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The Risk of Psychological Derailment in Complex Environments



Allayne Minnie

Research Supervisor: Prof. Fiona Donald

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Declaration

A research project submitted in partial fulfilment of the requirements for the degree of MA by coursework and research report in the field of Organisational Psychology, University of the Witwatersrand, Johannesburg (25 October 2016).

I declare that this research report is my own, unaided work. It has not been submitted before for any other degree or examination at this or any other university.

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Signed: Allayne Minnie

Date

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Chapter 1: Introduction

Managers and leaders are faced with a growing number of demands in the current organisational environment. The context in which they function is constantly shifting and changing; and the business environment is becoming increasingly fast-paced and competitive (Gentry & Shanock, 2008). A great deal of expectation and pressure is placed on leaders and managers, particularly at the executive level, to ensure that organisations remain profitable and successful despite the challenges facing them (Lee, 2012).

According to Stratified Systems Theory (SST), roles within organisations can be classified according to varying discontinuous levels or layers of work (Stamp, 1981). These levels are differentiated according to the time frames within which employees typically see results, the level of responsibility they are expected to take on, as well as the complexity of the work they are engaged in. As one progresses up the organisational hierarchy, the work generally becomes more complex and problem solving becomes more challenging due to the ambiguous and novel nature of the problems at hand (Browning, 2013). As existing knowledge cannot be reliably applied in such settings, and minimal guidance is available regarding the likely success of any given approach, managers at these levels are required to exercise greater discretion and must rely on their judgement to a larger extent than those operating at lower levels of work (Comaroff, 2012; Kitching, 2005; McCartney & Campbell, 2006). For this reason, SST proposes that a greater degree of cognitive capacity is required at each progressively higher level of work. The Matrix of Working Relationships (MOW), which is based on SST, also proposes that higher levels of work require a greater degree of cognitive capacity, using the term 'capability' to refer to how comfortable an individual feels making decisions in highly complex environments (Kitching, 2005).

As individuals move into higher positions within the organisation, they are faced with additional pressure in terms of attempting to deal with previously unknown demands and skill requirements (Freedman, 2005). As a result, those operating at higher levels of work may also experience a greater degree of stress, work overload and fatigue (Nelson & Hogan, 2009). Such transition periods increase the risk of individuals

displaying derailing behaviours: destructive actions that have a detrimental effect on the career progression or success of an individual (Freedman, 2005). Hogan and Hogan (2009) propose that these behaviours negatively impact an employee's efforts to 'get along' and impair the interpersonal skills necessary to facilitate task-related activities. In other words, while an individual may have the knowledge and skills necessary for a particular job, their inability to function adequately on an interpersonal level is likely to lead to failure in their role (Hogan & Hogan, 2009). This suggests that derailing behaviour has the potential to erode a person's existing strengths and competencies to the point where they are no longer able to function adaptively.

The risk of managerial derailment may be further exacerbated in the event that a mismatch exists between the current or future cognitive capability of the individual and the complexity of the environment in which they are operating. This is because, if individuals do not possess the capability to cope with the complexity inherent in their position, they are likely to experience more severe pressure compared to those whose capabilities match the demands of their environment (Browning, 2013; Comaroff, 2012; Grobler, 2005). According to MOW, personal well-being is proposed to occur when there is a balance between what an individual feels capable of doing, and what they are required to do within specific time spans as part of their job role (Stamp, 2007). Similarly, personal development is possible when that which someone feels able to do is matched by the opportunities for growth available to them. This sensation is described as being 'in flow' (Stamp, 2007). In contrast, when individuals feel that there is a mismatch between the demands placed on them by their work, and their inherent capabilities, they tend to experience stress. This is true both when the demands of the job exceed what they are capable of, and when the demands fail to challenge them (Stamp, 2007). Those who are out of flow tend to feel depleted and demotivated, and may experience burnout, lowered morale and resistance to change.

Hogan and Hogan (2001), as well as Burke (2006, as cited in Strauss, 2010) estimate that half of those in leadership positions are not achieving their full potential due to derailment. Considering the cost of dismissing failed managers, as well as the lost opportunities and damaged team morale associated with their downfall (Strauss, 2010), it is of crucial importance to gain an enhanced understanding of factors

associated with the derailment of managers. This is of particular concern in businesses in Africa, which are faced with the challenge of remaining competitive in a multicultural, economically strained environment. For this reason, the current research aims to contribute towards the existing literature on derailment by investigating whether there is an association between the level of work and the risk of derailing behaviour, and if an individual's fit to his/her role is associated with the risk of derailing behaviour. This will be done using results from the Career Path Appreciation (CPA), an assessment based on SST and MOW, and the Hogan Development Survey (HDS), a psychometric instrument aiming to determine the degree of risk an individual has of displaying eleven derailing behaviours.

This research report begins by supplying a background to the key theoretical concepts involved in the current research, and reporting on the main findings of recent research in this area. Thereafter the proposed research questions are outlined. A detailed description of the chosen methodology is then provided, including the research design of the present study, the chosen sample group and the analyses used to assess the proposed relationships. The results of these analyses is then presented, followed by a discussion of the results in relation to previous findings. Finally, conclusions and recommendations regarding future research are made.

Chapter 2: Theoretical and conceptual background

2.1 Introduction

Modern organisations are faced with a number of challenges relating to the fast-paced, ambiguous, and ever-changing nature of the world of work. This is due in part to the effect of technological advancements, globalisation, economic unrest and competitive dynamism (Gentry & Shanock, 2008). While this uncertainty impacts the organisation holistically, a great deal of responsibility lies with those functioning at higher levels of complexity, as these individuals must be able to rely on their judgement to come to effective decisions in a conceptually unclear environment. This invariably involves increased pressure to succeed and perform, particularly as decisions at higher levels of work are more likely to impact the overall success and future viability of the organisation. It is possible that high-level managers experiencing this pressure lack the internal resources to effectively cope with the challenges inherent in their roles, and that this may lead to maladaptive and destructive work behaviours.

2.2 Management Derailment

2.2.1 Factors Contributing to Derailment

Derailing behaviours are destructive actions that have a detrimental effect on the career progression or success of an individual, and have the potential to lead to derailment (Freedman, 2005). “Derailment in a managerial or executive role is defined as being involuntarily plateaued, demoted, or fired below the level of anticipated achievement or reaching that level only to fail unexpectedly” (Lombardo, Ruderman & McCauley, 1988, p. 199). To date, studies on leadership and management have focused predominantly on what makes managers successful (Yukl, 2002). One of the primary perspectives in the leadership literature has been the trait approach, which postulates that there are certain personality traits associated with successful leaders (Judge, Ilies, Bono & Gerhardt, 2002). This approach has been criticised by proponents of contingency theories as being overly simplistic, as they do not take into account that the effect of traits on leadership behaviour is dependent on

the situation (Yukl & Van Fleet, 1992). Nonetheless, researchers have begun to revisit the trait approach of leadership, using the five-factor model as a framework (Judge, Piccolo, & Kolsaka, 2009; Judge et al., 2002).

In contrast to the abundance of literature available on what makes leaders and managers succeed, relatively little attention has been given to the question of what factors are associated with the derailment of managers. Nonetheless, there has been a growing interest in the psychological and management community in defining the preconditions and risk factors of management derailment, and determining what can be done to identify and eventually mitigate these factors (e.g. Braddy, Gooty, Fleenor, & Yammarino, 2014; Gentry, Mondore, & Cox, 2007; Hogan & Hogan, 2001; Lombardo et al., 1988).

In the 1980's, the Centre for Creative Leadership (CCL) commenced their research on managerial derailment. The results of this research suggested that managers tend to fail due to problems relating to four main themes: 1) problems with interpersonal relationships, 2) failure to meet business objectives, 3) the inability to build a team, and 4) the inability to adapt to a transition (Hogan & Hogan, 2001; Hogan, Hogan & Kaiser, 2010). Later research added that 5) a narrow functional orientation and preparedness would also contribute to the increased risk of managerial derailment (Braddy et al., 2014; Gentry & Shanock, 2008). A description of these risk factors follows.

Those who have problems with interpersonal relationships tend towards being manipulative, insensitive, aloof or overly critical toward others, and may tend to see relationships as transactional, using others for the advancement of their own ambitions (Higgs, 2009; Gentry & Shanock, 2008; McCartney & Campbell, 2006; Van Velsor & Leslie, 1995). This appears to be linked to the inability to successfully build and lead a team: personality traits that assist individuals to 'get ahead' early on in their careers, such as assertiveness and initiative, may later hinder their progress when they are expected to apply a more participative approach with others (Lombardo et al., 1988; Van Velsor & Leslie, 1995). Such traits likely also obstruct their ability to manage conflict effectively (Gentry & Shanock, 2008; Hogan & Hogan, 2001). Recent studies have shown that the types of managers that are least likely to derail are

able to put others at ease (Gentry & Shanock, 2008), and can be considered ‘people-persons’ as characterised by the Myers-Briggs Type Inventory (MBTI) (Gentry et al., 2007).

Managers tend to fail to meet business objectives when they are quickly transitioned into more senior positions, and are pushed beyond their skill level without the necessary training or development (Strauss, 2010). This has sometimes been attributed to an over-confidence in managers who believe they are suited to a senior position, but do not have the necessary skill-set to perform adequately in the role (Gentry & Shanock, 2008). The inability to grow, learn and adapt effectively to transitions, as well as the narrowness of managers’ functional orientation is of particular concern in the current organisational environment. The business environment is becoming increasingly dynamic, competitive and fast-paced, and organisations must operate under conditions of constant change (Gentry & Shanock, 2008). Leaders and managers who recognise the need to learn, and to remain fluid and adaptive, are more likely to be successful. In contrast, those who remain rigid and inflexible are more likely to derail (McCartney & Campbell, 2006). One example of potentially derailing behaviour is when managers try to rely on behaviours that have been successful in the past, but are no longer suited to their current environment. This hinders their performance in the role, as well as their potential for future development (Gentry et al., 2007; Hogan et al., 2010),

Of significance is the fact that various authors (Gentry & Shanock, 2008; Lombardo et al., 1988; McCartney & Campbell, 2006; Van Velsor & Leslie, 1995) note that all of the themes described above could be a function of disruptive personality factors, or ‘dark side’ characteristics. While such personality factors may coexist with strong social skills under normal circumstances, they may be aggravated by periods of rapid change and increased pressure (Hogan et al., 2010). Indeed, other authors note that, while personality is a primary contributor towards derailing behaviour, situational factors such as stress, work overload, high emotion and fatigue are also likely to increase the probability of dysfunctional behaviour being displayed. In addition, there is a greater likelihood of disruptive behaviour appearing in situations that are ambiguous or unstructured (Nelson & Hogan, 2009). Thus, under specific circumstances, dysfunctional dispositions and the ensuing degradation of

interpersonal strategies could contribute to derailment at a managerial level by degrading the skills and competencies already possessed by the individual (Nelson & Hogan, 2009).

Hogan and Hogan (2001) drew on this notion to develop the Hogan Development Survey (HDS), an assessment instrument used to identify the presence of 11 key personality characteristics that can be used to predict the likelihood of derailing behaviour (Nelson & Hogan, 2009). The HDS is grounded in socioanalytic theory, which has its roots in interpersonal and evolutionary psychology and argues that all humans have evolved strategies for enhancing both individual and group survival. In order to gain both acceptance and status in typically hierarchical group relationship structures, people have adapted their behaviour to 'get along', or increase their popularity amongst other group members, and to 'get ahead' or gain a higher status relative to others in their group (Hogan & Hogan, 2009).

Organisational interactions are generally characterised by one or both of these two motivations. Those who cooperate with their teammates and come across as positive, helpful and friendly (i.e. getting along) are perceived as good team players and organisational citizens, while those who focus on taking initiative and accepting greater responsibility (i.e. getting ahead) are seen as high performers who are valuable to the organisation (Hogan & Hogan, 2009).

Hogan and Hogan (2009) posit that dysfunctional personality traits lead to derailing behaviours which can negatively impact an employee's efforts to 'get along' and impair the interpersonal skills necessary to facilitate task-related activities. They note that, although someone may possess the knowledge and skills necessary for a particular job, "the phenomenon of dysfunctional dispositions is characterized by the coexistence of technical competence and interpersonal inadequacy" (Hogan & Hogan, 2009, p.1). This suggests that derailing behaviour has the potential to erode a person's existing strengths and competencies to the point where they are no longer able to function adaptively.

The focus of the HDS is therefore predominantly on interpersonal behaviours as the observable indicators of derailment. These behaviours can be clustered according to a

taxonomy of derailing behaviour that defines three general themes according to which people deal with pressure and insecurity: 1) moving away from people (intimidating, dominating and avoiding others); 2) moving against people (manipulating and charming others while avoiding any true connection with them); and 3) moving toward people (ingratiating others and building alliances to avoid the threat of criticism) (Hogan & Hogan, 2009; Hogan et al., 2010).

Although interpersonal aspects of behaviour are understood as the observable indicators of derailment according to the HDS, the discussion thus far has revealed that derailing behaviour has a number of possible precursors, including interpersonal, environmental and intrapersonal factors. Indeed, Hogan and Hogan (2009) suggest that there are several variables that could impact on a person's probability of displaying derailing behaviours. Firstly, the strength of an individual's personal schemas (i.e. organised knowledge structures that reflect people's basic beliefs about themselves and the way others are likely to interact with them) may influence the way individuals react under pressure and could impact how successfully they 'get along' with others (Hogan & Hogan, 2009). Furthermore, situational variables as well as illness, fatigue, boredom and a lack of social vigilance may all affect the emergence of dysfunctional behaviours. Lastly, and crucially to the context of this study, derailing behaviour may be triggered by organisational culture, as well as an environment which is ambiguous, unstructured and lacks clear guidelines (Hogan & Hogan, 2009).

It is crucial to consider that, although interpersonal behaviour (i.e. moving toward, moving away or moving against people) may be a good indicator of dysfunctional or derailing behaviour, success in management roles and the likelihood of a person displaying derailing behaviour under conditions of extreme pressure is almost certainly associated with a plethora of factors, including factors such as the nature of the work environment as well as well as the person's cognitive capacity to deal with the demands of their work.

The 11 scales defined by the HDS are as follows in Table 1 (Hogan & Hogan, 2009):

Table 1: Summary of the Hogan Development Survey (adapted from Hogan & Hogan, 2009).

<u>Main Theme</u>	<u>Scale</u>	<u>Description</u>	<u>Example Item</u>
Moving away	Excitable	Moody, inconsistent and hard to please; with intense, but short-lived enthusiasm for new persons or projects	My mood can change quickly.
	Skeptical	Cynical, distrustful, overly sensitive to criticism, and doubting others' true intentions.	There are few people I can really trust.
	Cautious	Resistant to change and reluctant to take risks for fear of being evaluated negatively.	It is difficult for me to be assertive.
	Reserved	Aloof, detached, socially withdrawn and uncommunicative; lacking interest in or awareness of the feelings of others.	I prefer spending time by myself.
	Leisurely	Autonomous and independent, indifferent to other people's requests, and becoming irritable when they persist.	I ignore people who don't show respect.
Moving against	Bold	Unusually self-confident; unwilling to admit mistakes or listen to advice, with an over-evaluation of one's capabilities.	I do most things well.
	Mischievous	Enjoying taking risks and testing the limits, needing excitement, manipulative, cunning and exploitative.	I have few regrets.
	Colorful	Expressive, animated and dramatic, and wanting to be noticed and to be the centre of attention.	Other people pay attention to me.
	Imaginative	Acting and thinking in creative and sometimes unusual ways.	I am creative about my appearance.
Moving toward	Diligent	Careful, meticulous, precise, inflexible about rules or procedures, and critical of the performance of others.	I take pride in organising my work.
	Dutiful	Eager to please, reliant on others for support and guidance, and reluctant to take independent action.	I leave the big decisions up to others.

2.2.2 Inter-group differences

Cross-validation studies conducted on the HDS have revealed no mean-level differences between sexes, racial/ethnic groups, or age groups (Hogan & Hogan, 2001). However, a fairly recent paper on business leaders found significant differences between males and females, with males scoring significantly higher on Mischievous and Reserved, but lower on Dutiful than females (Furnham & Trickey, 2011).

According to research undertaken by Strauss (2010), South African managers typically display at least one derail (71.4%), although 26.6% reported no high-risk derails. Cumulatively, 90% of South African managers in the sample had three derails or less. Although some individuals in the sample possessed five or more derails, this was rare (1.9%) (Strauss, 2010). On average, the derails with the highest mean scores for South African managers are Bold, Diligent, and Cautious. The most frequent high-risk scores in the sample were for Bold and Dutiful. However, the occurrence of the other derails was distributed fairly evenly (Strauss, 2010). There were very few significant differences across gender or generation regarding derailing behaviour, bar the finding that Generation Y participants tended to be more Dutiful than other generations (Strauss, 2010). In summary, South African managers tend to be particularly confident and reluctant to admit their mistakes, as well as overly dependent on others for direction and eager to please (Strauss, 2010). Judging from the striking contrast between these two descriptions, it is unlikely that any one person would possess both derails. The researcher notes this, and adds that the existence of these two conflicting derails in an organisation could be the source of interpersonal conflict in teams, as Dutiful individuals may struggle to be assertive to their Bold counterparts, which may in turn negatively reinforce their derailing behaviour (Strauss, 2010).

Furnham & Trickey (2011) conducted a large study analysing the results of over 18,366 British adults who had completed the HDS. They found that overall, the highest scores were for Diligent, Colorful and Dutiful, and lowest for Excitable, Cautious and Reserved (Furnham & Trickey, 2011). This is in marked contrast to the South African findings. Also in contrast to the study conducted by Strauss (2010),

differences between males and females were found, namely that females tend to score higher on Cautious, while males tend to score higher on Reserved and Mischievous. Furthermore, females scored higher on Excitable, Leisurely, Diligent and Dutiful (Furnham & Trickey, 2011).

A study undertaken by Van Velsor & Leslie (1995) found that themes regarding the factors contributing to derailment were similar for managers in Europe and the U.S. Nonetheless, there were some notable differences. Their study suggests that European managers tend to be overly critical and ambitious, often using others as a means to further their own ambitions (Van Velsor & Leslie, 1995). They may also show more authoritarian and dictatorial behaviours towards their staff when compared to managers from the U.S (Van Velsor & Leslie, 1995). Female managers seemed to find it difficult to adapt when compared to males, in both the European and U.S. samples. In fact, difficulty adjusting appeared to be a significant problem amongst managers from both sample groups (Van Velsor & Leslie, 1995). The authors explain this similarity by pointing out that organisations in both economies and environments face fairly similar challenges, and that derailment has more to do with an individual's inability to cope with the evolving demands of the job, than with national cultural values (Van Velsor & Leslie, 1995).

2.2.3 Effects of Derailment in the Workplace

Derailing behaviour at the management level has the potential to put a great deal of strain on individuals' relationships with others, and may damage their reputation with colleagues and superiors (Strauss, 2010). It is also likely to have a stunting effect on their career progression (Hogan et al., 2010). Even if their behaviour is not disruptive enough to warrant dismissal, they are unlikely to be seen as promising candidates for future opportunities due to the erosion of trust (Hogan & Hogan, 2001).

Derailing behaviour also results in severe costs to companies, particularly when it leads to career derailment. The time and effort involved in dismissing a derailed manager, and consequently recruiting, selecting and training a new one is substantial. Unfortunately, this process also involves the loss of intellectual and social capital, which can be difficult to replace (Hogan et al., 2010; Strauss, 2010). Further to this,

there is an even greater loss of company resources when an individual who formed part of a succession plan derails, as the effort put into training and developing this person is also lost (Strauss, 2010).

The actions of derailed managers may have far reaching effects, some of which may only become apparent after some time. These hidden costs could involve lost business opportunities, failed projects, and an overall effect of degraded team morale and performance (Hogan et al., 2010; Strauss, 2010). Managers who derail can cost their companies up to twenty times an executive salary when taking both direct and indirect costs into account, and these costs can be expected to escalate with seniority and scope (Strauss, 2010). The risk of derailment in management is particularly concerning considering the challenge faced by businesses in Africa to remain competitive in a multicultural, economically strained environment.

2.3 Complexity and Cognitive Capability

Considering the potentially destructive effects of derailing behaviour in the workplace, it is crucial to investigate its possible precursors, particularly at an upper managerial level. As was pointed out earlier, although interpersonal behaviour (i.e. moving toward, moving away or moving against) may be a good indicator of dysfunctional or derailing behaviour, success in management roles and the likelihood of a person displaying derailing behaviour under conditions of extreme pressure is likely to be associated with a plethora of factors. These may include factors such as the nature of the work environment as well as the person's cognitive capacity to deal with the demands of their work (Hogan & Hogan, 2009; Nelson & Hogan, 2009). It is possible that derailing behaviour can be triggered by an environment which is ambiguous, unstructured and lacks clear guidelines, as well as a poor person-environment fit (Hogan & Hogan, 2009). For this reason, one of the elements that should be considered more carefully in this regard is environmental complexity.

2.3.1 Stratified Systems Theory (SST)

Stratified Systems Theory (SST) is a seminal model which serves as a framework for understanding the crucial role of cognitive capability in strategic leadership, as well as the evolution of capability across the organisational hierarchy (Browning, 2013). The theory was originally developed by Elliott Jaques who proposed that roles within

organisations can be classified according to varying discontinuous levels or layers of work, and that these levels are differentiated according to the time frames within which employees typically see results (known as the time span of discretion), the level of responsibility they are expected to take on, as well as the complexity of the work they are engaged in (Stamp, 1981; Jaques 2007a).

2.3.1.1 Cognitive Capacity and Complexity

Rather than implying increased difficulty, complexity implies that problems and decisions become more ambiguous, novel and differentiated (Browning, 2013; Comaroff, 2012). It relates to the number of possibilities inherent in a situation, how quickly aspects of the environment are changing, the ambiguity of the situation, and the degree to which they are intertwined (Comaroff, 2012). Complex work is therefore generally characterised by a high degree of uncertainty and abstraction, and is not structured or repetitive (Grobler, 2005).

As one progresses up the organisational hierarchy towards higher, more complex levels of work, the task of decision-making and problem solving becomes more challenging. In complex environments, managers must accommodate more intricate interconnections, associations and causal chains in their thinking; plan and think within longer time frames; and develop more complex mental models of their and others' roles within the organisation (Browning, 2013). While previous experience can be drawn upon when making effective decisions in stable environments, the tasks in more complex environments are often conceptually unclear and the best way to solve a problem is unlikely to be obvious (Jaques, 2007a). While individuals may have an idea of how to cope and move forward, they can never be entirely certain that their choice of method will help them to successfully achieve their goal. As a result, there is a greater feeling of uncertainty and worry inherent in complex work. There is also a call for a greater reliance on discretion and judgement, as existing knowledge can no longer be reliably applied (Comaroff, 2012; Jaques, 2007a; Kitching, 2005). For this reason, SST posits that a greater degree of cognitive capacity and discretion in decision making is required at each of the progressively higher levels of work (Browning, 2013; Comaroff, 2012; Grobler, 2005).

Cognitive capacity can be defined as the way in which individuals take in, process and utilise information from their environment in order to make sense of it (Comaroff, 2012). It shapes the ways in which individuals construct an understanding of the world they work in, and impacts their ability to engage in goal-directed behaviour when problem solving (Jaques, 2007b). According to SST, the cognitive development of humans occurs in discontinuous stages. This development is not tied to age, but rather is linked to the potential level of cognitive power that an individual is capable of achieving in their lifetime, as well as the likely rate of their cognitive maturation. While the cognitive development of some individuals may be characterised by a slow rate of growth towards a low level of cognitive capacity, others may be characterised by more rapid development toward higher levels of cognitive power (Jaques, 2007b). Thus, although each person's cognitive capacity will continue to mature throughout their life until they achieve their highest potential (notwithstanding inhibiting social and educational factors), not everyone will reach the same level of cognitive capacity.

Cognitive power is of particular importance regarding the level of work at which an individual is capable of functioning, and the degree of responsibility they are able to take on (Jaques, 2007b). Each successively higher level of organisation denotes a qualitatively different, higher degree of abstraction and uncertainty and, according to SST, requires a more advanced level of cognitive functioning in order for work to be completed successfully and, more importantly, with a sense of proficiency and competence (Jaques, 2007b). Cognitive capacity is by no means the only requirement in the world of work, as other factors such as knowledge, experience, skill, temperament, character and values all need to be taken into account when considering an individual's suitability for a specific role. However, SST posits that it is this aspect of human functioning that most directly impacts an individual's success at a particular level of work-related complexity (Jaques, 2007b).

High-level management and leadership roles that necessarily involve an element of cognitive application and problem solving will require higher levels of cognitive power (Browning, 2013). This makes sense when considering that those with high cognitive capacity are able to organise, differentiate and integrate a large amount of information quickly, and adapt easily to unstable and complex situations that require strategic thinking (Browning, 2013; Comaroff, 2012; Grobler, 2005; Kitching, 2005).

Those with a high level of cognitive capacity can therefore be expected to cope better when challenged with demanding positions in their careers, and should function well in very complex work environments.

2.3.1.2 Time Span of Discretion

As has been mentioned, the level of work at which a person feels comfortable operating is determined by their cognitive capacity. The SST posits that this capacity of an individual can be measured at any given point by taking note of the maximum time within which a person's work is expected to be completed, and their goals are expected to be achieved. This is known as the time span of discretion (Jaques, 2007b). The time span of discretion sets the limit of individuals' intentions and goals in the workplace, and shapes the way in which they construct their lives. It is a discontinuous construct, and can therefore be divided into discrete ranges. In large-scale hierarchical organisations, those at the lowest level of work typically work on tasks with a maximum time frame of 3 months, while those at the highest level of work may work towards goals only achievable in 20 years (Jaques, 2007b).

Those with a longer time span of discretion take on greater responsibility than those working within shorter time frames, and operate at higher levels of work. This is closely linked to the need for an advanced cognitive capacity, in that those taking on tasks with a longer time span of discretion are required to possess a higher degree of cognitive capacity. Stated differently, those who are able to achieve goals with longer time spans possess a higher level of cognitive power (Jaques, 2007b).

According to Jaques, the optimal number of levels in an organisation should be determined by the time span of discretion embodied by the CEO of that organisation (Ross, 1992). He argues that, when organisational hierarchies are arranged into these clearly identified levels, individuals at each level are more likely to have a clear understanding of what is expected of them. In addition, what he terms 'requisite organisation' is more likely to be achieved. This refers to the state of an organisation in which employees are enabled to reach their full potential and the overall functioning of the organisation is improved (Ross, 1992).

2.3.1.3 Critique of SST

Jaques' central argument is that all organisations should be structured according to the principle of requisite organisation, in which a requisite structuration of accountable managerial layers or strata is created where accountability increases with each successive level. He posits that this will eliminate problems such as excessive bureaucracy on the one hand, and on the other hand undefined working relationships or ill conceptions of managerial authority and accountability (Thelejane, 2010).

This idea was examined by an experiment conducted by Jaques' colleagues, who hypothesised that, when subjecting participants to active problem-solving tasks, the statistics would yield a multimodal distribution of scores, providing evidence of discontinuous levels of work. This work, which involved more than 800 participants with an age range of 6–60 years, claimed to produce quantitative evidence for discrete levels of functioning (Stamp, 1981). Furthermore, longitudinal studies carried out on this topic by Jaques and Stamp suggest that the growth patterns and rates of capability follow a predictable pattern which differ depending on the individual, and that this growth has different upper limits, depending on its identified pattern or trajectory (Stamp, 1981).

However, this conceptualisation of how organisations should be structured has been subjected to some criticism. Firstly, it has been criticised for using the time span of discretion as an indicator of complexity. Prinsloo (2012) argues that the unit of information dealt with, rather than the time frame of a task, is more predictive of the level of complexity in work. She also points out that the time spans identified by SST are fixed, and do not take into account the decreased timeframes of work necessitated by recent developments in technology and the global market (Prinsloo, 2012).

The theory also comes under fire for holding to the Newtonian understanding of time, and making the assumption that time is linear, segmented, one-dimensional and tangible. This assumes that time as a construct is not influenced by culture. However, the increasingly transnational nature of organisations involving alliances and joint business ventures across countries creates multicultural contexts in which managers and leaders are required to deal with multiple perspectives of time (Boal &

Whitehead, 1992). Furthermore, this conception of time does not take into account decision-making in crisis situations, when time spans become compressed and less information is considered when drawing conclusions. It also does not consider the effects of habitual responses to work complexity, or the tendency of those at high levels of organisation to delegate the complex aspects of their roles to lower levels of work (Prinsloo, 2012). It is therefore questionable whether it is useful to equate the time span of discretion with cognitive complexity (Boal & Whitehead, 1992).

The theory has been labelled as having a narrow realm of applicability. Not all organisations are or should be structured hierarchically. Learning organisations and self-managed teams are examples of such systems that do not see themselves as part of a stratified system (Thelejane, 2010). Furthermore, Fredrickson (1986) suggests that organisations that are structured in a highly centralised and hierarchical manner may encourage lower-level employees to see themselves as exempt from important decision-making processes, accept a priori information without question, and neglect to pass on important information to top management.

Boal and Whitehead (1992) argue that SST is most relevant for leaders in bureaucratic organisations operating in a relatively stable environment. They suggest that, while requisite organisations should be able to adapt effectively to environments that evolve slowly, they may experience problems responding effectively to revolutionary changes or highly turbulent environments. This is because revolutionary change involves problems that are difficult to define, whereas change in a reasonably stable environment can generally be defined, and solved through obtaining relevant information and applying the appropriate analytic techniques (Boal & Whitehead, 1992).

Jaques argues against this, stating that these solutions are merely over-simplifications of complex problems, and ultimately leave managers frustrated and the organisational structure haphazard and characterised by uncertainty about responsibilities (Thelejane, 2010). He states that, because the hierarchy he refers to applies to the knowledge structures of the organisation, rather than the structural composition of the organisation, his theory is universally applicable, and is as current a structure as the people who work in it (Thelejane, 2010).

Finally, SST has been criticised for failing to take into account variables other than cognitive complexity that may affect leaders' capacity for managerial action. It assumes that higher cognitive complexity is both necessary and preferable for effective strategic leadership to take place. Boal and Whitehead (1992) suggest that variables in the task environment or internal organisation, personal characteristics such as behavioural flexibility, and task relevant knowledge could influence the effectiveness of their efforts at strategic leadership. Thus, while they acknowledge cognitive complexity is an important individual difference affecting leadership, they argue it is not the only one. The theory should therefore take both traits and behaviours into consideration, without focusing specifically on the trait of cognitive complexity (Boal & Whitehead, 1992).

Nonetheless, SST has made a critical impact on leadership theory, by taking into account the idea that leadership should not only be considered in terms of personality traits, but also in terms of the interaction and fit between the individual and their environment (Prinsloo, 2012).

2.3.2 Matrix of Working Relationships (MOW)

Using SST as a foundation, Gillian Stamp created the Matrix of Working Relationships (MOW) Model (Stamp, 1989). Similarly to SST, the MOW promotes the idea that, as an individual moves up the organisational hierarchy, the complexity of the environment as well as the degree of responsibility inherent in the role increases (Comaroff, 2012). It also develops the SST's assumption that higher levels of work require a greater degree of cognitive capacity; stating in slightly different terms that each level demands an increased individual 'capability' (Stamp, 1981).

Capability describes how people construct and operate within their world, and indicates how complex this world is (Stamp, 1981). It is reflected in the degree of uncertainty a person is able to tolerate, the breadth and depth which they imagine their world to have, and the inner structure they use to define and solve problems (Stamp, 1981). It therefore refers to individuals' competencies and, more specifically, how comfortable an individual feels making decisions in highly complex environments (Kitching, 2005). This implies that those functioning in upper level positions

involving strategic planning and uncertainty require the ability to rely on their judgement in order to be successful (Comaroff, 2012).

Using Jaques' organisational strata as a basis, Stamp defines seven themes or levels of work, where each theme requires a greater degree of capability than the one below (Kitching, 2005). The lower levels define work which is more operationally focused and which contributes to relatively short-term, concrete outputs. In contrast, the higher levels relate to strategic work that contributes to the long-term success of an organisation. Nonetheless, each theme encompasses accountabilities that are crucial to the effective functioning of the organisation and its employees, as well as unique value-adds and contributions (BIOSS, 2015). Thus, no one theme is more important than another, and even very large organisations may be structured and understood using these levels (BIOSS, 2015).

Level 1: Quality

At this level of work, outputs and standards are relatively concrete and inflexible. Tasks are carried out one at a time, and work is characterised by the direct shaping of material things (Jaques, 2007b). Decisions made will reflect how a direct and immediate change will be made possible through the use of raw materials or a particular approach (Stamp, 2003). A typical role at this level would be a first-line worker responsible for a semi-skilled operating task.

Level 2: Service

At the second level of work, specific problems are analysed and executive decisions are made about the particular ways in which people and things are mobilised. The needs of both internal and external customers are taken into account and customised solutions are developed to meet the needs of these situations (Kitching, 2005; Stamp, 2003). Workers are able to reflect on their own experience to accumulate knowledge about their own performance and improve where necessary (Jaques, 2007b). A typical role at this level would be a supervisor explaining how and why work needs to be done.

Level 3: Practice

The third level of work is the one at which individuals are required to juggle a variety of resources (e.g. budgets, people and equipment) and make decisions about the ways in which products/services can be provided in order to best realise the established means. Various options must be considered, and the best option for local circumstances selected (Stamp, 2003). In order to do this, workers must compromise between carrying out their known workload and preparing for changes in the nature of their workload (Jaques, 2007b). An example of a role at this level is a personnel manager who must connect various staff members to achieve a goal.

Level 4: Strategic Development

At the fourth level of work, executive decisions are made about the relationship between the overall vision and mission of the organisation, and the means through which they are realised. In addition, long-term strategic objectives are translated into short-term operational goals that can be implemented in reality (Kitching, 2005). When applicable, methods that are no longer effective are terminated and new ones are developed (Stamp, 2003). An example of a role at this level is a general manager of a small organisation.

Level 5: Strategic Intent

At this level of work, executive decisions are made regarding how the organisation, its mission, as well as the products and services it offers are represented both internally and externally. Furthermore, the future financial and social viability of the organisation are analysed and bolstered (Stamp, 2003). A typical role at this level would be a managing director of an organisation.

Level 6: Corporate Citizenship

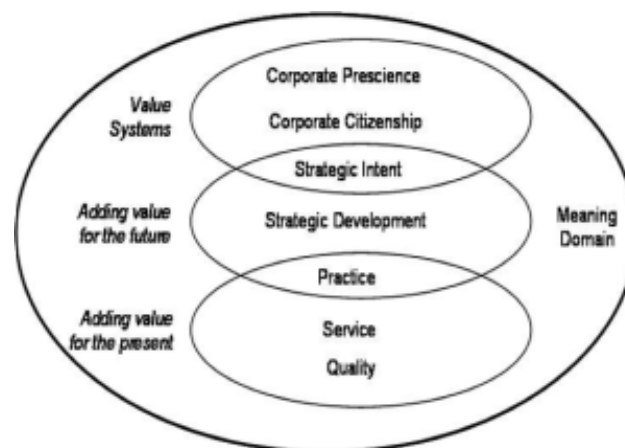
At this level of work, worldwide financial, social, technical, intellectual, political and religious trends are monitored in order to gain an understanding of the local, national regional and worldwide context of the organisation. Subsequently, collegial decisions are made regarding how best to account for fluctuations in these sectors, with the knowledge that systems are independent and a change in boundaries of one system may impact other systems (Jaques, 2007b). A typical role at this level would be a strategic business unit executive vice president of a large corporation.

Level 7: Corporate Prescience

At the final level of work defined by MOW, decisions about the wider organisational context are made. Those at this level are concerned with 1) managing a system that is able to carry out the development, formation and construction of complex Level 5 institutions, 2) the transformation of existing institutions, or 3) the divestment of such institutions (Jaques, 2007b). The critical resource masses of investment, plant, financing and people required for the future production of goods or provision of services are considered, and high-level decisions are made regarding how best to proceed. Individuals at this level are concerned with shaping the future, rather than predicting and adjusting to it (Jaques, 2007b; Stamp, 2007).

For the purposes of understanding, these themes can be divided into three major categories. The first three themes can be understood as representing the production engine of the organisation, and are focused on creating value in the present. On the other hand, themes 4 and 5 are concerned with adding value for the future of the organisation. Finally, themes 6 and 7 aim to ensure the global positioning and transformation of the organisation within its industry (BIOSS, 2015). Figure 1 provides a diagrammatic depiction of this concept.

Figure 1: Matrix of Working Relationships

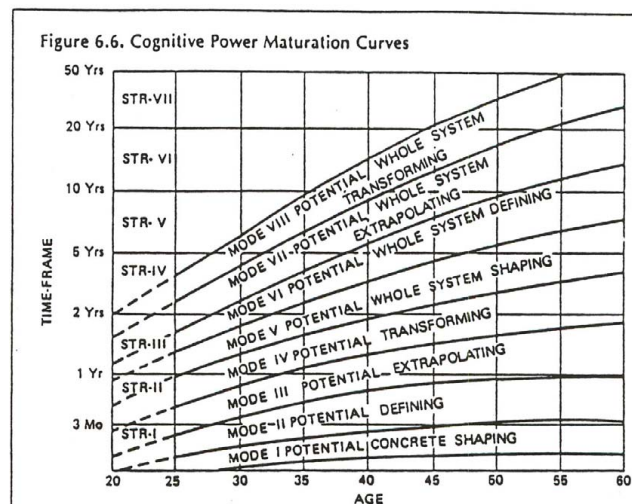


Source: BIOSS (2005)

These themes represent and expand upon the various levels of complexity first defined in SST, and can be used to frame the three groups of discontinuities evident in

the theory; namely discontinuous levels in the structure of organisations, the discontinuous nature of cognitive capability in individuals, and lastly the discontinuous nature of developmental bands according to which this cognitive power matures during an individual's life (Jaques, 2007b). As was mentioned briefly earlier in the discussion, not every person will achieve the same level of cognitive capability and not everyone matures along the same track. In fact, there are reasonably specific maturational bands according to which people generally mature, depending on their current level of cognitive capability and the rate at which this is likely to grow (Jaques, 2007b). Figure 2 provides a visual depiction of this concept.

Figure 2: Cognitive Power Maturation Curves



The bands have been laid out in such a way that each one encompasses all the time frames that one is likely to move through in their lifetime, and each one levels out at the level where maturity is reached. Those embodying a lower level of capability are likely to reach their cognitive maturity at a much earlier age than those at higher levels of capability. Indeed, those at the highest levels of cognitive power are unlikely to reach their full maturity by the normal age of retirement (Jaques, 2007b).

2.3.3 Career Path Appreciation (CPA)

The themes described above form the basis for the Career Path Appreciation (CPA), an assessment technique which essentially explores the level of decision-making complexity with which an individual is currently comfortable (Kitching, 2005; Stamp, 2007), and which forms part of the basis for the current study.

The CPA takes the form of a one-on-one interview or conversation between a trained practitioner and an individual. The aim is to use various techniques to gain an appreciation of the person in context, and to form an understanding of the capabilities and challenges that exist for him/her in the workplace (Stamp, 2007). The participant is encouraged to speak about his/her experience of being in flow, or being stressed in their job role, to give meaning to these experiences, and to consider how such incidents affect them, as well as relevant others (e.g. colleagues, managers and family members).

The CPA is made up of three tasks: the phrase card task, the card sorting task, and the career history. The phrase card task involves using phrase cards to guide dialogue about the individual's approach to their current job role (Stamp, 2007). While this can be used as a forced-choice test, it is not sufficient to take the participant's selected phrase card as the final answer. Instead, it is important to explore why the participant has chosen that particular card and what they understand the chosen phrase to mean. The cards should be thought of as a set of cues that can be used to help respondents think about how they approach and structure their work, as well as their implicitly held assumptions about their methods (Wilkins, 2007). The aim of this task is to gain an understanding of individuals' preferred ways of coping with complexity, uncertainty and ambiguity.

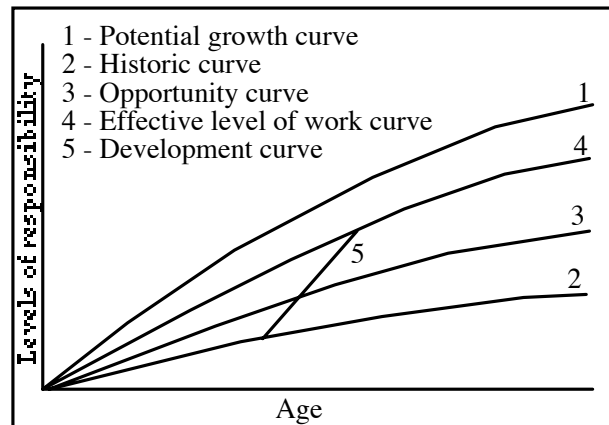
The card sorting task requires participants to sort cards of various colours, shapes, sizes etc. according to a predetermined rule that the practitioner is aware of, but the respondent is not. The key features of the task are that 1) the nature of the problem unfolds as the task develops, 2) the task is equally unfamiliar to all participants, 3) the administrator is a resource that may be used during the task, 4) there are built-in elements of uncertainty which must be dealt with to arrive at a solution, and 5) the task does not require the participant to read or write (Stamp, 1981). This task is crucial in gaining an understanding of how the individual operates under a great deal of uncertainty, and offers insight into how they attempt to create order out of chaos (Stamp, 2007; Wilkins, 2007). Neither the phrase card task nor the card sorting task is job-specific; their sole aim is to help the practitioner gain an appreciation of the cognitive capability of the respondent.

Finally, as a means of testing the preliminary conclusions drawn using the phrase task and the card sorting task, a career history interview is conducted with the participant to find out more about the individual's actual work experience. This involves a discussion of the individual's current work, the history of their career and their goals for the future. Particular emphasis is placed on times when the participant has felt either 'in flow' (comfortable with their responsibilities) or stressed (overstretched or underused) (Stamp, 2007).

As the conversation develops, the trained administrator interprets the information provided to them by the participant in terms of the MOW. This allows for various things to be achieved. Firstly, it allows for an interpretation of the relationship between an individual's current capability in terms of decision-making and their current level of work to be made (Stamp, 2007). Secondly, it allows for the history of this relationship to be explored. Thirdly, there is a consideration of the predicted future of this relationship (Stamp, 2007). And lastly, the internal resources that the individual has been drawing upon in an attempt to achieve flow is explored (Stamp, 2007). In essence, the CPA allows for a trained practitioner to make certain conclusions about the person's capability of responding to challenges at various levels of work and to various degrees of complexity.

Such conclusions can lead, in turn, to a review of the individual's overall balance between capability and work demands. This provides the practitioner with the necessary tools to offer recommendations to the participant regarding the pacing of their future career in both the short- and long-term (Stamp, 2007). It may also assist the organisation in understanding and catering for the needs of their employees. Career path mapping can be used to review the wellbeing of the individual in relation to the wider organisation, and to address any factors that inhibit their growth, such as personal problems or a lack of opportunity (Stamp, 2007). It is very useful in helping the organisation to understand what their employees require in order to fulfil their potential, and what responsibilities the business must take on in order to make this a reality (Stamp, 2007).

Figure 3: Growth Curves



In ideal conditions, the individual's intrinsic rate of growth of their decision-making capability (curve 1, Figure 3) would be equal to the path followed by the person in their career to date. However, in many cases inhibiting factors such as personal problems or rapid organisational change, hinder people from realising their potential (Stamp, 2007). In such instances, both the individual and the organisation need to take steps to ensure the gap between the two does not continue to widen, and that the individual does not become stressed (Stamp, 2007).

In summary, the CPA involves gaining a mutual recognition or appreciation of an individual's ability to make decisions at a certain level of complexity, understanding how this affects the rate at which they will progress to higher levels of complexity in their career, and identifying the steps to ensure the realisation of their potential (Stamp, 2007). It provides a way of exploring the relationship between individuals and the organisations within which they work, and offers a way of dealing with the information that this process produces (Wilkins, 2007).

2.3.4 Person-Role Fit

The CPA measures two indicators of capability. The first, referred to as capability, denotes the level at which the individual is currently capable of functioning. The second, mode, refers to the level of capability an individual may potentially embody in the future (Stamp, 1989). Both SST and MOW suggest that, for a leader or manager to be successful in their role, it is imperative that individuals' capability

aligns with the demands of their current position and its inherent complexity (Browning, 2013; Comaroff, 2012; Grobler, 2005; Stamp, 2007).

According to Stamp (2007), personal well-being occurs when there is a balance between what an individual feels capable of doing, and what they are required to do within specific time spans as part of their job role. Similarly, personal development is possible when what someone feels they are able to do is matched by the opportunities for growth available to them. She describes this sensation as being ‘in flow’.

The concept of ‘flow’ was originally developed by Csikszentmihalyi (1990), who defined it as a mental state in which a person is fully immersed and involved in what he or she is doing, and experiences feelings of energy, focus and engagement while participating in the task at hand. There are certain conditions that must be met for these pleasurable feelings of enjoyment to occur. Firstly, flow is particularly likely to occur when an individual engages in tasks that are challenging or require a great deal of skill, yet they still have a high likelihood of success. This is similar to what is suggested by Stamp (2007), in that people must feel able to achieve what has been set out. Flow is also more likely when individuals are able to concentrate on what they are doing, when the task has clear goals, and when immediate feedback on their success is available. Tasks resulting in flow require deep concentration, effortless involvement and focus from the participant, to the extent that the person loses track of time and stops thinking about everyday frustrations (Csikszentmihalyi, 1990). These tasks also allow people to exercise control over their actions. Finally, these tasks are intrinsically motivating, meaning the person engages in such a task because of the enjoyment they gain from doing so, and not because of some perceived benefit associated with completing the task (Sahoo & Sahu, 2009). As a result, self-concern diminishes and a sense of deep accomplishment and enjoyment is achieved, so that people feel that the reward is worth the energy expended (Csikszentmihalyi, 1990).

Those ‘in flow’ typically feel motivated, competent and energetic. More importantly, they feel able to trust their own judgements and will readily rely on their intuition (Stamp, 2007). Provided that other requirements of the position, such as the appropriate knowledge, skill, temperament and level of interest are present, such employees will experience satisfaction and engagement as a result of their work

(Csikszentmihalyi, 1990). This enjoyment of their work is also likely to have a positive impact on the effectiveness of the organisations at which they work, advantageously affecting organisational concerns such as productivity and efficiency (Csikszentmihalyi, 1990). Organisations whose employees are 'in flow' are enriched by employees who display enthusiasm and proficiency, are open to new ventures, and tend to make sound judgements (Stamp, 2007).

However, this is not always the case. To a large extent, the experience of being in flow is dependent on the individual, and his or her own subjective evaluation of their own capability (Csikszentmihalyi, 1990). Thus, although the characteristics of the task are very important factors influencing the degree of enjoyment experienced, two people engaged in the same task may not necessarily both experience flow (Csikszentmihalyi, 1990). Furthermore, when individuals feel that there is a mismatch between the demands placed on them by their work, and their inherent capabilities, they tend to experience stress and are no longer 'in flow'. This is true both when the demands of the job exceed what they are capable of, and when the demands fail to challenge them (Stamp, 2007). This is captured succinctly by Stamp:

At any particular point in people's careers there is a maximum time span at which any given person can work. If people are employed at levels of work below that maximum time span, they feel their capabilities are being underutilised and experience frustration and boredom. If people are employed at levels of work above that maximum time span, they become disorganised, anxious, and unable to cope (Stamp, 2007, p.64)

If such a mismatch does exist, it is likely that the individual's career will be negatively affected, and that organisational outcomes will be adversely impacted (Comaroff, 2012; Lombardo et al., 1988). Individuals who are 'out of flow' tend to feel depleted and may lack a sense of their own competence. They are likely to come across as tired, dull, and prone to poor judgement (Stamp, 2007). Their tendency to question themselves and their approach to work often leads to mental fatigue and burnout, and has the potential to lead to a range of secondary issues, including confusion, lowered morale and resistance to change (Stamp, 2007). There are also consequences for the organisation as a whole. Similarly to its employees, it may

become apathetic, resistant to change, subject to poor communication and management, and vulnerable to rising costs (Stamp, 2007).

Csikszentmihalyi (1990) suggests that, in order to ensure people experience flow in their work, job designs should change to resemble flow activities (characterised by the factors described above) as closely as possible. Stamp (2007) and Jaques (2007b) echo this second suggestion by advising that it is the responsibility of the organisation to maximise wellbeing and prevent stress in their employees, to the mutual benefit of the organisation and its workers. However, they suggest this can be done by firstly understanding the levels of complexity at which their employees operate and knowing what the contribution of each of these levels are; and secondly by creating the conditions optimal for their employees to thrive at their relevant level of complexity.

2.4 Derailment in Complex Environments

As has already been discussed, derailing behaviour is thought to occur as a function of disruptive personality characteristics that become aggravated in periods of rapid change, increased pressure, or ambiguity (Hogan et al., 2010; Nelson & Hogan, 2009). Freedman (2005) argues that, as individuals climb the organisational hierarchy and transition into positions of greater responsibility, they are faced with a series of crossroads which they must navigate in order to be successful. Each of these crossroads requires that individuals deal with previously unknown demands and skill requirements. Furthermore, the environment becomes less structured and more ambiguous (Freedman, 2005). Those working at higher levels of the organisation such as executives and other highly positioned managers are expected to challenge existing processes and plan strategically to ensure the long-term success of the organisation, whereas managers at lower levels are generally responsible for enacting such strategies. Therefore, the capacity to deal with complexity and adapt to change becomes more important as managers move into senior positions (McCartney & Campbell, 2006; Van Velsor & Leslie, 1995). Considering this through the lens of SST and MOW, the complexity of the environment increases, and requires a higher level of capability from those working at higher levels of work (Comaroff, 2012; Kitching, 2005).

According to Freedman (2005), such transition periods hold great potential for derailing behaviour. This is because such situations bring with them greater responsibility, increased pressure and more ambiguous performance and problem solving expectations, all of which are likely to cause stress for managers and impact negatively on their self-confidence. These factors have the potential to catalyse disruptive dispositions and behaviours that may not have been considered as problematic at lower levels of work (Hogan et al., 2010).

Following from this line of reasoning, the current research aims to investigate whether there is a relationship between the level of work and the risk of derailing behaviour. The predicted finding, based on the available literature, is that higher levels of work are likely to be associated with a higher risk of derailing behaviour i.e. a greater number of high risk derailers. Furthermore, it is predicted that certain derailers may also be associated with higher levels of work. The existing literature suggests that, in the UK, the highest scores on the HDS are for Diligent, Colorful and Dutiful (Furnham & Trickey, 2011), while in South Africa the highest scores are for Bold, Diligent and Cautious (Strauss, 2010). However, as no research of this nature has been carried out prior to this, a prediction regarding which derailers will be more common at higher levels of work will not be made. Instead, the current research aims to take an explorative approach in this regard.

The effect of upward mobility on the risk of derailing behaviour may be mitigated somewhat if there is a match between the complexity inherent in the environment and the capability of the individual acting within it. SST and MOW theorise that, when the current capabilities of the individual aligns with the level of work and its inherent complexity, success in the role becomes more likely (Browning, 2013; Comaroff, 2012; Grobler, 2005). This may be explained by considering that, if individuals possess the capability to cope with the complexity inherent in their positions, they are more likely to achieve 'flow', and will therefore feel satisfied and engaged as a result of their work (Stamp, 2007). As a result, they may not experience the same degree of pressure as those who have not achieved flow.

For this reason, the current research aims to investigate whether the degree of fit between level of work and individual capability impacts the risk of derailing

behaviour. The predicted finding, based on the available literature, is that a good match between the level of work and individual capability is likely to be associated with a lower risk of derailing behaviour, i.e. fewer high risk derailers. Certain types of derailers may also be associated with different degrees of fit. However, as research of this nature has not been carried out prior to this, a prediction regarding which derailers will be more common at different degrees of fit will not be made. Instead, the current research aims to take an explorative approach in this regard.

2.5 Research Questions

The intention of the current research is to establish whether there is a relationship between the level of work and the risk of derailing behaviour. The research further intends to investigate whether person-role fit, as conceptualised by the degree of fit between cognitive capability and the complexity of the environment, is associated with the risk of derailing behaviour. These aims led to the following research questions and hypotheses.

Research Questions:

1. Is there a relationship between level of work and the kinds of potential derailers reported by managers?
As this question is exploratory in nature, no hypothesis was made.
2. Is the degree of fit between current capability and level of work associated with the kinds of potential derailers reported by managers?
As this question is exploratory in nature, no hypothesis was made.
3. Is the degree of fit between future capability (mode) and the level of work associated with the kinds of potential derailers reported by managers?
As this question is exploratory in nature, no hypothesis was made.

Hypotheses:

1. Higher levels of work are associated with a higher number of potential derailers.
2. When level of work exceeds current capability, there is a greater association with a higher number of potential derailers.
3. When level of work exceeds future capability, there is a greater association with a higher number of potential derailers.

Chapter 3: Methodology

3.1 Introduction

The present chapter provides a description of the methods used to conduct the current study. It covers the research design of the present study as well as the measuring instruments used to assess the proposed hypotheses. It describes the sample obtained and the sampling procedures used to obtain the sample. Furthermore, this chapter addresses the analyses identified as being most suitable to assess the hypothesised relationships between variables, the manner in which the current study was operationalised, and ethical considerations.

3.2 Research Design

The present study made use of a cross-sectional quantitative design. As the key variables (level of work, capability, mode, number of derailleurs and types of derailleurs) were gained using psychometric and interview assessment techniques, they were not and could not be manipulated by the researcher. In addition, there was no control group and no random assignment of participants. For this reason the study can be classified as non-experimental and ex-post facto in design. Furthermore, the data was provided by BLOSS SA and was therefore archival in nature.

A shortcoming of making use of a cross-sectional design is that it does not allow for causality to be established (Babbie, 2008). Nonetheless, the design in the present study was considered to be appropriate as the central focus was to examine the association between the independent variables (the level of work inherent in the environment; the fit between individuals' current capability and the level of work inherent in the environment; and the fit between individuals' future capability and the level of work inherent in the environment) and the dependent variable, namely the risk of displaying derailing behaviours. A cross-sectional design was also thought to be appropriate as the potential for derailing behaviour is thought to be a relatively stable construct, with re-assessment only being advised after 2-3 years (Hogan & Hogan, 2009). Furthermore, the measurement of the key constructs requires time-intensive assessment that would not have been possible to complete during the time period of this research project.

The current study was based on archival data. Using this kind of data is normally easy to obtain, cost effective, and typically much larger than primary samples allowing for more complex statistical analyses to be carried out. Furthermore, businesses are usually more open to sharing existing data than allowing researchers to collect new data from their organisations (Shultz, Hoffman & Reiter-Palmon, 2001). Although the collection of primary data normally involves direct human participation and therefore the potential for risks or benefits to participants, the fact that archival data has been pre-collected reduces the risk of harm to participants as a result of the study.

Nonetheless, this also means that researchers have little to no control over the method of data collection, or the manner in which the instruments are administered. They are therefore reliant on the original data-collectors regarding the accuracy and completion of the data. This makes it difficult to determine the quality of the data and the process of detecting errors can be highly complex (Schultz et al., 2001).

3.3 Sample

The current study was conducted using archival data obtained from a sample of 311 employees from a single large, international telecommunications organisation situated in South Africa, with branches across Africa and the Middle East. However, the original database contained incomplete archives for 79 of the result sets provided. These were removed in full from the sample in order to ensure accuracy, and thus the final sample size used was 232. The data were collected by BIOSS SA, who acts as both the CPA/MCPA test distributor and an international service provider, offering their clients a variety of selection and development options by means of a combination of psychometric instruments. As prescribed by the ethical rules of conduct applying to psychology professionals (HPSCA, 2004), and with the permission of the participants, BIOSS SA maintains and safely stores a confidential archival database of all assessment results.

This sample was a non-probability purposive sample (Babbie, 2008), as employees of the organisation had already completed assessments including the CPA/MCPA and the Hogan Development Survey (HDS) (Olsen, 2008). This data, which was subsequently stored by BIOSS SA, was made available to the researcher for the current study as archival data (see Appendix 3). Archival data is operational data that

has been obtained and stored in a database that can be accessed if needed (Olsen, 2008). As the data were collected from a centralised database and were not gathered for the purpose of this study, it can be considered secondary. However, as the data are raw in nature, they were managed as primary data. Potential ethical issues relating to the use of archival data are considered in section 3.7.

Individuals who were assessed by means of both the MCPA and the HDS during 2015 for the purposes of either selection or development were included in the study. The age of the respondents ranged from 29 to 58 years of age ($M = 42.51$). This makes sense as, in order to be assessed on the CPA, participants must either be over 30 years of age, or have five or more years of work experience. It also suggests that participants were probably acting in managerial or leadership positions, particularly considering the nature of the assessments. Both the CPA and HDS are typically used to assess those functioning at higher levels of work, although this is not the only area in which they can be used meaningfully (Stamp, 1981; Hogan & Hogan, 2009). Additional biographical characteristics of the sample are presented in Table 2 below.

Table 2: Biographical Characteristics of the Sample (N=232)

Variable	Category	Frequency	Percentage
Gender	Male	193	83.2
	Female	39	16.8
Population Group	White	33	14.2
	Black	101	43.5
	Asian	51	22
	Coloured	1	0.4
	Not Specified	46	19.8
Level of Education	High School	1	0.4
	Technical	10	4.3
	Bachelor's Degree	73	31.5
	Post Graduate	142	61.2
	PhD	2	0.9
	Not Specified	4	1.7
Variable	Category	Frequency	Percentage

Group			
	Afghanistan	10	4.3
	Benin	1	0.4
	Cameroon	17	7.3
	Congo Brazzaville	7	3
	Cote D'Ivoire	9	3.9
	Dubai	7	3
	External	1	0.4
	Ghana	16	6.9
	Guinea Bissau	3	1.3
	Guinea Conakry	4	1.7
	Liberia	13	5.6
	MANCO Development*	41	17.7
	Nigeria	1	0.4
	South Africa	50	21.6
	South Sudan	10	4.3
	Sudan	10	4.3
	Swaziland	14	6
	Uganda	9	3.9
	Yemen	6	2.6
	Zambia	3	1.3

**Note: MANCO Development refers to members of the organisation's management committee who were assessed for development purposes.*

The vast majority of the sample was male (83.2%), while only 16.8% of the sample was female. This is in line with the current statistics regarding women in management positions. The 2012 Women in Leadership Census showed that although women make up 52% of the South African population, they account for only 3.6% of CEO positions, 5.5% of chairperson positions, 17.1% of directorships and 21.4% of executive management positions (Dormehl, 2012). This information is based on surveys conducted with 329 companies, including 252 JSE companies, 57 Alt-X companies and 20 state owned enterprises (Dormehl, 2012). In Lagos, Nigeria, the private sector participation of women as directors and top management has been reported as 8.1% and 13.1% respectively in 2006 (International Labour Organisation,

2015). A survey of 93,969 enterprises in Cameroon showed that only 10% of companies had a female manager (International Labour Organisation, 2015). While there seems to have been a steady improvement in these figures over the years, this is not consistent. For instance, in the Middle East and North Africa, four out of nine countries surveyed experienced a decrease in the proportion of women in management during the last decade (International Labour Organisation, 2015).

In terms of race, 33 respondents were White (14.2%), 101 were Black (43.5%), 51 were Asian (22%) and one was Coloured (0.4%). 46 respondents (19.8%) did not specify their race. Respondents reported varying levels of education, including one individual with a senior school diploma (0.4%), 10 respondents with a technical diploma (4.3%), 73 with a degree (31.5%), 142 with a postgraduate qualification (61.2%), and two individuals with a PhD (0.9%). Four individuals did not specify their level of education. Respondents were originally assessed for the following countries: Afghanistan (4.3%), Benin (0.4%), Cameroon (7.3%), Congo Brazzaville (3%), Cote D'Ivoire (3.9%), Dubai (3%), Ghana (6.9%), Guinea Bissau (1.3%), Guinea Conakry (1.7%), Liberia (5.6%), Nigeria (0.4%), South Africa (21.6%), South Sudan (4.3%), Sudan (4.3%), Swaziland (6%), Uganda (3.9%), Yemen (2.6%) and Zambia (1.3%). 17.7% of respondents were assessed for developmental purposes, rather than for a specific country, and 0.4% of respondents were assessed for an external entity.

Although this does not give an exact indication of the nationality of each participant, it provides some assistance in understanding the sample as a whole. Using general groupings, it is evident that 9.9% of the sample were assessed for groups in the Middle East (Afghanistan, Dubai and Yemen), 21.6% were assessed for South Africa, and 50.3% were assessed for other African countries. Considering the countries involved, which are predominantly African and Muslim, the fact that the majority of the sample was Black and Asian makes sense. Both African and Middle Eastern groups were included in the sample. Many organisations and research studies tend to group these countries into one region, namely Africa and the Middle East, possibly due to geographical location.

3.4 Instruments

Both instruments were administered as per the recommended guidelines (HPCSA, 2004) by a qualified psychometrist or psychologist within the context of a larger assessment conducted for clients of BIOS SA.

3.4.1 Career Path Appreciation

The Career Path Appreciation (CPA) is an interview assessment technique which aims to measure “managerial potential and job-related problem solving abilities” as well as “a person’s ability to cope with the cognitive complexity required for effective work decision making” (Kitching, 2005, p.18). It was developed using the principles of Gillian Stamp’s Matrix of Working Relationships (MOW) model, and categorises individuals’ current and potential cognitive capacity according to seven possible themes or levels of organisational complexity. In the current research, a modified version, known as the MCPA has been used (see Appendix 6). This version has the advantage of allowing for long-distance assessments, as it can be conducted online and via the telephone if necessary.

The assessment consists of an internet-based questionnaire followed by a one-on-one interview between a trained practitioner and the participant, and aims to gain a quantitative understanding about a person’s current and future capability to make effective decisions (Stamp, 1989). Stratified Systems Theory measures cognitive power temporally, and theorises that cognitive development occurs in discontinuous stages at particular ages (Jaques, 2007b). This is conceptualised as progression curves defining typical growth in terms of cognitive development. These curves are based on Jaques’ view that individual capability progresses in a regular manner linked to individuals’ typical increase in earnings over the course of their careers, and that individual equilibrium curves order themselves into a continuous family of curves (Jaques, 2007b). The implication is that there are precisely definable points at which changes in cognitive states, associated with discrete levels of work, can occur (Jaques, 2007b). At each increase in cognitive state, the maximum time span at which a person is capable of working (the timespan of discretion) also increases. These assumptions were supported by early pilot studies, which reflected an underlying primary drive associated with individual growth in capability. Furthermore, this hypothesis has been

tested and supported by a number of further studies since then (Stamp, 1993).

Indicators of individuals' current and potential level of work are assessed by two discrete assessment techniques within the overall assessment: phrase cards (online) and career history (discussion). In the phrase card activity, phrase cards are used to stimulate a discussion about participants' typical approach to work (Stamp, 1989). Thereafter, the practitioner engages in a conversation with the respondent about their current role, their career history, and their future goals and ambitions (Stamp, 1989). In particular, individuals are prompted to speak about times when they have felt comfortable with the demands of their role (i.e. when they are in flow), and when they have felt overwhelmed or underused in their role (i.e. when they are out of flow) (Stamp, 1989). Following this, a feedback session is held with the participant to discuss the results of the assessment (Stamp, 1989).

With regards to the CPA, "material...is not 'scored', but its content is interpreted using a model of levels of complexity in work and individual decision-making capability, and an array of 'growth curves' which indicate the likely rate of increase of that capability" (Stamp, 1989). The slope associated with these growth curves is derived from a similar mathematical equation to that used to predict the growth of population groups (Stamp, 2007). This results in a quantitative score representing individuals' current and potential level of work.

The output of the full CPA provides three main constructs, namely capability (individuals' current level of capability), mode (individuals' future potential capability) and Style (individuals' approach to work) (Stamp, 1989). However, the MCPA does not include Style as an output variable. For this reason, the variables of interest that will be measured using this instrument are capability and mode. Both of these variables are measured using interval data. It is possible to analyse mode at more than one future point; for instance, the individuals' capability at 5, 10, 15 and 20 years from the time of assessment can be estimated (Stamp, 1989). However, the MCPA provides only one score for mode. Capability and mode both acted as dependent variables in the analyses.

The cognitive requirements of the role (level of work) can also be defined according to the levels of work defined by the MOW; a process which was completed by BIOS

SA and provided to the researcher as part of the dataset. This acted as an independent variable in the analysis. Because the level of work is also defined and measured according to the MOW, it is possible to make a sensible comparison between the cognitive requirements of their current role with their current or future capability (capability or mode) as assessed by the MCPA. Thus, while the MCPA does not directly measure an individual's fit to their current environment in terms of cognitive capacity, it can be inferred in this manner and has been included in the current study as an independent variable. This is quantified using a difference measure between the individual's current capability (capability) or future capability (mode) as measured by the MCPA and the cognitive requirements of their current role, as defined by the MOW. When current capability is used in this difference measure, the variable is known as "capability fit", while when future capability is used in this difference measure, the variable is known as "mode fit". These variables produce nominal categories, namely "capability exceeds the requirements of the role", "capability matches the requirements of the role" and "capability is less than the requirements of the role".

The CPA has been used extensively in South Africa to assess and support the growth of managerial skills across culture, race and gender. As it is based on the principle of 'appreciation', it aims to pinpoint the value of the individual rather than merely arriving at a decision about his/her career (Kruger, 2013). In addition, the fact that it provides an understanding of the person's capabilities at a certain point in time, as well as an indication of their potential for cognitive development over a number of years, means it is considered helpful regarding the pacing of individuals' careers over time (Kruger, 2013).

The construct validity of the CPA has been measured by correlating its results with other tests (e.g. Kirton Adaptation Innovation Inventory, Graduate Record Exam, Scholastic Achievement Test, Culture Fair Intelligence Test, NEO-PI-R and MBTI) claiming to measure similar constructs. The results of these studies have not provided strong support for the proposition that the CPA measures what it claims to measure, with correlation coefficients between -0.26 and 0.70 when compared with various measures (EDAC/BIOSS, 2011). Nonetheless, it shows good criterion validity. Coefficients for the concurrent validity of the CPA and MCPA fall between 0.71 and

0.79; and between 0.70 and 0.93 for its predictive validity (BIOSS, 2005a; BIOSS, 2005b; EDAC/BIOSS, 2011). Although these results suggest the CPA is a good predictor of success in a role, there are questions regarding its construct validity and for this reason there is a need for more up-to-date studies on the accuracy and validity of the CPA to be conducted (Kruger, 2013).

The CPA and MCPA show good inter-rater reliability among different CPA practitioners, with coefficients of between 0.79 and 0.94. Their test-retest reliability across time is also adequate, with coefficients of between 0.71 and 0.93 (BIOSS, 2005a; BIOSS, 2005b; EDAC/BIOSS, 2011). Although these results suggest the CPA is a reliable measure, there is a need for more up-to-date studies evaluating the consistency of CPA results (Kruger, 2013).

Overseas studies found no significant differences in CPA results between genders, among races, or among people with different levels of education (BIOSS, 2005a). In South Africa, no significant differences were found regarding the CPA modes of 8054 participants based on gender or race (BIOSS, 2005a). In addition, no differences were found between black and white population groups when the results of 486 South African managerial employees were analysed (BIOSS, 2005a). Although some differences among different population groups were found in a study on 4606 respondents from the banking, insurance, and motor industries, these were not of practical significance (BIOSS, 2005a). While the CPA is therefore said to be a bias-free assessment measure, it must be noted that these studies considered mainly managerial positions, in which the effects of previously disadvantaged populations and a lack of education are not as evenly represented as in the general population.

3.4.2 Hogan Development Survey

The Hogan Development Survey (HDS) is a psychometric instrument designed by Robert and Joyce Hogan which aims to assess common dysfunctional personality syndromes which are likely to negatively impact on individuals' ability to perform consistently well in their work positions (Hogan & Hogan, 2009). It provides an indication of the extent to which dysfunctional 'derailing' patterns of behaviour are likely to be displayed by managers and leaders under pressure.

The HDS identifies 11 scales, or factors of dysfunctional behaviour, namely Excitable, Skeptical, Cautious, Reserved, Leisurely, Bold, Mischievous, Colorful, Imaginative, Diligent and Dutiful. No item overlap exists across the 11 scales (Hogan & Hogan, 2009). The most recent (2009) version of the instrument consists of 168 items or statements to which respondents are required to choose between two options: 'agree' or 'disagree' (see Appendix 7). Each scale contains 14 items, and scores are calculated so that higher scores on each scale indicate that the dysfunctional behaviours linked to that score would emerge under stressful conditions (Hogan, 2009). The raw scores provide interval data. The measure also indicates the percentile in which participants' raw score falls relative to the chosen normative sample. Percentile scores between 0 and 39 indicate a low risk of the derailing behaviour being displayed; percentile scores between 40 and 69 indicate a moderately low risk of the derailing behaviour being displayed; percentile scores between 70 and 89 indicate a moderately high risk of the derailing behaviour being displayed; and percentile scores between 90 and 100 indicate a high risk of the derailing behaviour being displayed. In the current study, only high-risk derailers were considered, as these represent the highest likelihood that derailing behaviour will be displayed in the workplace (Hogan & Hogan, 2009). For the purposes of analysis, both the number of high-risk derailers and the types of derailers were considered as dependent variables. When including the types of derailers in the analysis, the derailers were grouped into their overarching derailer types (i.e. moving away, moving against and moving toward). This was done to meet the requirements of the chi-square analysis (see section 4.3.1).

The construct validity of the HDS has been examined by comparing its scales to various measures, including the Hogan Personality Inventory (HPI), California Psychological Inventory (CPI), NEO PI-R, International Personality Item Pool (IPIP), Sixteen Personality Factor Questionnaire (16PF) and the Motives, Values and Preferences Inventory (MVPI) and the results show meaningful correlations (Hogan & Hogan, 2009). The predictive validity of the HDS with regards to intrapersonal skills, interpersonal skills, technical skills and leadership skills has also been established. For a full review of this data, refer to Hogan and Hogan (2009).

The reliabilities and inter-item correlations of the various scales of the HDS are depicted in Table 3 below.

Table 3: Reliability of the HDS (Adapted from Hogan & Hogan, 2009)

HDS Scale	N	Mean	Std Dev.	Cronbach Alpha	Mean Inter-Item Correlation
Excitable	107271	2.79	2.25	.63	.12
Skeptical	107019	4.30	2.35	.63	.12
Cautious	107450	2.78	2.35	.68	.13
Reserved	107437	4.04	2.02	.57	.09
Leisurely	107126	4.49	1.98	.43	.06
Bold	107769	7.60	2.65	.67	.13
Mischievous	107151	5.65	2.56	.59	.09
Colorful	107916	7.29	2.73	.68	.14
Imaginative	107726	5.33	2.45	.61	.10
Diligent	107376	9.78	2.09	.56	.10
Dutiful	107169	8.16	2.10	.46	.05

As the concept of reliability presupposes unidimensionality in a sample of test items, internal consistency figures are presented for each factor/dimension individually, rather than for the test as a whole (Tavakol & Dennick, 2011). Internal consistency reliabilities range between 0.43 (Leisurely) and 0.68 (Colorful and Cautious) with an average Cronbach's alpha of 0.59 (Hogan & Hogan, 2009).

There are varying reports regarding acceptable alpha levels in the literature, ranging from 0.70 to 0.95 (e.g. Nunnally & Bernstein, 1994; Bland & Altman, 1997; DeVellis, 2003). Lance, Butts and Michels (2006), quoting Nunnally's (1978) text on internal reliabilities, suggest that a reliability of at least 0.80 is necessary for any measurement scale used in practical contexts, particularly when the instrument is used for practical purposes such as making decisions in a real-life context. Considering the figures reported above, it is evident that the internal consistency of the HDS scales is lower than expected. While none of the scales meet even the lowest possible criteria of 0.70, Bold (0.67), Colorful (0.68) and Cautious (0.68) are close to being

acceptable. However, the low reliability of the majority of the scales is concerning, with the internal consistency of the Leisurely scale being of particular concern at 0.43. Low alpha values such as these may be explained by a poor correlation between the items in the scale. Alternatively, it may imply that not enough questions are being used to evaluate the factor in question (Tavakol & Dennick, 2011). However, as each factor is assessed using 14 questions, the former explanation is more likely. In addition, there is a great deal of variation among the mean scores per scale. This suggests that scales such as Diligent ($M = 9.78$) may be more prone to acquiescence bias, in which respondents have a tendency to agree with the questions asked. This may be as a result of the statements being worded in a manner that makes the associated trait seem highly desirable. On the other hand, items on scales such as Leisurely ($M = 1.98$) may seem less desirable, producing the opposite effect (Huck, 2009).

The test-retest reliabilities of the HDS scales are acceptable across both a short-term and long-term duration, with Pearson coefficients ranging between 0.64 and 0.75 for test sessions between 0 and 3 months apart, and between 0.52 and 0.75 for test sessions between 9 and 12 months apart (Hogan & Hogan, 2009).

3.5 Procedure

The data for this study were sourced from an existing archival database. BIOSS SA, an international organisation based in South Africa, provided the researcher with permission to access raw data from their participant database for the purposes of research, provided that confidentiality was maintained and that the raw data were only made available to the researcher and supervisor. These data were collected from a single international telecommunications organisation, also based in South Africa. As permission was granted to conduct the study, the raw results of each participant were made available to the researcher to compile into an Excel spreadsheet. Those participants with incomplete information were excluded from the study, and the relevant statistical analyses were carried out.

3.6 Statistical Analysis

In order to decide on the appropriate statistical techniques for this research, the scoring for the CPA and HDS, as well as the operationalisation of certain key

variables were assessed to determine whether certain assumptions were fulfilled. The CPA yielded ordinal scores for capability and mode. Although the various levels can be said to occur in a specific order, it must be kept in mind that capability and mode produce discontinuous data, reflecting the assumption that there are precisely definable points at which changes in cognitive states, associated with discrete levels of work, can occur (Stamp, 1993). These data cannot be considered interval because there is no way of determining if the interval between a level 3 and level 4, and the interval between a level 4 and level 5 for example, are equal (Huck, 2009). The HDS yielded nominal categories for the derailers, as well as interval data for the degree of risk associated with each derailer. However, to use the data in a meaningful way, the HDS data were categorised into “derailer types” and “number of high risk derailers”. Derailer types refer to the categories outlined by Hogan & Hogan (2009), namely a) moving away, b) moving against and c) moving toward; while number of high-risk derailers refers to the number of derailers above the 90th percentile in terms of risk (Hogan & Hogan, 2009). Although the HDS provides an indication of derailers at various degrees of risk, in the current study it was decided that only high-risk derailers would be considered. This is because these represent the highest likelihood that derailing behaviour will be displayed in the workplace (Hogan & Hogan, 2009).

Descriptive statistics, including frequencies, means, standard deviations, and measures of skewness and kurtosis were used to clarify, summarise and describe the data as well as assess the normality of the data (Huck, 2009). Normality of one of the dependent variables in the current study, namely number of high risk derailers, was assessed using the Kolmogorov-Smirnov test of normality, measures of kurtosis and skewness, as well as through the analysis of histograms (see Appendix 8). The Kolmogorov-Smirnov test is similar to that of a chi-square, in that it is a goodness-of-fit procedure that can be used as a check on normality. However, where the distributional shape of a continuous variable is in question, it is more applicable than a chi-square (Huck, 2009). The p-values of the Kolmogorov-Smirnov test were calculated, where values indicating $p > 0.05$ were classified as normal (Dancey & Reidy, 2004). This showed that the data were not normally distributed ($p > 0.05$). Furthermore, skewness and kurtosis values of 1.277 and 1.126 respectively, as well as the analysis of histograms for the data, supported the finding that the data were strongly positively skewed (Huck, 2009).

After establishing that normality was not present in the interval data, specific statistical techniques were chosen to investigate the main research questions. In order to examine whether the number of derailers are associated with level of work, capability fit and mode fit (see research questions 1, 3 and 5), the non-parametric Kruskal-Wallis test was used to compare the means of three or more groups (Huck, 2009). This test ranks participants on the basis of their performance on the dependent variable and provides a calculated value that can be used to determine whether the null hypothesis is rejected (Huck, 2009). While this test does not assume normality of the dependent variable, it does assume that there is homogeneity of variance, and that the observations in each group come from populations with the same shape of distribution. This was determined using the non-parametric Levene's test (McDonald, 2014).

In order to examine whether the types of derailers are associated with level of work, capability fit and mode fit (see research questions 2, 4 and 6), the non-parametric chi-square test of association was used as the kinds of derailers constituted categorical data. The chi-square test is used to assess whether there is a statistically significant association between two nominal variables, given that each variable has two or more levels (Huck, 2009).

3.7 Ethics

As the study was based on archival data, there was no direct human participation and therefore no direct risk of harm or benefit to employees. At the time of assessment, electronic consent was obtained from participants to store their test results and to use them for research purposes (See Appendix 3, 4 and 5). Consequently, it was unnecessary to gain additional consent from participants. Written consent was obtained from BIOSS SA to utilise the archival data (See Appendix 3).

Anonymity could not be guaranteed, as participants' scores for the two assessments as well as their demographic data had to be matched to their names in order for meaningful analysis to take place. However, randomised identity numbers were allocated to all participants, and were used as identifiers in place of their names, before running the statistical analyses. Furthermore, anonymity will be maintained in

all reports provided to BIOSS SA, as well as in the current report. In addition, all reasonable steps will be taken to ensure the confidentiality of participants is preserved. A summary of the final results detailing group trends will be provided to BIOSS SA. As the data are already archived, they will continue to be stored after completion of the study. In addition, the research supervisor at the University of the Witwatersrand will keep an anonymised data set in a password-protected computer until the research and all potential presentations and publications have been completed.

The current study was approved by the Internal Ethics Board at the University of the Witwatersrand on the 10th of June 2015 (see Appendix 1 and Appendix 2).

Chapter 4: Results

4.1 Introduction

In this chapter, a comprehensive analysis of the statistical results conducted on the archival data is presented. To begin, a brief examination of the descriptive statistics is provided, to shed more light on the sample's characteristics. These include the means, standard deviations, minimum and maximum values and tests of normality. As mentioned in the previous chapter, these tests of normality include the Kolmogorov-Smirnov test, analysis of the skewness and kurtosis of the dependent variable, as well as histograms. Following this, the results of the statistical analyses addressing the research questions are presented. These include chi-square analyses and Kruskal-Wallis tests. All statistical analyses conducted were carried out using IBM SPSS Statistics, Version 22.0.0.0 (IBM, 2013).

4.2 Descriptive Statistics

BIOSS SA identified the level of work inherent in participants' current jobs prior to assessment, and showed that the sample's current jobs all fell within three main levels of work: 91 individuals worked at a Level 3 (39.2%), 122 worked at a Level 4 (52.6%) and 19 worked at a Level 5 (8.2%). This is depicted below in Table 4.

Table 4: Level of work Inherent in Respondent's Work Roles (N=232)

Variable	Category	Frequency	Percentage
Level of work	3	91	39.2
	4	122	52.6
	5	19	8.2

Level 3, Practice, is one at which individuals are required to consider various options and make decisions about the ways in which products or services can be provided in order to best realise the established means (Stamp, 2007). Level 4, Strategic Development, is the level at which executive decisions need to be made about the relationship between the overall vision and mission of the organisation, and the means through which they are realised. In addition, long-term strategic goals are converted into operational goals at this level (Stamp, 2007). Finally, level 5, Strategic Intent, is

the level of work at which executive decisions are made regarding how the organisation's vision, mission and products/services are represented internally and externally. The future financial and social viability of the organisation is considered at this level (Stamp, 2007).

For ease of understanding, it can be said that the sample includes members of the organisation from middle managers to managing directors. Lower levels were not present in the sample due to the nature of the assessments necessary for inclusion in this study; BIOSS SA does not administer the CPA and HDS together at any level below a level 3. Presumably, higher levels were not present in the sample due to their scarcity in organisations in general. Levels 6 and 7, which translate loosely into the roles of business unit executive vice presidents and CEOs, are unlikely to be found in large numbers in organisations (Stamp, 2003), and were evidently not assessed using the means outlined for this study.

The original data from BIOSS SA categorised levels of work inherent in the level of work, as well as measured by the CPA, into further sub-levels. However, the decision was made to consider only the main levels of work for the purpose of the current analysis. The reason for this is, firstly, to adhere to the original conceptualisation of levels of work as described by SST and MOW. The categories of capability and mode cannot be thought of as interval, but rather should be thought of as ordered, yet distinct steps in an individual's cognitive capacity for complexity (Stamp, 1981). For this reason, the mean, standard deviation and range cannot be reported. Furthermore, in order to meet the assumptions of the chosen statistical analyses, it was necessary to simplify the levels into their most basic form. This is discussed in greater detail in section 4.3.1. Table 5 below presents the descriptive statistics for the CPA.

Table 5: Frequencies of Levels of Work as Measured by the CPA (N = 232)

Variable	Level of work	Frequency	Percentage
Capability	2	8	3.4
	3	162	69.8
	4	56	24.1
	5	6	2.6

Variable	Level of work	Frequency	Percentage
Mode	2	1	0.4
	3	52	22.4
	4	122	52.6
	5	50	21.6
	6	7	3

When considering the results of the CPA in terms of capability, the results showed that the current potential of the sample ranged from level 2 (Service) to level 5 (Strategic Intent) at the time of assessment. Descriptive statistics show that 8 participants are currently functioning at a level 2 (3.4%), 162 are at a level 3 (69.8%), 56 are at a level 4 (24.1%) and 6 participants are at a level 5 (2.6%). The majority of the sample falls into level 3 (Practice). As has been mentioned, level 3 of work involves considering a variety of factors to decide on the best manner of distributing products or services to best realise established means (Stamp, 2003). The main judgement theme for level 3 is *connecting*, which involves scanning the environment to search for new ideas and innovations in order to direct the organisation into new states for the future (Stamp, 1993). As this level entails coping with both stability and change, as well as engaging with unknown future possibilities, it necessitates an ability to focus on the bigger picture.

CPA mode, which predicts future potential for handling complexity (Stamp & Stamp, 1993), ranged between a level 2 (Service) and a level 6 (Corporate Citizenship). Descriptive statistics show that one participant reports mode at a level 2 (0.4%), 52 report mode at a level 3 (22.4%), 122 report mode at a level 4 (52.6%), 50 participants report mode at a level 5 (21.6%), and 7 participants report mode at a level 6 (3%). The majority of the sample reports mode at a level 4 (Strategic Development). The major judgement theme of level 4 is known as *modelling* and is characterised by the use of abstract concepts to conceptualise and assess novel ideas (Stamp, 1993).

Frequency analyses reveal that the majority of participants' future capability exceeded their current capability (73.7%). This shows that participants were expected to progress from where they were comfortable functioning at the time of assessment, to

a higher level of work at a point in the future. This is predicted by the theory's growth curves, which show that an individual's future potential will be higher than his/her current capabilities (Stamp, 1981).

Tables 6 and 7 below present descriptive statistics regarding the number of high-risk derailers measured by the HDS.

Table 6: Descriptive Statistics for Number of High Risk Derailers (N=232)

Variable	Mean	Range
Number of High Risk Derailers	1.07	0-6

Table 7: Frequencies of the Number of High Risk Derailers (N=232)

Number of High Risk Derailers	Frequency	Percentage
0	105	45.3
1	63	27.2
2	28	12.1
3	19	8.2
4	15	6.5
6	2	0.9

The number of high-risk derailers ranged between 0 and 6 (M=1.07). The majority of individuals had no high-risk derailers (45.3%), 27.2% had one high-risk derailer, 12.1% had 2 high-risk derailers, 8.2% had 3 high-risk derailers, 6.5% had 4 high-risk derailers and 0.9% had 6 high-risk derailers. Thus, the data were highly positively skewed, with the majority of participants reporting no high-risk derailers, and a very small percentage of participants reporting four or more high-risk derailers. This is somewhat in contrast to the literature available on South African managers, which suggests that the majority of managers are likely to display at least one high-risk derailer (Strauss, 2010). Nonetheless, Strauss (2010) concludes that 90% of the sample in the aforementioned study had three derailers or less, and only a very small

percentage of the sample reported five or more derailers, which is very much in line with the current research.

Table 8 presents frequencies of the various derailers as measured by the HDS.

Table 8: Frequencies for Types of Derailers (N=232)

Derailer Type	Derailer	Frequency	Percentage
Moving away		85	36.6
	Excitable	23	9.9
	Skeptical	12	5.2
	Cautious	14	6
	Reserved	16	6.9
	Leisurely	20	8.6
Moving against		129	55.6
	Bold	56	24.1
	Mischievous	16	6.9
	Colorful	20	8.6
	Imaginative	37	15.9
Moving toward		34	14.6
	Diligent	20	8.6
	Dutiful	14	6

With regards to the types of high-risk derailers reported, 36.6% of participants reported a high risk of derailers falling into the ‘moving away’ category, 55.6% of participants reported a high risk of derailers falling into the ‘moving against’ category, and 14.6% of participants reported a high risk of derailers falling into the ‘moving toward’ category. The most frequently reported individual derailer by far was Bold (24.1%), followed by Imaginative (15.9%). This is in contrast to the HDS norm group referred to in the HDS technical manual, which is comprised of 109103 cases in total (Hogan & Hogan, 2009). In this norm group, the highest scores were obtained for Diligent and Dutiful, with the next highest score being obtained for Bold (Hogan & Hogan, 2009). However, it is in agreement with other research conducted in the South African context, which also found Bold to be the derailer most

commonly presented in a managerial sample (Strauss, 2010). The fact that both of these derailers identified by the current study fall into the ‘moving against’ category and that, overall, ‘moving against’ derailers were the most commonly reported, suggests that, under pressure this sample tends to manipulate and charm others while avoiding any true connection with them (Hogan & Hogan, 2009).

4.3 Analyses of the Research Questions

Before selecting which test to use to analyse the data, the nature of the data was assessed in order to decide whether the assumptions for parametric tests were fulfilled. As mentioned in Section 3.6, the Kolmogorov-Smirnov test of normality, as well as measures of kurtosis and skewness were carried out to investigate the normality of the data. The results of this analysis are provided in Table 9.

Table 9: Normality of Number of High Risk Derailers (N=232)

Variable	K-S Value	K-S p-value	Skewness	Kurtosis
Number of high risk derailers	0.246	<0.01	1.277	1.126

The results of the Kolmogorov-Smirnov test showed that the data were not normally distributed ($p > 0.05$). Furthermore, skewness and kurtosis values of 1.277 and 1.126 respectively, as well as the analysis of histograms for the data, supported the finding that the data were strongly positively skewed (Huck, 2009). For this reason, the data could not be treated as normally distributed, and non-parametric techniques needed to be chosen to investigate the main research questions that took this issue into consideration.

To examine the relationships between the independent variables (level of work, the degree of fit between capability and the level of work, and the degree of fit between mode and the level of work) and the dependent variable denoting the type of derailer, chi-square tests were carried out. To examine the relationships between the independent variables (level of work, the degree of fit between capability and the level of work, and the degree of fit between mode and the level of work), and the dependent variable number of high-risk derailers, Kruskal-Wallis tests were carried out.

4.3.1 Level of work and Types of Derailers

The current research aimed to investigate whether there is an association between the level of work inherent in the environment and the types of derailing behaviour that are likely to be experienced.

For the purposes of analysis, the existence of any given derailer was operationalised as the presence or absence of a high risk of displaying that derailer. According to the percentile groupings created by the HDS, high-risk derailers are those for which participants score in the 90th percentile or above. The reason for only including high-risk derailers in the study, as opposed to using a percentile score for each derailer, was twofold. Firstly, according to the theory, these represent the highest likelihood that derailing behaviour will be displayed in the workplace (Hogan & Hogan, 2009) and are therefore of the most practical significance. In addition, it ensured simplicity in the analysis by creating a dichotomous score. As the HDS test developer's method of arriving at a percentile score (i.e. norms used, possible weightings etc.) was not known, this method was deemed most appropriate for gaining an accurate understanding of the score.

Initially, the aim was to investigate the association between the level of work and the risk of derailing behaviour by conducting a chi-square test of association between levels of work and derailers. The chi-square test of association is used to determine whether a relationship exists between two categorical or nominal variables with two or more levels each (Huck, 2009). The main assumption of the test is that the sample must consist of at least 20 participants, and that no cell should have fewer than 5 participants (Wilson Van Voorhis & Morgan, 2007). However, when attempting to run the analysis using all 11 derailers as levels of analysis, this assumption was not met. This is due to the fact that the sample was not large enough to ensure 5 participants per cell, with a total of 33 cells. As a result, the 11 derailers were categorised into their overarching derailer types, namely moving away, moving against and moving toward, for the purposes of the chi-square analysis. For the same reason, only the main levels of work (i.e. levels 3, 4 and 5), as opposed to the sub-levels identified by BIOSS SA, were included as levels of analysis. This method ensured that each of the 9 cells contained at least 5 participants, with the exception of

participants currently working in a level 5 environment with high risk ‘moving toward’ derailer types. As a result, this cell was excluded from the analysis.

Statistical Analysis: Level of work and Types of Derailers

A chi-square test was conducted in order to assess the association between level of work and types of derailing behaviour.

Table 10: Chi-square Analysis of Association between Level of work and Derailers (N=232)

		Derailer Type			Total
		Moving away	Moving against	Moving toward	
	3	35	56	24	115
Level	4	41	59	6	106
	5	9	14	4	27
	Total	85	129	34	248
Chi Square		11.308*			
*p = 0.023					

From the analysis, it was apparent that there was a significant relationship between level of work and types of derailing behaviour ($X^2(4, N= 248) = 10.95, p = 0.027$). The analysis revealed that, at all levels, there was a greater tendency for participants to report ‘moving against’ derailers, followed by ‘moving away’, and finally ‘moving toward’.

4.3.2 Level of work and Number of High Risk Derailers

The current research aimed to investigate whether there is an association between the level of work inherent in the environment and the number of high-risk derailers that are likely to be experienced.

Initially the researcher aimed to investigate the relationship between the level of work inherent in the environment and the number of high-risk derailers using a one-way ANOVA. As a one-way ANOVA is a parametric test requiring the dependent variable to be normally distributed (Huck, 2009), the normality of the data was first assessed. As mentioned previously, the existence of any given derailer was operationalised as

the presence or absence of a high risk of displaying that derail. The Kolmogorov-Smirnov test showed that the data were not normally distributed ($p < 0.05$) and skewness and kurtosis values of 1.277 and 1.126 respectively confirmed that the data were strongly positively skewed. As the data therefore did not meet the requirement of normality, the parametric one-way ANOVA could not be used to assess the relationship outlined. Instead, the non-parametric Kruskal-Wallis test, which is used to compare the means of two or more groups non-parametrically (Huck, 2009), was used for this purpose. As mean rank comparisons were used, group sizes were taken into account.

While this test does not assume normality of the dependent variable, other assumptions do need to be met in order for the test to be applicable. Firstly, the dependent variable should be at least ordinal in nature. Secondly, the independent variable should consist of two or more categorical, independent groups. The third assumption is that no relationship should exist between the observations of the different groups. In other words, there should be independence of observations (McDonald, 2014). All three of these assumptions are met by the dependent variable in question, namely the number of high-risk derailleurs. Finally, the fourth assumption is that there is homogeneity of variance, and that the observations in each group come from populations with the same shape of distribution. This was determined using the non-parametric Levene's test (McDonald, 2014), which revealed that there was sufficient similarity in the variability of each group for the test to be run ($F(2) = 0.947, p = 0.055$).

Statistical Analysis: Level of work and Number of Derailleurs

A Kruskal-Wallis test was conducted in order to assess the association between level of work and number of potential derailleurs. The results of this analysis are shown in Table 11 below.

Table 11: Kruskal-Wallis test for comparison of Number of High Risk Derailers across Levels of Work (N=232)

		Number of High Risk Derailers	Mean Rank	p value
	3	91	127.66	0.049
Level	4	122	106.86	
of	5	19	124.97	
work	Total	232		

From the analysis, it was apparent that there was a significant relationship between level of work and the number of derailers present ($X^2(2, N=232)=6.033, p=0.049$). Having said this, only 2.6% of the variance in the number of derailers was explained by level of work. Post hoc analyses revealed that there was a significant difference between the number of derailers at Level 3 and Level 4 ($X^2(1, N=213)=5.844, p=0.016$), such that fewer derailers were evident at Level 4. However, there were no significant differences between Level 3 and Level 5 ($X^2(1, N=110)=0.001, p=0.97$), or between Level 4 and Level 5 ($X^2(1, N=141)=1.180, p=0.277$).

4.3.3 Capability Fit and Types of Derailers

The current research aimed to investigate whether there is an association between the degree of fit between an individual's current capability and the cognitive demands of their current role, and the types of high-risk derailers that are likely to be experienced.

To measure the degree to which participants' capability matches their level of work, a variable was created comparing the cognitive requirements of their current role with their current capability as measured by the MCPA. It is possible to make this comparison based on the fact that level of work was also defined and measured according to the MOW theory. Thus, while the MCPA does not directly measure an individual's fit to their current environment in terms of cognitive capacity, it can be inferred in this manner and has been included in the current study as an independent variable. For ease of reference, this variable is referred to as "capability fit". It produced nominal categories, namely "capability exceeds the requirements of the role", "capability matches the requirements of the role" and "capability is less than the requirements of the role". As with previous analyses, the existence of any given

derailer was operationalised as the presence or absence of a high risk of displaying that derailer.

Initially, the aim was to investigate the association between capability fit and the risk of derailing behaviour by conducting a chi-square test of association between levels of work and derailers. To ensure all the assumptions of the test were met, the 11 derailers were categorised into their overarching derailer types, namely moving away, moving against and moving toward; and only the main levels of work as defined by MOW (i.e. levels 3, 4 and 5), as opposed to the sub-levels identified by BIOSS SA, were included as levels of analysis (for a full explanation, see section 4.3.1). This method ensured that each of the 9 cells contained at least 5 participants, with the exception of one cell, namely participants whose capability exceeded their role's current environment's demands, and experienced the 'moving toward' derailer type. As a result, this cell was excluded from the analysis.

A chi-square test was conducted in order to assess the association between capability fit and derailer type. The results of this analysis are shown in Table 12 below.

Table 12: Chi-square Analysis of Association between Capability Fit and Derailers (N=232)

		Derailer			Total
		Moving away	Moving against	Moving toward	
Capability Fit	Cap>Level	8	12	3	23
	Cap=Level	32	55	23	110
	Cap<Level	45	62	8	115
	Total	85	129	34	248
Chi Square	9.813*				
*p = 0.044					

From the analysis, it was apparent that there was a significant relationship between capability fit and types of derailing behaviour ($X^2(4, N= 248) = 9.813, p = 0.044$).

The analysis revealed that, at all degrees of capability fit, there was a greater tendency for participants to report ‘moving against’ derailers at all levels of capability fit. This was followed by ‘moving away’ derailers, and finally ‘moving toward’ derailers.

4.3.4 Capability Fit and Number of High Risk Derailers

The current research aimed to investigate whether there is an association between the degree of fit between individuals’ current capability and the cognitive demands of their current role, and the number of high-risk derailers that are likely to be experienced.

The variable capability fit was again used as an indirect measure of an individual’s fit between their current capability and their current role. As with previous analyses, the existence of any given derailers was operationalised as the presence or absence of a high risk of displaying that derailers.

Initially the researcher aimed to investigate the relationship between capability fit and the number of high-risk derailers using a one-way ANOVA. However, as shown in a previous analysis, the dependent variable (number of high risk derailers) did not meet the requirement of normality, and thus the parametric one-way ANOVA could not be used to assess the relationship outlined. Instead, the non-parametric Kruskal-Wallis test, which is used to compare the means of two or more groups non-parametrically (Huck, 2009), was used for this purpose. As explained in section 4.3.2, the dependent variable in question, namely the number of high-risk derailers, meets all the assumptions of the Kruskal-Wallis test. Homogeneity of variance was determined using Levene’s test ($F(2) = 0.822, 0.441$).

Statistical Analysis: Capability Fit and Number of Derailers

A Kruskal-Wallis test was conducted in order to assess the association between capability fit and the number of high-risk derailers. As mean rank comparisons were used, group sizes were taken into account. The results of this test are presented in Table 13 below.

Table 13: Kruskal-Wallis test for comparison of Number of High Risk Derailers across Degrees of Capability Fit (N=232)

		Number of High Risk Derailers	Mean Rank	P value
Capability Fit	Cap>Level	18	133.69	0.430
	Cap=Level	102	117.27	
	Cap<Level	112	113.04	
Total		232		

From the analysis, it became evident that there was no significant relationship between capability fit and the number of derailers present ($X^2(2, N = 232) = 1.688, p = 0.43$).

4.3.5 Mode Fit and Types of Derailers

The current research aimed to investigate whether there is an association between the degree of fit between an individual’s future capability (mode) and the cognitive demands of their current role, and the types of high-risk derailers that are likely to be experienced.

To measure participants’ degree of fit between their future capabilities and their current role, a variable was created comparing the cognitive requirements of their current role with their future capability (mode) as measured by the CPA. It is possible to make this comparison based on the fact that level of work was also identified using the MOW theory. Thus, while the MCPA does not directly measure an individual’s degree of fit between their future capabilities and the demands of their current role in terms of cognitive capacity, it can be inferred in this manner and has been included in the current study as an independent variable. For ease of reference, this variable is referred to as “mode fit”. It produces nominal categories, namely “mode exceeds the requirements of the role”, “mode matches the requirements of the role” and “mode is less than the requirements of the role”. As with previous analyses, the existence of any given derailier was operationalised as the presence or absence of a high risk of displaying that derailier.

Initially, the aim was to investigate the association between mode fit and the risk of derailing behaviour by conducting a chi-square test of association between levels of work and derailers. To ensure all the assumptions of the test were met, the 11 derailers were categorised into their overarching derailer types, namely moving away, moving against and moving toward (for a full explanation, see section 4.3.1). This method ensured that each of the 9 cells contained at least 5 participants, with the exception of one cell, namely participants whose mode was exceeded by the cognitive demands of their current environment, and experienced the ‘moving toward’ derailer type. As a result, this cell was excluded from the analysis.

Statistical Analysis: Mode Fit and Types of Derailers

A chi-square test was conducted in order to assess the association between mode fit and derailer type. The results of this analysis are shown in Table 14 below.

Table 14: Chi-square Analysis of Association between Mode Fit and Derailer Type (N=232)

		Derailer Type			Total
		Moving away	Moving against	Moving toward	
Mode Fit	Mode>Level	30	56	20	106
	Mode=Level	40	60	12	112
	Mode<Level	15	13	2	28
	Total	85	129	34	248
Chi Square	7.712*				
p = 0.103					

From the analysis, it was apparent that there was no significant relationship between mode fit and types of derailing behaviour ($X^2(4, N= 248) = 7.712, p = 0.103$). Nonetheless, the results revealed a general tendency for participants to report more ‘moving against’ derailers at all levels of mode fit.

4.3.6 Mode Fit and Number of High Risk Derailers

The current research aimed to investigate whether there is an association between the degree of fit between an individual’s future capability (mode) and the cognitive

demands of their current role, and the number of high-risk derailers that are likely to be experienced.

The variable mode fit was again used as an indirect measure of an individual's fit between their future capability and their current role. As with previous analyses, the existence of any given derailers was operationalised as the presence or absence of a high risk of displaying that derailers.

Initially the researcher aimed to investigate the relationship between mode fit and the number of high-risk derailers using a one-way ANOVA. However, as shown in a previous analysis, the dependent variable (number of high risk derailers) did not meet the requirement of normality, and thus the parametric one-way ANOVA could not be used to assess the relationship outlined. Instead, the non-parametric Kruskal-Wallis test, which is used to compare the means of two or more groups non-parametrically (Huck, 2009), was used for this purpose. As explained in section 4.3.2, the dependent variable in question, namely the number of high-risk derailers, meets all the assumptions of the Kruskal-Wallis test. Homogeneity of variance was determined using Levene's test ($F(2) = 0.84, p = 0.433$).

Mode Fit and Number of Derailers

A Kruskal-Wallis test was conducted in order to assess the association between mode fit and number of high-risk derailers. As mean rank comparisons were used, group sizes were taken into account. The results of this test are shown in Table 15 below.

Table 15: Kruskal-Wallis test for comparison of Number of High Risk Derailers across Degrees of Mode Fit (N=232)

		Number of High Risk Derailers	Mean Rank	P value
Mode Fit	Mode>Level	97	120.47	0.418
	Mode=Level	98	117.12	
	Mode<Level	37	104.43	
	Total	232		

From the analysis, it became evident that there was no significant relationship between mode fit and the number of derailers present ($\chi^2 (2, N= 232) = 1.746, p = 0.41$).

In the chapter that follows, the implications of these findings in relation to the existing literature is considered.

Chapter 5: Discussion

5.1 Introduction

The current chapter aims to critically address the results of the study by considering its relation to the theoretical and conceptual framework outlined in an earlier section of the report. This section therefore focuses on discussing the results in an effort to address the overarching research questions. The main objective of this research was to contribute towards the existing literature on derailment by investigating whether there is an association between the level of work and the risk of derailing behaviour, and whether there is an association between an individual's fit to their environment in terms of cognitive complexity and their risk of derailing behaviour.

5.2 Summary Findings Regarding Levels of Work and Derailment

The current research aimed to investigate whether an association exists between the level of work inherent in a job role and the potential for derailment in managers and leaders. This relationship was examined through two research questions. The first investigated the association between the level of work and the types of derailing behaviour; while the second investigated the association between the level of work and the number of high-risk derailers.

5.2.1 Level of work and Types of Derailers

With regards to the first research question, it was found that a significant association exists between the level of work inherent in the job role and the types of derailing behaviour exhibited. According to Hogan & Hogan (2009), derailers fall into three main categories, namely moving away from people (intimidating, dominating and avoiding others); moving against people (manipulating and charming others while avoiding any true connection with them); and moving toward people (ingratiating others and building alliances to avoid criticism). The results show that participants at all levels of work reported more high-risk derailers in the 'moving against' category. This was followed in frequency by 'moving away' derailers and finally 'moving toward' derailers.

This is in agreement with other research conducted in the South African context, which also found Bold to be the derailers most commonly presented in a managerial sample (Strauss, 2010). However, the finding is in contrast to the HDS norm group, which suggests that individuals across the board score highest on Diligent and Dutiful, followed by Bold (Hogan & Hogan, 2009). The norm group is therefore likely to display the highest scores on those derailers associated with ingratiating others and building alliances to avoid being criticised (Hogan & Hogan, 2009).

An explorative question forming part of this research question was whether the types of derailers reported would change according to the level of work. However, this was not found to be the case. In summary, the current analysis reinforces the earlier finding that participants across all levels of work were most likely to report a high risk of displaying derailers falling into the 'moving against' category. However, it does not support the hypothesis that certain types of derailers would be more likely at higher levels of work, while other types of derailers would be more likely at lower levels of work. The possible reasons for this finding, as well as its implications, are considered in section 5.5.1.

5.2.2 Level of work and Number of Derailers

With regards to the first hypothesis, it was found that significantly more derailers are likely to be found at level 3 of work when compared to level 4 of work. This suggests that more high-risk derailers are likely in the work environment where individuals must scan the environment for new ideas and innovations, and direct the organisation so that the established means are achieved (Stamp, 1993), as opposed to a work environment where individuals must use abstract concepts to conceptualise and assess new ideas (Stamp, 1993). Having said this, only 2.6% of the variance in the number of derailers was explained by level of work. As mean rank comparisons were used, this finding takes group sizes into account. However, no significant differences were found in the number of high-risk derailers between levels 3 and 5, or between levels 4 and 5. This was an unexpected finding, as it disputed the original hypothesis that more derailers are likely to be present at higher levels of work. This hypothesis was based on the theoretical view that, at higher levels of work, work becomes more complex and pressurised, and as a result individuals are more likely to display derailing behaviour.

SST proposes that roles within organisations can be classified according to varying discontinuous levels or layers of work, and that these levels are differentiated according to the time frames within which employees typically see results (known as the time span of discretion), the level of responsibility they are expected to take on, as well as the complexity of the work they are engaged in (Stamp, 1981; Jaques 2007b). Therefore, with each increase in level, the complexity of the environment increases, problems and decisions become more ambiguous and ill defined, and the task of problem solving becomes more challenging (Stamp, 1981). Complex environments require managers to think within longer timeframes, develop a more complex understanding of their environment and relationships, and consider more intricate possibilities and associations in their thinking (Browning, 2013). Because the best route to solving a problem is unclear in complex environments, individuals are likely to experience a greater sense of uncertainty and worry, and will need to rely on their judgement and discretion to a greater extent (Comaroff, 2012; Jaques, 2007a). It is therefore posited that a greater degree of cognitive capability is required (Kitching, 2005).

This capacity to deal with complexity and adapt to change is thought to become more important at each progressively higher level of work, as minimal guidance or certainty is available regarding the likely success of any given approach (McCartney & Campbell, 2006). Freedman (2005) suggests that, as individuals move into increasingly higher positions within the organisation, they are faced with additional pressure in terms of attempting to deal with previously unknown demands and skill requirements. Managers are often promoted to a higher level of work with the belief that they are suited to a more senior position, despite the fact that they do not have the skills and qualifications necessary to perform successfully in the role (Gentry & Shanock, 2008). It is therefore thought that the likelihood of derailing behaviour may be linked to a quick transition to a more senior position (Strauss, 2010). The developers of the HDS support this by suggesting that environments that are ambiguous, unstructured and lack clear guidelines, as well as periods of rapid change and increased pressure may contribute towards excessive pressure within a role, which in turn may lead to a higher likelihood of derailing behaviour (Hogan & Hogan, 2009; Hogan et al., 2010). For these reasons, higher levels of work were

originally hypothesised to be associated with a greater likelihood of derailing behaviour being displayed. However, the results do not support this claim.

There are a number of potential reasons that the hypothesis was not supported in the expected way. It may be that the hypothesis was incorrect and that derailing behaviour is not, in fact, associated with higher levels of work. This seems somewhat likely, considering that level of work explained only a very small percentage of the variance in number of derailers. In other words, although individuals at higher levels of work may be faced with additional pressure relating to the increased uncertainty and ambiguity (Freedman, 2005), this may not overwhelm them to the extent of triggering derailing behaviour.

While job complexity, environmental ambiguity and the transition to more senior positions may be some of the factors contributing to derailing behaviour, it should be kept in mind that other factors may also be associated with increased derailing behaviours. Another consideration may be idiosyncratic personality features that influence the way individuals react under pressure and how well they get along with others (Hogan & Hogan, 2009). In addition, situational factors such as stress, high emotion, fatigue, boredom and work overload may all contribute to the increased likelihood of dysfunctional behaviour being displayed (Nelson & Hogan, 2009). The results suggest that, while the complexity of the work environment may be one element associated with a higher risk of derailing behaviour, it is probably not the only one, and by itself it does not appear sufficient for derailing behaviour to appear. It is therefore possible that a combination of interpersonal, intrapersonal and environmental factors, rather than the level of work in isolation, is associated with a higher risk of derailing behaviour in the workplace.

A second possible explanation is that, while the higher level of complexity evident at higher levels of work, or a combination of the factors described above do in fact lead to more stress, this stress is not sufficient to cause derailing behaviour unless the individual is operating at an extremely high level of work. It was originally hypothesised that the greatest number of derailers would be most evident at very high levels of work, and that this relationship would show a general upward trend, with progressively higher levels of work being associated with progressively more high-

risk derailers. This is because SST divides the levels of work within an organisation according to the time span of discretion of those operating at this level, and this can be classified into discrete ranges showing a similar upward trend (Jaques, 2007b). Each distinct range is, in turn, thought to be associated with a greater degree of pressure (Stamp, 1981). However, it may be that only very high levels of work within the organisation are associated with sufficient levels of pressure and complexity to induce derailing behaviour.

Executives and other managers in high positions in the workforce, for instance those operating at levels 6 and 7 of the organisation, operate under the expectation of challenging existing processes and creating strategic plans to ensure the long-term success of the organisation, whereas managers at lower levels of the organisation may be responsible to a greater extent for enacting such strategies (McCartney & Campbell, 2006; Van Velsor & Leslie, 1995). Because levels 6 and 7 are likely to be associated with a greater degree of complexity, they may also be associated with a greater degree of pressure (Freedman, 2005).

In the current study, the majority of participants were found to currently operate at a level 4 (52.6%), very few were found to currently operate at a level 5 (8.2%) and none were found to operate at higher levels of work. Based on the argument presented above, it may be that the levels of work represented in the current study were not sufficiently demanding or pressurised to elicit derailing behaviour. In other words, it is possible that only very high levels of work associated with strategy formation, such as levels 6 and 7 of the organisation (Stamp, 1989), are associated with sufficient levels of pressure and complexity to induce derailing behaviour.

Finally, considering only the high-risk derailers may have been misleading, and caused a misunderstanding of the results. It is possible that, while the number of high-risk derailers may have been greater at level 3 and fewer at level 4, the combined percentile values of these derailers may actually be higher at levels 4 and above. If evaluating derailers holistically at each level elicits a truer picture of the resulting behaviour, using this method of analysis could suggest a lower likelihood of derailing behaviour at lower levels of work, as originally predicted.

5.2.3 Summary of Findings

In summary, the predicted relationship between levels of work and the risk of derailing behaviour was not supported. The findings contradicted the prediction that more derailers would be evident at higher levels of work, and found no difference in the types of derailing behaviour evident at different levels of work.

5.3 Summary Findings Regarding Capability Fit and Derailers

The current research aimed to investigate whether an association exists between the degree of fit managers and leaders experience between their current cognitive capability and the demands of their job roles (capability fit), and the potential for derailment. This relationship was examined through two research questions. The first investigated the association between capability fit and the types of derailing behaviour; while the second investigated the association between capability fit and the number of high-risk derailers.

5.3.1 Capability Fit and Types of Derailers

With regards to the second research question, it was found that a significant association exists between capability fit and the types of derailing behaviour exhibited. The results of the chi-square analysis show that participants at all degrees of capability fit reported significantly more high-risk derailers in the ‘moving against’ category. This was followed in frequency by ‘moving away’ derailers and finally ‘moving toward’ derailers.

Again, this finding is in line with the results of the frequency analyses, which showed that the majority of participants reported a high risk of derailers in the ‘moving against’ category; and in particular that Bold and Imaginative, as ‘moving against’ derailers, were the most frequently reported derailers. Other research in the South African context also found Bold to be the derailer most commonly reported in a managerial sample (Strauss, 2010), providing credence to the current findings.

An explorative question forming part of this research question was whether the types of derailers reported would change according to the degree of fit participants reported with the cognitive demands of their environment (capability fit). However, this was not found to be the case. In summary, the current analysis reinforces the earlier

finding that participants across all degrees of fit with the cognitive demands of their environment are most likely to report a high risk of displaying derailers falling into the 'moving against' category. However, it did not find that the types of derailers would differ according to the degree of fit participants reported with their environment. The possible reasons for this finding, as well as its implications, are considered in section 5.5.1.

5.3.2 Capability Fit and Number of Derailers

With regards to the second hypothesis, it was found that there was no significant relationship between the degree of cognitive fit participants reported with their environment (capability fit) and the number of high-risk derailers they reported. As mean rank comparisons were used, this finding takes group sizes into account. This was an unexpected finding, as it disputed the original hypothesis that participants who have either a higher capability than required by their job role, or a lower capability than required by their job role, are likely to report more high-risk derailers than participants whose capability fits the requirements of their job role.

This hypothesis was based on the theoretical view that, when individuals achieve flow with their work environment, they are unlikely to feel either overstretched or overused (Stamp, 2007). As a result, they may be less likely to experience the pressure thought to pre-empt derailing behaviour (Hogan & Hogan, 2009).

According to SST, the capacity to deal with complexity and adapt to change becomes more important as managers move into more senior positions as minimal guidance or certainty is available regarding the likely success of any given approach (McCartney & Campbell, 2006). Furthermore, as individuals move into higher positions within the organisation, they are faced with additional pressure in attempting to deal with previously unknown demands and skill requirements (Freedman, 2005). This research hypothesised that the risk of derailing behaviour would therefore be more likely at higher levels of work. However, this effect may be somewhat mitigated if there is a fit between the complexity inherent in the work environment (level of work) and the current capability of the individual acting within it. MOW theorises that, when the current capability of the individual aligns with the level of work and its inherent complexity, it is more likely that success will be achieved in the role (Stamp, 2007).

The reason for this is that individuals who have achieved such fit with their role are more likely to experience being 'in flow'. Flow can be described as the experience of being fully immersed and involved in a task, accompanied by a deep sense of energy, accomplishment, engagement and enjoyment (Csikszentmihalyi, 1990). This enjoyment is typically associated with simply being able to participate in the task, rather than from any expected reward resulting from completing the task (Sahoo & Sahu, 2009). Flow is most likely to occur in situations where the individual has a high likelihood of achieving success, and moreover feels capable of completing the task to a high standard (Csikszentmihalyi, 1990). Thus, being 'in flow' with one's work is reflective of the experience an individual has of being comfortable with their responsibilities, and being neither overstretched nor underused (Stamp, 2007).

In contrast, when individuals feel that there is a mismatch between the demands placed on them by their work, and their inherent capabilities, they tend to experience stress. This is true both when the demands of the job exceed what they are capable of, and when the demands fail to challenge them (Stamp, 2007). Those who are out of flow tend to feel depleted and demotivated, and may experience burnout, lowered morale and resistance to change (Stamp, 2007). It has been suggested in the literature that one of the precursors of derailing behaviour may be linked to the inability to adapt to quick transition to a more senior position (Strauss, 2010). This is possibly because managers are promoted to a higher level of work with the belief that they are suited to a more senior position, despite the fact that they do not have the skills and qualifications necessary to perform successfully in the role (Gentry & Shanock, 2008). Thus, the current research hypothesised that those whose capability matched the complexity inherent in their role would report fewer high-risk derailers than those whose capability was either greater or less than the complexity inherent in their role.

The original hypothesis was not supported by statistically significant results. There are a number of possible explanations for this. It may be that the original hypothesis was incorrect and that derailing behaviour is not, in fact, more likely when there is a lack of fit between an individual's capability and the complexity of their role, i.e. when flow is not achieved. In other words, although MOW claims that a lack of flow

or fit may lead to increased stress and possibly burnout (Stamp, 2007), this may not be sufficient to trigger derailing behaviour.

As has already been mentioned, derailment theory posits that a number of factors contribute towards derailing behaviour, including idiosyncratic personality features that influence the way individuals react under pressure and how well they get along with others (Hogan & Hogan, 2009); as well as situational factors such as stress, high emotion, fatigue, boredom and work overload (Nelson & Hogan, 2009). The results suggest that, while the fatigue and stress associated with a lack of fit to one's environment may be one element associated with a higher risk of derailing behaviour, it is probably not the only one, and by itself it does not appear sufficient for derailing behaviour to appear. It is therefore possible that a combination of interpersonal, intrapersonal and environmental factors, rather than stress in isolation, is associated with a higher risk of derailing behaviour in the workplace. This provides additional support to the earlier finding that the level of work in isolation is unlikely to be sufficient to cause derailing behaviour.

Nonetheless, considering the overall trend of the data, it was evident that a greater number of high-risk derailers were present in the group whose capability exceeded their expected level of work when compared to those whose capability matched their level of work, or was exceeded by their level of work. This trend points to the possibility that those individuals whose capability exceeds their level of work are not being adequately challenged in their roles, are experiencing boredom, and are therefore engaging in more derailing behaviours. Although this finding lacks statistical significance, it is nonetheless interesting. The existing literature tends to cite factors such as work overload, fatigue, stress, inflexibility and interpersonal difficulties as being associated with derailing behaviour (e.g. Gentry et al., 2007; Hogan et al., 2010; Nelson & Hogan, 2009). However, this finding suggests that boredom or a lack of stimulation and challenge in one's work environment may have a stronger link to derailing behaviour than the stress involved in being stretched beyond one's current capability.

Taking into account the types of high-risk derailers the sample reported most often, namely Bold and Imaginative, it is likely that, as a result of their boredom, these

individuals may come across as particularly self-confident regarding their capabilities, to the extent that they are averse to feedback and unwilling to admit to their shortcomings. They may also act and think in unusual ways to reduce the sense that their roles are not challenging them (Hogan & Hogan, 2009).

5.3.3 Summary of Findings

In summary, the predicted relationship between capability fit and the risk of derailing behaviour was not supported. No significant association was found between the degree of fit participants reported with their environment (capability fit) and the number of high-risk derailers they reported. While an overall trend was detected, this was unexpected and suggested that a greater number of high-risk derailers are likely to be present when capability exceeds the level of work at which individuals are expected to work. Moreover, no difference was found in the types of derailing behaviour evident at different degrees of fit.

5.4 Summary Findings Regarding Mode Fit and Derailment

The current research aimed to investigate whether an association exists between the degree of fit managers and leaders experience between their future cognitive capability and the demands of their current job role (mode fit), and the potential for derailing behaviour. This relationship was examined through two research questions. The first investigated the association between mode fit and the types of derailing behaviour; while the second investigated the association between mode fit and the number of high-risk derailers.

5.4.1 Mode Fit and Types of Derailers

With regards to the third research question, it was found that no significant association between the degree of fit between participants' future capability and their job level (mode fit), and types of derailing behaviour was found. Nonetheless, the results of the chi-square analysis showed that, overall the trend was similar to that seen earlier, in that all participants, regardless of the degree of fit they experience with their environment, reported more derailers falling into the 'moving against' category. This was followed in frequency by 'moving away' derailers and finally 'moving toward' derailers.

Again, this finding is in line with the results of the frequency analyses of the current research, which showed that, overall, the majority of participants reported a high risk of derailers in the ‘moving against’ category. Furthermore, the most common derailers were Bold and Imaginative, which are also classified as ‘moving against’ derailers (Hogan & Hogan, 2009).

An explorative question forming part of this research question was whether the types of derailers reported would change according to the degree of degree of fit between an individual’s future capabilities and their current role. However, this was not found to be the case. In summary, the current analysis reinforces the earlier finding that participants across all degrees of fit with their environment were most likely to report a high risk of displaying derailers falling into the ‘moving against’ category. However, it does not support the hypothesis that the types of derailers would differ according to the degree of fit participants reported with their environment. The possible reasons for this finding, as well as its implications, are considered in section 5.5.1.

5.4.2 Mode Fit and Number of Derailers

With regards to the third hypothesis, it was found that there was no significant relationship between the degree to which participants’ future capability matched their job level and the number of high-risk derailers they reported. As mean rank comparisons were used, this finding takes group sizes into account. This finding disputed the original hypothesis that participants who had a lower future capability than currently required by their job role would report more high-risk derailers than participants whose future capability either matched the requirements of their job role, or exceeded them.

This hypothesis was based on the theoretical view that, when individuals achieve flow with their work environment, they are unlikely to feel either overstretched or overused (Stamp, 2007). As a result, they may be less likely to experience the pressure thought to pre-empt derailing behaviour (Hogan & Hogan, 2009).

According to SST, the capacity to deal with complexity and adapt to change becomes more important as managers move into more senior positions as minimal guidance or

certainty is available regarding the likely success of any given approach (McCartney & Campbell, 2006). Furthermore, as individuals move into higher positions within the organisation, they are faced with additional pressure in attempting to deal with previously unknown demands and skill requirements (Freedman, 2005). It was hypothesised that the risk of displaying derailing behaviours may be mitigated if there is a fit between an individual's future cognitive potential (mode) and the cognitive demands of their current work environment. In other words, managers may display fewer derailing behaviours if there is a match between the level of work inherent in their job role and their future capability (Stamp, 2007), as they show the potential to cope with the level of complexity inherent in the environment. A future capability that exceeds the current demands of the environment may have the same, or even a more pronounced effect, as this shows continued room for growth within the organisational strata beyond what they are currently required to do at their current level of work (Stamp, 2007). However, those with a future capability below the current demands of their environment are hypothesised to have a greater likelihood of displaying derailing behaviours, as they are likely to feel overstretched and unsure of how to cope with the demands of their role. Again, this is linked to the concept of 'flow' (Stamp, 2007).

Flow can be described as the experience of being fully immersed and involved in a task (Csikszentmihalyi, 1990), and enjoying the task for its own sake, rather than as a result of any expected reward associated with it (Sahoo & Sahu, 2009). This is most likely to occur in situations where the individual has a high likelihood of achieving success, and moreover feels capable of completing the task to a high standard (Csikszentmihalyi, 1990). Thus, being 'in flow' with one's work is reflective of the experience an individual has of being comfortable with their responsibilities, and being neither overstretched nor underused (Stamp, 2007). In the case of future capability, flow can be described as the likelihood that an individual has the potential to cope with the demands of their current environment without feeling overstretched, given time and development (Stamp, 2007).

In contrast, when individuals feel that there is a mismatch between the demands placed on them by their work, and their inherent capabilities, they tend to experience stress. When speaking about future capability, this is true when the demands of the job exceed what they will be capable of in future (Stamp, 2007). Those who are out of

flow tend to feel depleted and demotivated, and may experience burnout, lowered morale and resistance to change (Stamp, 2007). In fact, it has been suggested in the literature that one of the precursors of derailing behaviour may be linked to the inability to adapt to quick transition to a more senior position (Strauss, 2010). This is possibly because managers are promoted to a higher level of work with the belief that they are suited to a more senior position, despite the fact that they do not have the potential to perform successfully in the role (Gentry & Shanock, 2008). Thus, the current research hypothesised that those whose future capability matched or exceeded the complexity inherent in their current role would report fewer high-risk derailers than those whose future capability was exceeded by the complexity inherent in their role.

The original hypothesis was not supported by statistically significant results. There are a number of possible explanations for this. It may be that the original hypothesis was incorrect and that derailing behaviour is not, in fact, more likely to occur when individuals' future capability is inadequate to deal with the demands of their current environment. Although MOW claims that a lack of fit between current capability and the work environment may lead to increased stress (Stamp, 2007), it does not make any particular claims regarding the effects of a lack of fit between future capability and the work environment. Furthermore, if a lack of fit in this regard does indeed lead to increased stress and burnout, this may not be sufficient to trigger derailing behaviour.

Derailment theory suggests that there are a number of factors contributing towards the likelihood of derailing behaviour being displayed. While this may include situational variables such as the ambiguity of the work environment, stress and work overload (Nelson & Hogan, 2009), interpersonal and intrapersonal factors are also thought to play a role and need to be taken into account (Hogan & Hogan, 2009). While the fatigue and stress associated with the degree of flow between one's future capability and the cognitive demands of the current environment may be some elements associated with a higher risk of derailing behaviour, the results suggest that these factors do not operate in isolation. It is more likely that a combination of interpersonal, intrapersonal and environmental factors, rather than a lack of flow in isolation, is associated with a higher risk of derailing behaviour in the workplace.

Considering the overall trend of the data, it was nonetheless evident that a greater number of high-risk derailers were present in the group whose future capability exceeded their current level of work, when compared to those whose future capability matched their level of work, or was exceeded by their level of work. Thus, the data followed the opposite trend to that which was predicted in the current study, and suggests that those individuals whose future capability exceeds their level of work are not being adequately challenged in their roles, are experiencing boredom, and are therefore engaging in more derailing behaviours. This strengthens the finding of the previous section, namely that a higher capability (current or future) than what is demanded by one's current role is likely to lead to boredom, and therefore derailing behaviour (Hogan & Hogan, 2009). Although this finding lacks statistical significance, it is nonetheless interesting. The existing literature tends to cite factors such as work overload, fatigue, stress, inflexibility and interpersonal difficulties as being associated with derailing behaviour (e.g. Gentry et al., 2007; Hogan et al., 2010; Nelson & Hogan, 2009). However, this finding suggests that boredom or a lack of stimulation and challenge in one's work environment may have a stronger link to derailing behaviour than the stress involved in being stretched beyond one's current capability.

Taking into account the types of high-risk derailers the sample reported most often, namely Bold and Imaginative, it is likely that, as a result of their boredom, these individuals may come across as particularly self-confident regarding their capabilities, to the extent that they are averse to feedback and unwilling to admit to their shortcomings. They may also act and think in unusual ways to reduce the sense that their roles are not challenging them (Hogan & Hogan, 2009).

5.4.3 Summary of Findings

In summary, the predicted relationship between the degree of fit between an individual's future capabilities and his/her current role and the risk of derailing behaviour was not supported. No significant association was found between the degree of fit between participant's future capability and their current work environment (mode fit), and the number of high-risk derailers they reported. While an overall trend was detected, this was unexpected and suggested that a greater number

of high-risk derailers are likely to be present when future capability exceeds their level of work. Moreover, no difference was found in the types of derailing behaviour evident at different degrees of fit.

5.5 Conclusions

This section considers what conclusions can be drawn regarding the variables under investigation, as well as the overarching theories used in the current research.

5.5.1 Conclusions and Possible Explanations for the Findings

The current research aimed to contribute towards the existing literature on derailment by investigating whether an association exists between the level of work and the risk of derailing behaviour, and if an individual's fit to his/her role is associated with the risk of derailing behaviour. Overall, the research hypotheses were not supported. Contrary to what was expected, a higher level of work was not associated with a greater risk of derailing behaviour. In fact, a greater number of derailers were evident at a lower level of work (level 3) when compared to a slightly higher level of work (level 4). Furthermore, contrary to what was expected, those whose level of work exceeded their current or future capabilities did not display a greater risk of derailing behaviour than those who achieved fit with their environment. On the contrary, a greater risk of derailing behaviour was found for those whose current or future capabilities exceeded that required by their level of work.

The fact that the hypotheses were not supported may be due to a number of possible explanations. Firstly, it is possible that they were incorrect, or did not take all the necessary factors into account. Based on the theory, certain key factors were identified as elements linked to a higher risk of derailing behaviour; namely the complexity of the work environment and the stress caused by a lack of 'flow' with one's work environment (Stamp, 1981). While these may be elements associated with a higher risk of derailing behaviour, there may be other factors involved that were not taken into account. These may include idiosyncratic personality features that influence the way individuals react under pressure and how well they get along with others (Hogan & Hogan, 2009), as well as situational factors such as stress, high emotion, fatigue, boredom and work overload (Nelson & Hogan, 2009).

An error in the research methodology may have contributed to the unexpected findings. By focusing only on high-risk derailers, the analysis may have overlooked key information that would have produced the hypothesised explanatory pattern. In other words, it may be that, although the number of high-risk derailers is greater at level 3, the combined percentile values of these derailers may actually be higher at levels 4 and above. If evaluating derailers holistically at each level elicits a truer picture of the resulting behaviour, using this method of analysis could suggest a lower likelihood of derailing behaviour at lower levels of work, as originally predicted. Alternatively, it may be that the levels of work represented in the current study were not sufficiently demanding or pressurised to elicit derailing behaviour. In other words, it is possible that only very high levels of work associated with strategy formation, such as levels 6 and 7 of the organisation, are associated with sufficient levels of pressure and complexity to induce derailing behaviour. These explanations have been considered in greater detail in relation to each research question.

It is possible that the widespread use of screening techniques and psychometric instruments in the workplace could have impacted the results by indirectly shaping the sample used in the current study. A possible reason that the expected results were not found between higher levels of work and the number of high-risk derailers is that the sample was not representative of individuals with a high likelihood of displaying derailing behaviour. There is a strong probability that participants in the organisation had already been exposed to assessments for screening, selection or development purposes, considering that psychological assessments are widely used in many South African organisations (Donald, Thatcher & Milner, 2014), and the organisation in question, although international, is based in South Africa. Furthermore, it is likely that participants in the organisation had already been exposed to the HDS specifically, as BIOSS conducts the HDS with all levels of work within the international organisation whose results were used for the current study. This, either intentionally or unintentionally, may have acted to screen out individuals with a strong likelihood of derailing behaviour in the face of high levels of complexity. Therefore, the sample used may not have been representative of those with a high risk of derailing behaviour.

Although there was no significant relationship linking the fit between current or future capability and level of work to the number of high-risk derailers reported, the trend of the data showed that a greater number of high-risk derailers were present in the group whose current or future capability exceeded their level of work when compared to those whose capability matched their level of work, or was exceeded by their level of work. The current findings suggest that those individuals whose capability exceeds their level of work are not being adequately challenged in their roles, are experiencing boredom, and are therefore engaging in more derailing behaviours. The high-risk derailers reported most often, namely Bold and Imaginative, suggest that participants in this sample deal with this lack of challenge by being particularly self-confident regarding their capabilities, to the extent that they are averse to feedback and unwilling to admit to their shortcomings. They may also act and think in unusual ways to reduce the sense that their roles are not challenging them (Hogan & Hogan, 2009). These findings contrast the existing literature, who tend to cite alternative factors such as people's basic beliefs about themselves and others (Hogan & Hogan, 2009), as well as situational variables such as stress, fatigue or a lack of social vigilance (Nelson & Hogan, 2009) as being linked to the risk of derailing behaviour.

Another possible explanation for the lack of expected results is that participants' HDS results could have been conducted before they were placed in the position for which they were assessed. As the majority of the sample was assessed for the purposes of selection (82.2%), participants would not have spent much, if any, time in their new roles. It is therefore possible that the participants were assessed at a time when they were not being exposed to a great deal of pressure, and did not feel cognitively stretched in their position. Even those individuals whose future capability was exceeded by the cognitive demands of their current role may not yet have been under sufficient pressure for derailing behaviours to become evident.

For those who were assessed for development purposes, their HDS results could also have been out-dated. The test-retest reliabilities of the HDS scales are acceptable, with Pearson coefficients ranging between 0.64 and 0.75 for test sessions between 0 and 3 months apart, and between 0.52 and 0.75 for test sessions between 9 and 12 months apart (Hogan & Hogan, 2009). However, test-retest reliability between 12 and

18 months apart does not appear to have been researched, and the effect of a promotion or upward move within the organisation on this reliability has not been investigated. Future research should therefore focus on assessing individuals who have acted in their position for a substantial amount of time in order to further assess this research question.

An interesting trend emerged when considering whether the type of derailing behaviour is associated with the level of work an individual is operating at, the degree of fit they experience between their current capability and their work environment (capability fit), or the degree of fit they experience between their future capability and their work environment (mode fit). Each individual analysis regarding the types of derailers reinforced the same finding that participants in the sample were more likely to report a high risk of displaying derailers falling into the 'moving against' category, regardless of these factors. This suggests that, under pressure, this sample tends to manipulate and charm others while avoiding any true connection with them and neglecting to build genuine relationships based on mutual give and take (Hogan & Hogan, 2009). These derailers therefore signal a tendency to use others for one's own benefit (Hogan & Hogan, 2009).

This finding is in line with the results of the frequency analyses of the current research, which showed that the majority of participants (55.6%) reported a high risk of derailers in the 'moving against' category; and in particular that Bold and Imaginative, as 'moving against' derailers, were the most frequently reported derailers (24.1% and 15.9% respectively). Furthermore, this is in agreement with other research conducted in the South African context, which also found Bold to be the derailer most commonly presented in a managerial sample (Strauss, 2010). The finding is in contrast to the HDS norm group, which suggests that individuals across the board score highest on Diligent and Dutiful; derailers associated with ingratiating others and building alliances to avoid being criticised (Hogan & Hogan, 2009).

There are a number of reasons that this particular type of derailer was found to be most common in the sample of the current research. Firstly, the sample is made up predominantly of Black and Asian (Arabic) males (55.6%). According to the HDS norms, African males score the highest on Bold while Asian males score the highest

on Imaginative when compared to females and males of other racial groups (Hogan & Hogan, 2009). While females tend to score marginally higher on many of the HDS scales, the norm group's mean score on Dutiful is 0.50 percentile points higher than that of males (Hogan & Hogan, 2009). Similarly, a fairly recent paper on business leaders found that males tend to score higher on Mischievous and Reserved, but that females score higher on Dutiful (Furnham & Trickey, 2011). A sample consisting of a greater proportion of females may therefore have resembled the HDS norms more closely.

The Bold scale on the HDS is significantly positively correlated with the assertiveness scale of the NEO-PI-R (0.36), the Dominance scale of the 16PF (0.39) as well as the Ambition scale of the HPI (0.46) (Hogan & Hogan, 2014). This suggests that some comparison may be drawn between the Bold scale, and assertiveness as a leadership trait. The literature suggests that gender is associated with assertiveness, with empirical evidence supporting the widely accepted view that males tend to show more assertive characteristics than females (Gervasio & Crawford, 1989; Feingold, 1994), and score higher on Assertiveness and Openness to Ideas on the NEO-PI-R (Costa, Terracciano & McCrae, 2001).

With regards to the effects of culture on assertiveness, historically marginalised ethnic groups may have been discouraged from displaying assertive behaviour (Parham, Lewis, Fretwell, Irwin & Schrimsher, 2015). However, there is evidence that very few differences in assertiveness actually exist between racial groups, particularly when members of these groups are similar in education and status (Parham et al., 2015). A study on Arabic participants from Egypt revealed that males scored significantly higher on an assertiveness inventory when compared to females (Ghareeb, 1983). However, no studies could be found showing greater assertiveness in Black Africans when compared to other racial groups, regardless of gender.

The finding that the current sample reported high scores on Bold and Imaginative derailers overall can therefore be partially explained by the predominantly male sample. In addition, while the race and culture of the sample do not appear to be strongly linked to this finding, it is possible that Arabic males are more likely to display assertive behaviour than Arabic females in leadership positions. In summary,

the current research reinforces the earlier finding that participants across all levels and all degrees of fit are likely to report a greater number of high risk derailers falling into the 'moving against' category. However, they did not support the hypothesis that the types of derailers would differ according to the level of work, the degree of fit between an individual's current capabilities and their current role (capability fit); or the degree of fit between an individual's future capabilities and their current role (mode fit).

A final note regarding the interpretation of the results is that there seems to be a scarcity of published, peer-reviewed critiques of the central theories, namely SST, MOW and derailment. Furthermore, to the author's knowledge no previous research has been conducted on the risk of psychological derailment in complex environments. This presents a challenge in terms of comparison to existing results or confirmation of the proposed relationships. However, this is also one of the main reasons for conducting the current research. Although the predicted results were not supported, future research may be able to build on the principles outlined in the current report, and limitations overcome.

5.5.2 Conclusions Regarding the Theory

Based on the review of the literature as well as the findings of the current study, it is possible to make some general comments about the theories used. Elliot Jaques, the founder of SST, argues that all organisations should be structured according to the principle of requisite organisation. This states that all organisations should have a requisite structuration of accountable managerial layers or strata where accountability increases with each successive level (Ross, 1992). The optimal number of layers in an organisation can be established by the time span of discretion embodied by the CEO of that organisation (Ross, 1992). He proposes that this will eliminate problems such as excessive bureaucracy on the one hand, and on the other hand undefined working relationships or ill conceptions of managerial authority and accountability (Thelejane, 2010). In addition, he states that requisite organisation will enable employees to reach their full potential and will improve the overall functioning of the organisation (Ross, 1992). Following from this concept, SST posits that each progressively higher level of organisation requires more advanced cognitive functioning for work to be completed successfully (Jaques, 2007b). Therefore, high-level management roles that are defined

by greater ambiguity, complex problem solving, and the need to adapt to unstable situations, will require a qualitatively different level of cognitive capability (Browning, 2013).

This central idea has been subject to criticism. While the idea of a requisite organisation may be relevant for bureaucratic, hierarchically structured organisations operating in a relatively stable context, not all organisations are structured in this way (Boal & Whitehead, 1992). In particular, organisations that are required to adapt quickly and effectively to revolutionary changes may experience less success when structured as a requisite organisation. This is because a high level of turbulence in the environment involves complex problems that are difficult to define, which need to be addressed at all levels of the organisation (Boal & Whitehead, 1992). It is likely that the organisation from which the current study's data was drawn is currently functioning in an unstable, turbulent environment such as this, considering the dynamic nature of modern business environments. Today's organisations are constantly being exposed to the effect of technology on jobs as well as increased global competition among companies in the same industry (Salgado, 2009). Furthermore, the fact that it is a telecommunications company suggests that it is required to act as an open system that interacts with its wider environment in terms of current customer needs and market trends (Salgado, 2009).

Jaques argues against this, stating that this is an over-simplification of a complex problem. He states that, because the hierarchy he refers to applies to the knowledge structures of the organisation, rather than the structural composition of the organisation, his theory is universally applicable, and is as current a structure as the people who work in it (Thelejane, 2010). However it is not clear exactly how SST can be applied to flat organisations, i.e. those that are not structured hierarchically. For instance, it is unclear whether different levels of work would exist among roles at the same hierarchical level, or whether several levels of work could be incorporated into one job.

These questions may impact upon the way in which levels of work are identified. In the current study, the level of work (which defines the cognitive requirements of the role) was identified by BIOSS SA according to the levels of work defined by the

MOW. It was not clear, however, what process was followed in this regard, or whether the structure of the organisation was taken into account in any way. This may also impact on the use of the instrument measuring capability and mode, i.e. the CPA, as well as the comparison between where individuals are currently functioning and where they 'should' be functioning according to the requirements of their roles.

The validity and reliability of the CPA as an instrument measuring current and future capability should also be analysed, to ensure that it is indeed measuring what it claims to measure. These properties of the CPA were considered in detail in section 3.4.1. The results suggest that the CPA is a reliable measure, although there is a need for more up-to-date studies evaluating the consistency of CPA results (Kruger, 2013). The measure shows good criterion validity, with coefficients for concurrent validity falling between 0.71 and 0.79, and coefficients for predictive validity falling between 0.70 and 0.93 (BIOSS, 2005a; BIOSS, 2005b; EDAC/BIOSS, 2011). However, the construct validity of the instrument has not been conclusively supported, with correlation coefficients between -0.26 and 0.70 when compared with various measures (EDAC/BIOSS, 2011). This suggests that, while the CPA can be linked to criterion measures such as success in various roles, it is unclear whether it measures what it claims to measure. This may have influenced the results of the current research, and raises concerns for the measurement of cognitive capability in general. Specifically, construct validity is crucial when considering the degree of fit between current or future capability and the level of complexity inherent in the job environment. Furthermore, and in line with the questions asked by the current research, it impacts whether this relationship is associated with the likelihood of derailing behaviour. If the constructs of current and future capability could not be determined in a valid and reliable manner, the results may not have been a true representation of existing associations.

Derailment theory and the instrument chosen to measure the likelihood of derailing behaviour (i.e. the HDS) should also be evaluated in light of the current research findings. The results of the research study do not strongly support the claim that derailing behaviours are more likely to be observed in ambiguous environments, or under conditions inducing a sense of stress or being over-stretched in one's work role. The theory regarding derailleurs suggests that the degree of ambiguity inherent in the

environment plays a role in one's likelihood of displaying derailing behaviours, in that more ambiguous environments may be associated with a greater chance of derailing behaviour (Hogan & Hogan, 2009). It is also proposed that situational factors such as stress, high emotion, fatigue, boredom and work overload may all contribute to the increased likelihood of dysfunctional behaviour being displayed (Gentry et al., 2007; Hogan et al., 2010; Nelson & Hogan, 2009).

The current research findings contradicted the prediction that more high-risk derailers are evident in more complex or ambiguous environments. Furthermore, environments thought to be characterised by greater stress (i.e. where the demands of the environment exceeded the current or future capabilities of the individual) were not associated with a greater risk of derailing behaviour. Various potential explanations have been considered that account for this unexpected finding. However, the only theoretical position supported by the current research is that boredom or under-stimulation in one's current role appears to be associated with a greater risk of derailing behaviour. This statement stems from the finding that the greatest number of high-risk derailers were present in the group whose current or future capability exceeded the level of work at which they were expected to work. This may be because such individuals are not being adequately challenged in their roles, are experiencing boredom, and are therefore engaging in more derailing behaviours (Nelson & Hogan, 2009). This suggests that the HDS is measuring behaviours that are more likely to be observed under conditions of boredom, rather than conditions of stress or the feeling of being stretched beyond one's capacity.

Considering the results detailed above, the psychometric properties of the HDS as an instrument measuring the likelihood of derailing behaviour come into question, and should therefore be analysed. The properties of the HDS were considered in detail in section 3.4.2. The internal consistency reliability of the HDS scales ranges between 0.43 and 0.59, with an average Cronbach's alpha of 0.59 (Hogan & Hogan, 2009). These figures are lower than expected for a scale with practical application such as the HDS (Lance et al., 2006), suggesting poor correlations between the items in each scale. In addition, there is a great deal of variation among the mean scores per scale, suggesting that certain scales may cause acquiescence bias while others may produce the opposite effect. These results suggest that the HDS may not consistently measure

what it aims to measure, and that certain scores may be artificially inflated or deflated as a result of acquiescence or disagreement biases respectively. This may cause inaccuracy in the capturing of individual's likely derailers, which in turn would have affected the data used in the current study.

The findings of the current research were unexpected, and did not conform to the hypothesised relationships. Various explanations and considerations have been taken into account when interpreting these findings, and should be considered for future research and the application of SST, MOW and derailment theory.

Chapter 6: Limitations, Conclusions and Recommendations for Future Research

6.1 Limitations

A number of limitations related to the current research and sample will now be explored. Limitations are noted in order to assess the impact they have on the validity and generalisability of the results obtained. This assists in preventing over-generalisations of the results of the study, and helps to illustrate recommendations for future research.

The research design was cross-sectional, correlational and non-experimental. This design is limited in its application. The directionality of relationships cannot be firmly established, and causal inferences about the impact of one variable on another cannot be identified with any certainty (Huck, 2009). Therefore, the current study does not allow for the identification of causal relationships, and is only able to describe the relationships and associations that exist between levels of work, current and future capacity for complexity, and the number and types of derailers reported (Huck, 2009). This is possibly the greatest disadvantage of non-experimental research. Experimental research would have allowed the researcher to establish conclusions beyond relationships, and hence view causality between the variables. Having said this, the chosen research design was necessary due to practical considerations, namely that the variables in question cannot be manipulated easily or at all in the real world.

A significant limitation of the current research is the use of pre-existing archival assessment data. Although the data had not yet been captured in an Excel spreadsheet and the researcher therefore had access to the raw results, this arrangement still meant relying on the organisation in question to collect and interpret the data accurately. As no information was provided about the assessors who administered the tests, the use of the archival data was based purely on a relationship of trust. Furthermore, it was not clear how the organisation defined the level of work for which participants were being assessed. As this determination seems to have relied on the judgement and discrimination of the assessor/account manager, it was again necessary to rely on a subjective analysis in order to gain information regarding the variable in question.

Another shortfall of the current research is that not enough information was available to examine the psychometric properties of the CPA or the HDS within this research. As a result, the researcher was required to rely on previous research findings outlining the reliability and validity of these assessment techniques. Although a substantial amount of information was therefore researched and included in the current report regarding the psychometric value of the instruments, the benefit of assessing the psychometric properties of the two instruments cannot be denied. It is evident that, despite the usefulness and practicality of using archival data for the purpose of this study with regards to saving time and expenses, there are several limitations regarding its use that must be taken into account.

Another problem with using archival data is that the demographic data provided did not specify the occupational positions of the participants. Thus, although it was assumed that the sample consisted mainly of leaders and managers based on the assessments used and the levels of work identified by BIOSS SA, this was not confirmed. Furthermore, the individuals assessed were all currently working for the same large international telecommunications company, and all fell predominantly within an upper CPA capability and mode range. As the sample is therefore unlikely to be completely representative of the population from which it was drawn, population validity is a concern (Johnson & Christensen, 2012). As external validity cannot be firmly established for the sample used in the current study, results can only be extrapolated for the wider population.

The predicted trend for a greater number of high-risk derailers to be present in the group for which current or future capability was exceeded by the demands of their work, was not evident. This may be due to the fact that the majority of the sample would not have spent much, if any, time in their new roles. As a result, they may not have experienced sufficient additional cognitive demands to catalyse derailing behaviour. Furthermore, derailing behaviour as an aspect of personality is likely to be a relatively stable construct, and therefore is unlikely to undergo change in a short period of time (Hogan & Hogan, 2009). This is confirmed by the relatively good test-retest validity of the HDS when the test is administered up to 12 months apart (Hogan & Hogan, 2009). The sample was therefore limited in terms of the current study, in

that it did not include individuals who had spent a significant amount of time in their job roles.

A final limitation of the current research that must be considered is that the existence of any given derailment was operationalised as the presence or absence of a high risk of displaying that derailment. According to the percentile groupings created by the HDS, high-risk derailments are those for which participants score in the 90th percentile or above. The reason for only including high-risk derailments in the study, as opposed to using a percentile score for each derailment, was twofold. Firstly, according to the theory, these represent the highest likelihood that derailing behaviour will be displayed in the workplace (Hogan & Hogan, 2009) and are therefore of the most practical significance. In addition, it ensured simplicity in the analysis by creating a dichotomous score. As the HDS test developer's method of arriving at a percentile score (i.e. norms used, possible weightings etc.) was not known, this method was deemed most appropriate for gaining an accurate understanding of the score. However, considering the overall likelihood of derailing behaviour in percentile value may have elicited more detailed and more accurate results, and therefore may have provided the researcher with a truer understanding of the resulting behaviour at various levels of work, and at different degrees of fit with one's environment.

6.2 Conclusions

To date, studies on leadership and management have focused predominantly on what makes managers successful (Yukl, 2002). For instance, the trait approach postulates that certain personality traits are associated with successful leaders (Judge et al., 2002). However, there is relatively little evidence regarding the factors associated with the derailment of managers. Exceptions to this includes research by Braddy et al., (2014); Gentry et al., (2007); Hogan & Hogan, (2001); and Lombardo et al. (1988). This is surprising considering the negative impact of derailment. Firstly, the strain that derailing behaviours places on individuals' relationships with others, their reputation, as well as their career progression must be considered (Hogan et al., 2010, Strauss, 2010). Additionally, the cost to companies when derailing behaviour leads to career derailment includes recruitment costs, the loss of intellectual and social capital and a loss of company resources. This may have far-reaching long-term effects, such

as lost business opportunities and an overall degradation in morale and performance in the company (Hogan et al., 2010; Strauss, 2010).

The current research set out to contribute towards the existing literature on derailment by exploring whether there is an association between level of work and the risk of derailing behaviour, and if an individual's degree of fit to his/her role is associated with the risk of derailing behaviour. This hypothesis was based on the assumption that as one progresses up the organisational hierarchy, the work generally becomes more complex and problem solving becomes more challenging (Browning, 2013, Stamp, 1989). Thus, as the level of work increases, a greater degree of cognitive capacity and discretion in decision making is required. This is thought to place a great deal of cognitive strain on the individual, particularly when their current or future cognitive capability is not matched to the level of work inherent in their environment (Stamp, 2007). On the other hand, based on the theory, it is thought that those who are working at an appropriate level of work that is suited to their capabilities are less likely to experience the strain associated with higher levels of work than those who experience a mismatch between their level of work and their capabilities (Stamp, 2007).

It was therefore hypothesised that the level of work would be associated with changes in both the number and types of derailers. In particular, it was proposed that more derailers would be associated with higher levels of work. It was also hypothesised that the degree of fit between the level of work and current/future capability would be associated with changes in both the number and types of derailers. In particular, it was proposed that more derailers would be associated with a lack of fit between the level of work and current/future capability.

Overall, the research hypotheses were not supported. Contrary to what was expected, a higher level of work was not associated with a greater risk of derailing behaviour; instead, the greatest risk of derailing behaviour was evident at the lowest measured level of work. Another unexpected finding was that no significant relationship was found between the degree of cognitive fit participants reported with their environment and the number of high-risk derailers they reported. However, the trend of the data showed that more high-risk derailers were present in the group whose current or

future capability exceeded the level of work at which they were expected to work. Finally, no differences were found in the types of derailers at various levels of work, nor were any differences found in the types of derailers at various degrees of fit with the environment. All participants reported the greatest number of derailers falling into the 'moving against' category.

Based on a detailed analysis of these findings, it appears that types of derailers occurring in a given environment do not seem to be linked to a specific level of work, or the degree of fit between current or future cognitive capability and the work environment. Rather, the types of derailers evident may be associated in part with the particular sample in question. It also seems that no significant relationship exists between derailing behaviour and the complexity of the environment. However, it is possible that the complexity of the environment is one of many factors associated with derailing behaviour, and that various factors may need to coincide in order for derailing behaviour to become evident. While causality cannot be inferred from the types of analyses conducted, an association in this regard may exist. Future research should place more emphasis on identifying the interpersonal, intrapersonal and environmental factors that, together, may be associated with a higher risk of derailing behaviour in the workplace. SST has been criticised for failing to take into account variables other than cognitive complexity in assessing what enables leaders and managers to achieve success in their roles (Boal & Whitehead, 1992). To gain a better understanding of this dynamic, it may therefore be useful to use a more holistic framework that takes into account both trait theories of leadership and complexity theory to assess when derailing behaviour is most likely to occur.

6.3 Recommendations for Future Research

The earlier discussion as well as the limitations outlined in the previous section, provide a platform from which recommendations can be made regarding future research. This section therefore aims to highlight important considerations for how research in the same area can be improved in future.

Following the discussion on the limitations of using archival data within the current research, it is recommended that future research within this area obtain data via

alternative means. It must be kept in mind that, in order for such research to be conducted, data on the sample's cognitive capability as well as derailing behaviours must be available. Thus, the researcher could conduct assessments independently, gathering the sample via nonprobability sampling measures such as purposive sampling or diversity sampling, in order to ensure a large, diverse sample is obtained (Huck, 2009). It is noted that this may be somewhat impractical due to time and financial constraints, and the fact that the researcher would be required to have extensive training in order to administer and interpret the assessments. Nonetheless, gathering and capturing the data independently would allow the researcher to ensure all the important biographical data was accurately captured, and would allow the researcher to rely on their own interpretation of the results. In addition it would allow the researcher to assess the psychometric properties of the assessments in the African context, which may prove valuable for the application of these tests in organisations.

Although the current sample was diverse in terms of demographic background, it would have been more representative if it had been drawn from a variety of organisations. Future research should also focus on gaining access to a broader sample of individuals in order to attain a more representative sample of the population. This would assist in ensuring external validity and generalizability. Furthermore, future researchers should obtain a larger sample size. This would allow for more complex statistical analyses to be carried out, which would allow for more than the existence of high-risk derailers to be used as a variable.

Considering the probability of the sample's tenure in their current position being very short, it is unlikely that the majority of participants would have fully experienced the increased demands of their role. This may have contributed to the inability of the current research to identify an association between higher levels of work and the increased risk of derailing behaviour. This supports the notion that future research should focus on assessing individuals who have acted in their position for a substantial amount of time in order to further assess this research question. It is hoped that the suggestions outlined above assist future researchers in structuring on-going research in the area of derailment in complex environments.

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APPENDIX 1: Research Approval

University of the Witwatersrand, Johannesburg

Faculty of Humanities – Postgraduate Office

Private Bag 3, Wits 2050, South Africa • Tel: +27 11 717 4002 • Fax: +27 11 717 4037 • Email: Sarah.Mfupa@wits.ac.za



Student Number: 563344

Ms Allayne Minnie
P O Box 892
Featherbrooke Estate
1746
Gauteng South Africa

14 October 2015

Dear Ms Minnie

APPROVAL OF PROPOSAL FOR THE DEGREE OF MASTER OF ARTS BY COURSEWORK AND RESEARCH REPORT IN ORGANISATIONAL PSYCHOLOGY

I am pleased to be able to advise you that the readers of the Graduate Studies Committee have approved your proposal entitled "*The risk of psychological derailment in complex environments*". I confirm that Professor Fiona Donald has been appointed as your supervisor in the School of Human and Community Development.

The research report is normally submitted to the Faculty Office by 15 February, if you have started the beginning of the year, and for mid-year the deadline is 31 July. All students are required to RE-REGISTER at the beginning of each year.

You are required to submit 2 bound copies and one unbound copy plus 1 CD in pdf (Adobe) format of your research report to the Faculty Office. The 2 bound copies go to the examiners and are retained by them and the unbound copy is retained by the Faculty Office as back up.

Please note that should you miss the deadline of 15 February or 31 July you will be required to submit an application for extension of time and register for the research report extension. Any candidate who misses the deadline of 15 February will be charged fees for the research report extension.

Kindly keep us informed of any changes of address during the year.

Note: All MA and PhD candidates who intend graduating shortly must meet your ETD requirements at least 6 weeks after your supervisor has received the examiners reports. **A student must remain registered at the Faculty Office until graduation.**

Yours Sincerely

SD Mfupa

Sarah Mfupa
Postgraduate Division
Faculty of Humanities
Private Bag X 3
Wits, 2050

APPENDIX 2: Ethics Approval

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

HUMAN RESEARCH ETHICS COMMITTEE (SCHOOL OF HUMAN & COMMUNITY DEVELOPMENT)

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: MORG/15/004 IH

PROJECT TITLE:

The risk of psychological derailment in complex environments.

INVESTIGATORS

Minnie Allayne

DEPARTMENT

Psychology

DATE CONSIDERED

30/06/15

DECISION OF COMMITTEE*

Approved

This ethical clearance is valid for 2 years and may be renewed upon application

DATE: 30 June 2015

CHAIRPERSON
(Professor B. Bowman)

cc Supervisor:

Prof. Fiona Donald
Psychology

DECLARATION OF INVESTIGATOR (S)

To be completed in duplicate and **one copy** returned to the Secretary, Room 100015, 10th floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure, as approved, I/we undertake to submit a revised protocol to the Committee.

This ethical clearance will expire on 31 December 2017

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX 3: Consent from BIOS SA to Utilise Archival Data



Psychology
School of Human & Community
Development
University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559



Consent Form: Use of Archival Data

I, Kevin Distiller, consent to provide Allayne Minnie access to archival data collected by BIOS Southern Africa.

I understand that:

- Providing access to the data is voluntary, and will not result in any benefit or disadvantage.
- The data will be used to inform a research study being carried out for the partial completion of a Masters degree in Organisational Psychology at the University of the Witwatersrand.
- The results of the study will be reported in the form of a research report for the partial completion of the degree, Masters in Organisational Psychology.
- Personal information inherent in the data will be treated as confidential, and will not be made available to anyone other than the researcher and her direct supervisor.
- Results will be stored in a secure manner, and will not be made available to anyone other than the researcher and her direct supervisor.

Signed: _____

Date: _____

18/05/15

APPENDIX 3: MCPA Electronic Consent

5/18/2015

Informed Consent

EDAC Online Assessment Centre

EDAC Online Home

If you have already given your Informed Consent click 'Next' to continue

Next

Informed Consent

EDAC operates under the assumption that all participants have given their **informed consent**. This is the fundamental concept that underlies all current and anticipated data protection protocols and legislation. Informed Consent conforms to the statutory rules of the United States Office of Management & Budget and the European Union (95/46/EC). For Australia our policies are consistent with the National Privacy Principles set out in the Privacy Act No 155 of 2000.

Informed Consent also conforms to 'best practice' as defined by international professional and regulatory bodies such as the British Psychological Society, the South African Tests and Standards Commission, the International Test Commission, and ISO 10667 Assessment Service Delivery Parts 1 & 2.

In order for candidates to give their informed consent, they must be clear as to what qualities or competencies are being looked at, how the questionnaire data is to be used, and what is being done to protect their data from unauthorised use. EDAC requires all participants to give their informed consent before they are able to complete any of the questionnaires.

EDAC Security Statement

EDAC offers a number of questionnaires for completion via the Internet, and subsequent use by trained and accredited consultants and HR professionals, working primarily in management development programmes. The confidentiality, security and control of questionnaire data and results are of primary interest to EDAC.

It is important that all potential users of this web site understand the purpose of the questionnaires offered, what the data will be used for, who will have access to the data, and how the data will be stored and safeguarded. These protocols are contractually binding on all EDAC and Bioss Associates, and the failure to comply with any of these safeguards will constitute grounds for the termination of any data transfer arrangements between EDAC and the person(s) or entity(ies) concerned.

Purpose

The principal purpose of the EDAC questionnaires is to provide information and feedback to participants, either as individuals, or in management development programmes run by trained and accredited consultants and company or organisation HR professionals. The questionnaire data also forms part of a long-term research project studying the development of strategic decision making and leadership, the results of which are constantly fed back to refine and develop our programs.

Data Use and Storage

EDAC is committed to data privacy, that is to say the fair and lawful treatment of personal information

Data will only be used only by trained and accredited EDAC or Bioss Associates and their accredited clients, that is to say company or organisation HR professionals. Data will be used for developmental purposes only, and not in any way for evaluation for financial reward. In certain very strictly controlled situations, and with the prior agreement of participants, data may also be used to inform and support the selection process. When used in this way, questionnaire data will always be interpreted by a trained counsellor and never handed directly to those responsible for the selection process.

EDAC will retain identifiable individual results for a period of at least seven years, and in addition we will use aggregated data held anonymously for longer-term analysis and normative study. EDAC maintains secure data storage in the UK and the Republic of Cyprus (an EU country), and all results are automatically routed to both locations. EDAC and all EDAC staff are registered with the Data Protection authorities in the UK and Cyprus as required. All EDAC Associates are responsible for complying with national and international protocols covering data use and storage, and are contracted in accordance with terms set out by the European Commission (2001/497/EC as amended). EDAC does not disclose data to any non-contracted third parties.

Personal data collected by EDAC is as follows:

We Collect and Store	We do NOT Collect
Your Name Your Company ID No (optional) Your Age (for the MCPA® only) Your Date of Birth (optional for the MCPA® only)	Your address or email The name of your company or organisation Any financial data Any other data that might identify you

Access to Data

Results will be fed back to participants by their chosen consultants or their company or organisation HR professionals in formal

<https://www.edaconline.org/consent/en-GB-consent-mcpac.html>

1/2

one-to-one feedback sessions. This may include telephonic feedback, or feedback over the Internet. Individual results will not be released to employers or to any other person or entity without participants giving their permission - this restriction applies equally to EDAC and Bloss Associates and their clients.

Candidates who wish to access their result data at any later stage should apply in the first instance to the organisation responsible for providing their feedback, being prepared to provide proof of identify when requested.

'Right to be Forgotten'

The European Commission intends to include the 'right to be forgotten' in their upcoming revised data protection framework. This would allow users to remove/hide the data contained about them on social networks. Although this 'right' will be limited to social networks, if at any stage participants wish to have their personal data removed or hidden they should request this from their chosen consultant or their company or organisation HR professionals.

Primary Security

The first level of security provided is structural, in that this web site contains only the instrument questionnaires, not the instrument programs (which are held by EDAC or Bloss Associates and their clients). Our online questionnaires are designed so that all assessment data is held 'server-side', to maintain data security and integrity. They are hosted in the EU in a secure https environment. Specifically we do not use 'tracking cookies' only 'session cookies' that are required to provide supporting functionality for language selection and candidate re-connection routines. Organisation firewalls and other security measures are not compromised.

Secondary Security

Participants have to be provided with usernames, passwords and EDAC codes before they may access and complete the questionnaires. The only way in which results may be reviewed is when they are imported into and run on the appropriate programs by EDAC or Bloss Associates and their clients. Finally all program databases are password protected.

Honesty and Integrity

The EDAC assessment process relies on the honesty and integrity of all parties. Candidates should answer the questionnaires according to the instructions provided, they should do this themselves and they must not share access codes or any other sensitive data with third parties. EDAC and Bloss Practitioners will in turn maintain full confidentiality and security of assessment data in accordance with the procedures outlined here. The analysis programs contain sophisticated tools that detect attempts to influence the results.

Your Consent

If you now agree to complete any of the EDAC questionnaires, you will be considered to have given your informed consent to the process. This in turn obligates EDAC and Bloss consultants, or company or organisation HR professionals to comply in full with the various data protection protocols and usage restrictions outlined in this briefing.

You must therefore make certain that you understand and accept the arrangements set out above and that you also read with care the instrument briefings that follow.

If you have read, understand and accept the above click 'Next' to continue

Back

Next

APPENDIX 4: Hogan Electronic Consent



Create your profile

 [?] [?]

Optional research information

 I agree to the [Informed Consent Policy](#)

© 2015 Hogan Assessment Systems. Contact [Hogan Support](#) at 877.670.0637, +1.918.749.0637, or support@hoganassessments.com. Hogan [Privacy Policy](#).

APPENDIX 5: Hogan Informed Consent Policy

Informed Consent

Hogan Assessment Systems, Inc. (“Hogan”) requires that all individuals taking its assessments give their informed consent to participate in the assessment process. This is the fundamental concept that underlies all current and anticipated data protection protocols and legislation. In order for individuals taking the assessments to give their informed consent, they must understand the purpose of the assessment, the likely use of the assessment data, and how the data are protected. These protocols are described below and are binding on all Hogan clients and individuals taking the assessments. Failure to comply with any of these safeguards will constitute grounds for termination of any agreements in place between Hogan and the person(s) or entity(ies) concerned. Hogan requires all individuals taking the assessments to give their active informed consent before they can complete the assessment process.

Consent

By initiating the assessment(s), you expressly consent to the processing, including storage, copying, deletion, printing, transfer, aggregation and use, of the data you provide as set forth below. This consent is given voluntarily and you may withdraw such consent at any time. Hogan shall not be responsible for or subject to any liability resulting from any change to your potential or continued employment status that may result from either, (1) your taking of the assessment(s), or (2) your decision to withdraw your consent to the processing of the data you provide.

Purpose

Hogan’s assessments were created to provide personal characteristic information and feedback to trained and accredited consultants and HR professionals. The data you provide, including the replies you submit during the assessment(s), will be processed by Hogan. The results of the assessment(s) are primarily used for selection and/or development by the requesting organization.

Data Processing

Hogan has the right to process the data you provide, including the storage, copying, deletion, printing, transfer, aggregation and use thereof. Hogan may also transfer, via secured methods, the data to trained and accredited consultants or HR professionals for selection and/or development purposes. In addition, Hogan may use anonymously held (identifying information removed) aggregated data for its own research purposes. All Hogan clients are responsible for complying with national and international protocols covering data use and storage. For additional information on Hogan’s data privacy policy and its compliance with the U.S.-EU Safe Harbor and the U.S.-Swiss Safe Harbor Frameworks, please visit www.hoganassessments.com/privacy-policy for more information.

Access to Data

The dissemination of assessment results is the sole responsibility of the requesting organization. Hogan will only provide results to individuals taking the assessments under specific direction from the requesting organization. Individuals taking the assessments are not guaranteed access to their individual results. However, you may withdraw your consent to the processing of the data you provided at any time, and such data will be deleted from Hogan's systems. If you choose to withdraw your consent to the processing of the data you provide after Hogan has provided your assessment results to the requesting organization, Hogan shall have no obligation to ensure the deletion of any data that may be contained in such assessment results. In addition, Hogan shall not be responsible for or subject to any liability resulting from any change to your potential or continued employment status that may result from your decision to withdraw your consent.

Security

In order to safeguard assessment results, this website contains only the assessment items, not the assessment programs (which are held by Hogan and its clients). It is impossible to process assessment results through the website. Assessment results can only be processed by downloading the raw data, decrypting the raw data, and scoring these data with appropriate programs. Until that time, responses to assessment items are merely encrypted alphanumeric strings with no discernible meaning.

Contact

If you have any questions about this Informed Consent, the purpose of the assessment(s), the processing of the data you provide, or Hogan's privacy policy, please contact CustomerService@hoganassessments.com or your local Hogan distributor.

APPENDIX 6: MCPA Pre-Test Information

Dear [Participant]

You have been requested by [line manager] to complete the following online assessment. Please find the instructions for the assessment on this email and kindly have it completed by [date]. You are required to complete the following assessment:

Modified Career Path Appreciation (MCPA)

MCPA Interview:

Please find attached the on-line instructions and fact sheet for the MCPA questionnaire.

Please take note of the fact that the MCPA interview consists of **2 phases**, the first phase is completing the *online questionnaire* which will take approximately 1hour (please see instructions attached); phase two is the *telephonic validation* which will be scheduled between yourself and a MCPA practitioner, this validation will take approximately 1.5 hours and will be done telephonically. For the validation you will not have to prepare or have anything with you but it would be appreciated if you could ensure that you are in a private place with limited disturbances.

Once you have completed the online questionnaire, please let me know when you can be available for the telephonic validation (1.5 hours). Kindly note that the validation can only happen once the online questionnaire has been completed. Please could you also send me a copy of your CV which will be forwarded to the MCPA practitioner before your scheduled validation.

Please find attached an additional MCPA information sheet for your information.

MCPA™

Modified Career Path Appreciation



I am about to experience a MCPA™!

MCPA™ is an acronym for MODIFIED CAREER PATH APPRECIATION. It is a two-part process – an initial internet based questionnaire followed by a 1-on-1 validation interview. A trained and accredited MCPA™ practitioner will contact you subsequent to receiving your internet-based questionnaire results to organise your validation interview.

The internet-based questionnaire is designed to explore your experience of work and the way in which you prefer to approach work. The validation interview (conducted telephonically if necessary) provides you an opportunity to reflect on your career, your aspirations, and the type of work that you find challenging and stimulating as well as those elements of work that frustrate and unnerve you!

The MCPA™ Practitioner arrives at an understanding of the type of work that will challenge and stimulate you at present (we refer to this as FLOW) as well as how this is likely to develop and mature with time.

In summary the MCPA™ process provides you and the company with information as to how you prefer to approach work and decision making as well as how this will change and develop, within the context of different themes of work, in the future. The MCPA™ process is founded on the principles of a theory called the Matrix of Working Relationships (MWR).

Is it a test? Can a MCPA™ be passed or failed?

MCPA™ is not a test and therefore cannot be passed or failed. It is an “appreciative enquiry process” which provides you with the opportunity to explore your preferred approach work, what you enjoy and what kind of work you find challenging and stimulating. This allows for focused and valid future development.

What is it used for?

MCPA™ is mostly commonly used as a Career Planning and Development tool. Its many other uses include that of being a component of recruitment and selection- processes, succession planning and for personal and organisational development.

When should a MCPA™ not be used?

The MCPA™ merely explore a small element of what makes up each individual. It should not be used in isolation for selection and promotion decisions and should always be integrated with complementary tools and information. People are far too complex for us to be able to learn everything about one individual in one interview!

Is the process fair and valid?

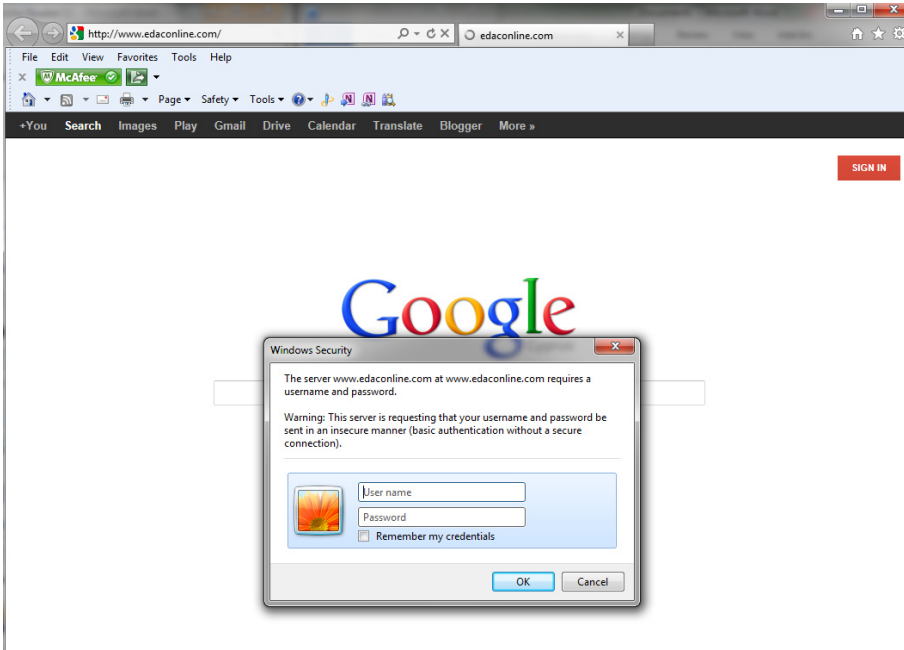
Research to date indicates that the MCPA™ is a valid, reliable, culture- and gender-fair process. In fact, feedback from the majority of people who experience a MCPA indicates that it is a most enjoyable process. An MCPA™ provides a framework or backdrop against which you can relate your experiences and draw meaning from them within the context of work.

www.bioSS.co.za
info@bioSS.com
+27 11 4502434

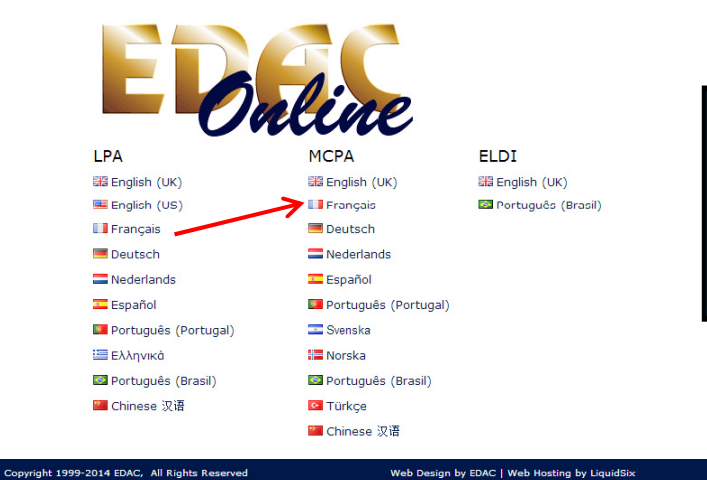
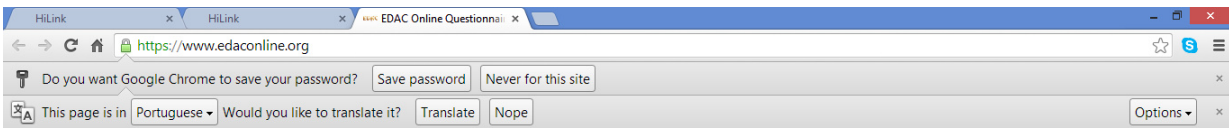
**You are welcome to visit our website
for more information on the MCPA**

MCPA™ ONLINE ASSESSMENT

Step 1: Please visit <https://www.edaonline.org>
(Please make sure that all popup blockers are switched off before you attempt to do the assessment)



Step 2:
Username:
EDAC
Password: (in lower cases)
red46tulip



Step 3:
Please select MCPA
(English UK)



Step 4: After reading the Informed Consent page click on **Next**

Step 5: When you have finished reading these instructions, select '**MCPQ™**' in the table to continue

Step 6: Enter the **EDAC Code** as '**type the code here**' (in CAPITALS) and click **Next**

Step 6:
Please enter this as:
BSABI

- **Step 7:** Review the **Running** instructions
- **Step 8:** Click **Next** to start the questionnaire

Step 8:
You will be prompted for:

- Your ID Number - this is an **optional** field, maximum 15 characters
- Your First Name, Middle Initial, and Last Name (a maximum of 50 characters is allowed for each of the First Name and Last Name fields)
- Your Age *
- Your Date of Birth

* Your age is an essential requirement for the calculation of your MCPA results

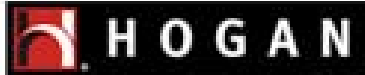
Step 9: Follow the on-screen instructions to complete your assessment. It will take approx 45 minutes to complete the questionnaire.

On completion of the questionnaire your results will be saved automatically at the server, and you can then close your Internet Browser or return to your usual Home Page.

Nothing will have been placed on your computer, and no further action is required.

Please contact us on (011) 450 2434 if you experience any problems.

APPENDIX 7: Excerpt from HDS Assessment Questionnaire



THE SCIENCE OF PERSONALITY.

Assessment Questionnaire

This Assessment contains a series of statements. Read each one, decide how you feel about it, and then mark your answer.

"True" means you agree with the statement.

"False" means you disagree with the statement.

Please try to respond to every statement. Try to work quickly. Do not spend too much time thinking about how to respond to any single statement.

-
- | | | |
|--|----------------------------|-----------------------------|
| 1. Some people think I am a workaholic. | <input type="radio"/> True | <input type="radio"/> False |
| 2. I am sometimes slow finishing things because I am so careful. | <input type="radio"/> True | <input type="radio"/> False |
| 3. If I had my life to live over, I would do things differently. | <input type="radio"/> True | <input type="radio"/> False |
| 4. I have almost never broken off a friendship. | <input type="radio"/> True | <input type="radio"/> False |

APPENDIX 8: Histograms

