS) Used in Personnel Selection. *International Journal of Selection and Assessment*, 9, 31-39.

Ones, D., Viswesvaran, C., & Schmidt, F. (1993). Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. *Journal of Applied Psychology*, 78(4), 679–703.

Ones, D.S., Viswesvaran, C., & Schmidt, F.L. (2012). Integrity tests predict counterproductive work behaviors and job performance well: Comment on Van Iddekinge, Roth, Raymark and Odle-Dusseau. *Journal of Applied Psychology*, 97(3), 537-542.

Palanski, M.E., and Yammarino, F.J. (2007). Integrity and Leadership: Clearing the conceptual confusion. *European Management Journal*, 25(3), 171-184.

Palanski, M.E., and Yammarino, F.J. (2011). Impact of behavioral integrity on follower job performance: A three-study examination. *The Leadership Quarterly*, 22, 765–786

Pallant, J. (2007). *SPSS survival manual: A step-by-step guide to data analysis using SPSS for Windows* (Version 15) (3rd ed.). Australia: Allen & Unwin.

Peng, H. (2012). CounterproductiveWork Behavior Among Chinese Knowledge Workers. International *Journal of Selection and Assessment*, 20(2), 119-138.

Rand, A. (1957). *Atlas shrugged.* New York: Random House

Reynolds, S. J., & Ceranic, T. L. (2007). The effects of moral judgment and moral identity on moral behavior: An empirical examination of the moral individual. *Journal of Applied Psychology*, 92, 1610–1624.

Robinson, S.L., & Bennett, R.J. (1995). A typology of deviant workplace behaviours: A multidimensional scaling study. *Academy of Management Journal*, 38, 555-752.

Robinson, S.L., & Bennett, R.J. (1997). Workplace deviance: Its definition, its manifestations, and its causes. *Research on Negotiations in Organizations*, 6, 3-27.

Sackett, P.R., Burris, L.R., Callahan, C. (1989). Integrity testing for personnel selection: An update. *Personnel Psychology*, 42, 491-529.

Sackett, P. R., & Wanek, J. E. (1996). New developments in the use of measures of honesty, integrity, conscientiousness, dependability, trustworthiness, and reliability for per sonnel selection. *Personnel Psychology*, 49, 787-829.

Schmidt, F. L., Viswesvaran, C., & Ones, D. S. (1997). *Validity of integrity tests for predicting drug and alcohol abuse: A meta-analysis.* In W. J. Bukoski (Ed.), Meta-analysis of drug abuse prevention programs (pp. 69–95). Rockville, MD: NIDA Press.

Simons, T. L. (1999). Behavioral Integrity as a Critical Ingredient for Transformational Leadership. *Journal of Organizational Change*, 12(2), 89-104.

Simons, T. L. (2002). Behavioral integrity: The perceived alignment between managers' words and deeds as a research focus. *Organization Science*, 13, 18–35.

Simons, T., Friedman, R., Liu, L.A., & Parks, J.M. (2007). Racial Differences in Sensitivity to Behavioral Integrity: Attitudinal Consequences, In-Group Effects, and "Trickle Down" Among Black and Non-Black Employees. *Journal of Applied Psychology*, 92, 650-665.

Six, F.E., De Bakker, F.G.A, and Huberts, L.W.J.C. (2007). Judging a Corporate Leader's Integrity: An illustrated three-component model. *European Management Journal*, 25, 185-194.

Spector, P. E., & Fox, S. (2002). An emotion-centered model of voluntary work behavior: Some parallels between counterproductive work behavior and organizational citizenship behavior. *Human Resource Management Review*, 12, 269–292.

Spector, P. E., Fox, S., Penney, L. M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counterproductivity: Are all counterproductive behaviors created equal? *Journal of Vocational Behavior*, 68, 446–460.

Tabachnick, B.G., & Fidell, L.S. (2001). *Using Multivariate Statistics* (4th ed.). Boston: Allyn and Bacon.

Tao, J. (2000). Two Perspectives of Care: Confucian Ren and Feminist Care. *Journal of Chinese Philosophy*, 27(2), 218–219.

Terris, W., & Jones, J.W. (1982). Psychological factors relating to employees' theft in the convenience store industry. *Psychological Reports*, 51, 1219-1238.

Theron, C., Spangenberg, H. & Henning, R. (2004). An elaboration of the internal structure of the unit performance construct as measured by the Performance Index (PI). *Management Dynamics*, 13(2), 25-52.

Tracey, J.L., and Robins, R.W. (2004). Putting the Self Into Self-Conscious Emotions: A Theoretical Model. *Psychological Inquiry*, 15 (2), 103-125.

Trevino, L.K., Hartman, L.P. and Brown, M. (2000). Moral person and moral manager: How executives develop a reputation for ethical leadership. *California Management Review*, 42, 128–142.

Van Iddekinge, C.H., Roth, P.L., Raymark, P.H., & Odle-Dusseau, H.N. (2012). The criterion-related validity of integrity tests: an updated meta-analysis. *Journal of Applied Psychology*, 97(3), 499-530.

Verhezen, P. (2008). The (Ir)relevance of Integrity in Organizations. *Public Integrity*, 10(2), 133-149.

Walker, L. J., & Hennig, K. H. (2004). Different conceptions of moral exemplarity: Just, brave, and caring. *Journal of Personality and Social Psychology*, 86, 629–647.

Wanek, J. E., Sackett, P. R., Ones, D. S. (2003). Towards an understanding of integrity test similarities and difference: An item-level analysis of seven tests. *Personnel Psychology*, 56, 873-894.

Weatherbee, T.G. (2010). Counterproductive use of technology at work: information and communications technologies and cyber deviancy. *Human Resource Management Review*, 20, 35-44.

Werhane, P. H. (1994). The Normative/Descriptive Distinction in Methodologies of Business Ethics. *Business Ethics Quarterly*, 4, 175-180.

Weston, R., & Gore, P.A. Jr. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, 34, 719-751.

Worden, S. (2003). The Role of Integrity as a Mediator in Strategic Leadership: A Recipe for Reputational Capital. *Journal of Business Ethics*, 46, 31-44.

Yukl, G. (2010). *Leadership in organizations*. Upper Saddle River: Pearson.

Yukl, G., Mahsud, R., Hassan, S., & Prussia, G.E. (2011). An improved measure of ethical leadership. *Journal of Leadership and Organizational Studies*, 20(10), 1-11.