School of Management Studies

The relationship between raters' understanding of personality traits and situation dimensions: Is it nothing more than general mental ability?

Zakiyyah Parker

PRKZAK009

Supervisor: Prof Francois de Kock

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COMPULSORY DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signature: Signed by candidate Date: 12 February 2024

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Abstract

The study of abilities and intelligences in psychology has been an area of interest and debate for over a century. Researchers remain divided as to whether intelligence should be generalised across various domains or should the respective domains be acknowledged and assessed in their individual capacity. This measurement issue is important in the field of industrial/organisational psychology (IOP) as the outcomes of assessments are used to make decisions on recruitment, selection, training, and performance management. More specifically, in the field of rater research, understanding the broad vs. narrow nature of constructs which constitute a good (accurate) judge is a relevant issue. In ongoing research efforts to establish the profile of a good judge, the focus has shifted to understanding the specific abilities that they should possess in addition to general abilities. Specifically, trait induction and situation induction are particularly interesting as these abilities reveal the extent to which judges understand the relationship between traits, situations, and behaviours. The relationship between raters' general mental ability (GMA) and these specific abilities was evaluated. A total of 121 participants completed various ability tests including the International Cognitive Ability Resource (ICAR), Situation Induction Test, and the Short Dispositional Insight Test (S-DIT). The participants also completed the Short Big Five Inventory 2 (BFI-2-S), which assessed their dominant personality traits. A Pearson correlation analysis was conducted to test the hypotheses. Results displayed moderate to large correlations between GMA and specific abilities relevant to understanding traits, situations, and behaviours. Furthermore, a moderate, significant relationship was found between trait induction and situation induction. Finally, there were no significant relationships observed between dispositional reasoning ability and any of the Big Five personality traits. Results of the study contribute to the understanding of the nomological network of rater ability constructs associated with rating accuracy. Practical and theoretical implications were discussed, and suggestions were made for future research.

Keywords: The Good Judge, general mental ability, trait induction, situation induction, dispositional reasoning, International Cognitive Ability Resource

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Chapter 1: Introduction

The notion of intelligence in the workplace has been a large area of debate for over a century. A concept in which researchers in the field of intelligence remain divided on is whether specific abilities add incremental value beyond general mental ability (GMA; Kell & Lang, 2017). Thus, researchers have labelled this area as one in critical need of additional research (Murphy et al., 2003; Reeve & Charles, 2008). Therefore, the present research will assess the relationship between GMA and various specific abilities, specifically focusing on those related to the profile of the good judge.

Research Context

The field of intelligence has become increasingly complex over the past few decades. In its inception, intelligence was initially considered to be an evaluation of an individual's ability to reason in their thought (Danziger, 1997). However, it has since become evident that intelligence is not a 'one size fits all' notion. The discipline has grown to include various kinds of intelligence, such as personal (Mayer, 2008), emotional (Salovey & Mayer, 1990), and social (Thorndike, 1920) intelligences, and has shifted from an objective to a more subjective point of view. These changes have also introduced different models of intelligence and the concept of general versus specific abilities.

The contradistinction between general and specific intelligences is especially important in recruitment and selection (Schmidt & Hunter, 1998; 2004), and performance management (Schneider & Newman, 2015) domains of industrial/organisational psychology (IOP). This is largely due to the fact that assessments are often used to determine an individual's suitability for a position. Considering that these assessments are used to make judgements within an organisation, it is important to ensure that the judgements made are accurate and that the assessments utilised are appropriate for their intended use (Highhouse et al., 2016). Thus, it is vital that we understand whether GMA is adequate in assessing an individual's ability to fulfill their role or whether specific abilities should be considered.

Assessments for GMA often include verbal, numerical, and abstract reasoning tests (Condon & Revelle, 2014; Kaufman & Lichtenberger, 2002). While these are important broad abilities to possess, they may not be the most appropriate for the job role. Considering that the

workplace is an inherently people-centric, social environment, it has become increasingly important that individuals possess different personal and social abilities (Mayer et al., 2012). Research in this domain could assist in improving the accuracy of psychometric prediction and is especially important in the wake of AI where machines may be able to complete the technical aspects of our jobs but lack the social and people aspects.

Thus, this research will focus on evaluating the relationship between GMA, broad abilities, and specific abilities. The specific abilities selected were those associated with the good (accurate) judge in the workplace. This is due to its relevance in the field of IOP as well as its contribution to the personality triad (Funder, 2006) and the good judge model (De Kock, 2017).

The Good Judge

Organisations base many of their human resource management decisions on subjective judgements and ratings (Cascio & Aguinis, 2019). Thus, it is vital that the individuals who produce these judgements, or raters, are doing so accurately as this influences the personnel decisions within an organisation (Funder, 2006; Highhouse et al., 2016). Knowledge of the factors that affect accuracy may aid organisations in finding and training more effective interviewers, assessors, and raters who are able to evaluate the qualities of applicants and employees (De Kock et al., 2015). The investigation into the abilities of the good judge has brought into question whether general abilities are sufficient in creating the profile of a good judge or if specific abilities should rather be focused on as a measure of assessment. Thus, this has led researchers to question which constructs contribute to the profile of a good (accurate) judge (De Kock et al., 2020). Consequently, research in this domain has shifted its focus towards investigating the abilities associated with being a good judge (De Kock et al., 2015; Funder, 2012; Powell, 2008).

Research has found that individuals with higher cognitive ability tend to make more accurate judgements (Christiansen et al., 2005; Funder, 1999) and that a better understanding of the relationship between traits and behaviours (dispositional reasoning) is associated with higher levels of GMA (Christiansen et al., 2005; De Kock et al., 2015). Dispositional reasoning, which can be broadly defined as the comprehensive understanding of the relationship between traits, behaviours, and situations (De Kock et al., 2015), has shown to predict accuracy (Christiansen et al., 2005; De Kock et al., 2015). Previous research in this area has placed their focus on the relationship between traits and behaviours and neglect to acknowledge the role of situations

within this relationship (De Kock, 2017), despite research suggesting that the interpretation of traits, situations, and behaviours may all be related (Trope, 1986).

The Personality Triad

The relationship between traits, situations, and behaviours has been labelled the personality triad (Funder, 2006) and has been widely researched throughout the years (Funder, 2006; Funder, 2009; Lucas & Donnellan, 2009; Vansteelandt & Van Mechelen, 2004; Wagerman & Funder, 2009). However, research in this domain seems to be more focused on how traits and situations cause behaviour rather than how behaviour is judged using both trait and situational cues (De Kock, 2017). Considering that all behaviour occurs within a situational context, it can be assumed that raters need to interpret cues about both the personality traits of individuals as well as the situation in which the behaviour occurs (De Kock, 2017). De Kock (2017) developed the contextualized model of personality judgment in situations (see Appendix A), which proposes that raters' abilities to judge traits and situations are driven by their abilities to use specific cues relevant to traits and situations, referred to as trait induction and situation induction, respectively. No research, thus far, has determined whether or not these abilities are systematically related. Moreover, as both abilities require raters to infer broad dimensions from specific cues, doing so suggests an inductive reasoning process. Thus, it is also important to determine whether or not the ability to infer traits and situation dimensions is related to general inductive reasoning. Therefore, research suggests that inductive reasoning would be positively correlated with GMA (Horn & Cattell, 1966). Overall, the research intends to expand insight into individual differences of the Good Judge (Figure 2; De Kock, 2020), especially those within the specific and general ability domains.

Thus, this research aims to explore how individuals are able to determine personality traits based on behaviours and situations. To further understand the concept of intelligence, this study will explore the relationship between inductive reasoning, trait induction, and situation induction and further investigate how GMA and personality may impact the assessment of these variables.

Importance in the Field of Organisational Psychology

General cognitive ability has proven to be an essential aspect in personnel selection (Schmidt & Hunter, 1998; 2004) and predicting job performance (Schneider & Newman, 2015).

While all of the theories that consider multiple intelligences have strong theoretical value, most have not been empirically verified (Guilford, 1956, 1959; Ree & Carretta, 2002; Thurstone, 1938). Thus, intelligence is often considered unidimensional. However, many intelligence researchers believe that more research needs to be conducted in this area to understand how different specific intelligences are related to various functions (Lievens & Chan, 2017; Murphy et al., 2003; Reeve & Charles, 2008).

Research Questions

This research aims to determine how judges' understanding of traits, situations and behaviours are related by answering the following questions:

- What is the relationship between judges' GMA, broad abilities (i.e., inductive reasoning and dispositional reasoning), and specific abilities (i.e., trait induction, trait extrapolation, trait contextualisation, and situation induction)?
- Do specific abilities provide additional insight into understanding and predicting behaviours?

Overview of Dissertation

The present dissertation explores the relationship between general and specific abilities relevant to the profile of a good judge. Chapter 2 consists of the literature review which offers a historical overview of intelligence and explores various theories of intelligence. This chapter also comprehensively outlines and defines the specific abilities associated with the good judge. Following this, Chapter 3 details the research methodologies utilised in this study. Chapter 4 presents the statistical analyses, including the validity and reliability of the scales, as well as the correlations between various abilities assessed. Finally, Chapter five provides a detailed discussion of the findings and their contributions to research on the profile of the good judge, alongside study limitations and recommendations for future research.

Chapter 2: Literature Review

The literature review chapter aims to provide details surrounding the context of the study as well as an overview of the variables and abilities being assessed. The chapter will begin by providing a definition and outline of the good judge to provide context into the abilities being researched. Following this, the chapter will present a history of theories and types of intelligence as well as address the debate surrounding general and specific forms of intelligence. Additionally, this chapter will provide a definition and overview of inductive reasoning, dispositional reasoning (and its subdimensions), situation induction, and verbal reasoning. Next, the big five personality traits and their relationship with accuracy and dispositional reasoning will be expanded on. Finally, the hypotheses and theoretical model for the current study are stated.

Research Context

The field of intelligence has experienced many changes over the past few decades. There has been a shift in what constitutes intelligence as well as in how we measure the construct. With this shift, researchers have questioned whether measuring general mental ability (GMA) is sufficient in measuring an individual's capability, or if specific forms of intelligence should rather be considered (Ree & Carretta, 2002). Ree and colleagues (1991; 1994; 2002) have presented a series of papers in this field to establish whether assessing specific abilities provides additional value in predicting performance. However, their results have produced mixed reviews. Thus, the present research will assess the relationship between GMA, broad abilities, and specific abilities in order to provide more insight into this area of research.

While there are many recorded specific (or narrow) abilities, this research will focus only on those associated with the good judge model (Figure 2, p. 13). This includes dispositional reasoning ability (which consists of trait induction, trait extrapolation, and trait contextualisation), and situation induction ability. These abilities were chosen due to their relevance in the field of industrial/organisational psychology (IOP) as producing accurate judgements is an essential skill for an IOP practitioner to possess, particularly in predicting job performance.

Theories of Intelligence

Intelligence can be defined as an individual's capacity to comprehend, learn, remember, think rationally, solve problems, and apply learnings to new situations (Kaplan & Sadock, 1998). The concept of intelligence was first introduced by Aristotle, over 2300 years ago (Danziger, 1997). Aristotle referred to intelligence as 'reason' and described it as the manner in which humans used rationality and how this distinguished them from animals (Danziger, 1997). Since then, the definition and understanding of intelligence has been extensively developed and debated by researchers. Thus, the following section aims to provide an overview of the most prominent theories of intelligence throughout the years and discuss its dimensionality in reference to GMA, broad abilities, and specific intelligences. Furthermore, the section will expand on the relevance and importance that cognitive ability has in the field of human resource management.

Spearman's Two-Factor Theory of Intelligence

Spearman's two-factor theory of intelligence (1904, 1927), also referred to as Spearman's general intelligence or Spearman's *g*, is considered to be the first scientific theory of intelligence (Schneider et al., 2016). The theory states that intelligence is unidimensional and can be generalised across different constructs (Spearman, 1904). According to Spearman (1904), intelligence consists of general ability and specific abilities. General ability has shown to be common across all tests and multiple abilities, while specific abilities are unique to each test and refers to a specific ability in a particular area (Thomson, 1916). Spearman (1904) conceptualized the idea of GMA to explain the tendency of certain individuals to perform well in various intellectual domains. He concluded that this could be attributed to general intelligence, whereas the tendency to perform marginally better in a certain intellectual domain could be attributed to specific intelligence (Spearman, 1904).

Spearman's theory is based on his observation that individuals who displayed a high performance in one area of intelligence also performed well in other areas. This was confirmed through factor analysis which revealed that different domains of intelligence were highly correlated, and all had the underlying factor, g (Spearman, 1904).

However, Spearman's (1904) theory predicts that correlations between specific abilities are entirely explained by general ability. Thus, failing to appeal to the existence of group factors.

Many researchers have since expressed their doubt about the existence of a general factor as this cannot account for the correlations between very different abilities (Burt, 1909; Thomson, 1916; Thurstone, 1938).

Thurstone's Primary Mental Abilities Theory

Spearman's theory was challenged by Thurstone (1938) who was of the view that intelligence is comprised of various primary mental abilities rather than one general factor. Based on this, Thurstone developed multiple factor analysis (Thurstone, 1931) and created the theory of Primary Mental Abilities (PMA; Thurstone, 1938). PMA theory posits that intelligence consists of seven primary mental abilities rather than one general factor (Thurstone, 1938). These primary mental abilities were identified as word fluency, verbal comprehension, numerical ability, spatial visualization, perceptual speed, memory, and inductive reasoning (Thurstone, 1938). Thurstone (1938) further deduced that a general factor does exist between these primary mental abilities, however, he believed that this general factor was insignificant. While this theory is not widely used, it forms the basis of many contemporary theories of intelligence (Sternberg, 2003) and thus has high heuristic value.

Gardner's Theory of Multiple Intelligences

The PMA theory was supported by Gardner (1983, 1987) who proposed that there are multiple independent forms of intelligences that are distinct from each other, rather than one general form. This was named the theory of Multiple Intelligences (Gardner, 1983; 1987). These intelligences proposed by Gardner (1983, 1987) were linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, intrapersonal and naturalist intelligence.

In the theory of Multiple Intelligences, the positive correlation between different types of intelligence is explained by Gardner (1987) as most activities requiring or involving a combination of the different intelligences. Gardner (1987) has further suggested that considering multiple intelligences may aid us in understanding concepts beyond intelligence, such as leadership and creativity. However, despite the interest that this theory has garnered, it has not been widely used in empirical studies. Furthermore, it has been critiqued for not accounting for other types of intelligence apart from those listed by Gardner (Sternberg, 2003).

A study was conducted by Visser et al. (2006) to determine whether Gardner's proposed intelligence domains were indeed independent. Results showed a positive manifold of

correlations and that five of the eight intelligences could be contributed to GMA (Visser et al., 2006). Furthermore, it was noted by Visser et al. (2006) that any inconsistencies could be explained by older, hierarchical models of intelligence. Furthermore, there is very little empirical support for the theory in its entirety. Thus, it is evident that the theory of Multiple Intelligences lacks the empirical evidence required for it to be universally accepted.

Fluid and Crystallised Intelligence

Drawing on Spearman's (1904) theory, Cattell (1963) discovered that *g* is composed of two correlated subtypes, namely fluid and crystallised intelligence. Fluid intelligence is an abstract form of reasoning and is determined through analytical assessments (Cattell & Horn, 1978). Crystallised intelligence can be described as an individual's accumulated knowledge and is often determined through verbal and numerical reasoning tests (Cattell & Horn, 1978).

Cattel-Horn-Carrol Theory of Intelligence

A hierarchical model of intelligence was proposed by Carroll (1993). This model presents a three-stratum theory of intelligence and draws on the concepts of fluid and crystallised intelligence introduced by Cattell and Horn (1978); hence it was named the Cattell-Horn-Carroll (CHC) model (McGrew, 2005).

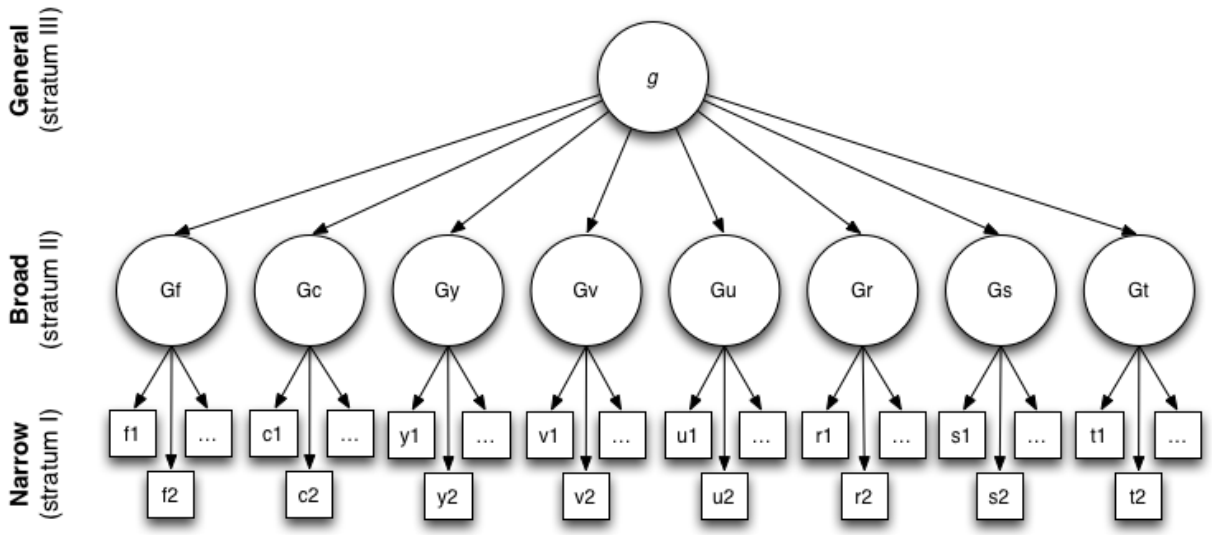
Cattell and Horn (1978) introduced a two-stratum theory of intelligence in which stratum I included fluid and crystallised intelligence, while stratum II comprised of general intelligence. Carroll (1993) built on this by introducing a third stratum as this offered a more detailed, comprehensive approach to intelligence. In the CHC model, stratum I consists of narrow intelligence, stratum II of broad intelligence, and stratum III of general intelligence. This is depicted in Figure 1 below.

Expanding on the CHC model pictured, the model portrays *g*, in its third stratum, as the origin of varying forms/types of intelligence. Broad, group-factor abilities are depicted in the second stratum of the model. These include abilities such as; fluid intelligence, crystallised intelligence, visual and auditory perception, learning and memory processes, verbal fluency, and speed (Carroll, 1993). The first stratum of the model includes the narrow or specific abilities associated with each of the broad abilities. Thus, this model depicts intelligence as a multifaceted construct.

The model provides a comprehensive framework that depicts the multidimensional and functionally integrated nature of intelligence through an attempt to understand the structure of cognitive abilities (Schneider & McGrew, 2018). The theory has been updated twice since the passing of Cattel, Horn, and Carroll (McGrew, 2009; Schneider & McGrew, 2018), and researchers continue to propose more measures of intelligence or improvements that advance the theory (Schneider et al., 2016; Wasserman, 2019). Most administered tests of intelligence are either based on the CHC theory or pay homage to its principles. The CHC model remains the most widely utilised theory of intelligence to date due to its organisation and comprehensiveness.

Figure 1

The CHC Model of Intelligence



Note. This model illustrates intelligence in its three stratums, as developed by Carrol (1993)

Further Theories of Intelligence

Alternative theories of intelligence, such as triarchic theory (Sternberg, 1985), successful intelligence (Sternberg, 1999), true intelligence (Perkins & Zimmerman, 1995), and biological theories (Halstead, 1951), have been suggested throughout the years. However, none have garnered as much attention or impact as those listed above. Furthermore, due to both the large number of intelligence theories as well as the limited scope of this study, only the theories

relevant to the understanding of the study variables, and their relationships to each other, were expanded on.

Based on this overview of theories of intelligence, it is evident that the concept of intelligence, or GMA is incredibly nuanced and constantly evolving. For the purpose of this study, reference will be made to Spearman's theory and the CHC model as these are the most prominent and influential theories of intelligence. The following section will expand on the types of intelligence explored within this study.

Types of Intelligence

General Mental Ability

General mental ability, also known as, GMA, general cognitive ability, cognitive intelligence, general intelligence, or the g factor, is a construct that explains an individual's ability to perform well across various cognitive tasks (Spearman, 1904). It can be defined as the capacity to comprehend, learn, remember, think rationally, solve problems, and apply your learnings to new situations (Kaplan & Sadock, 1997). The most common assessment of GMA is through intelligence tests, using the intelligence quotient (or IQ) as the general measure of intelligence (Sternberg, 2003).

The most popular tests which assess GMA are the Stanford-Binet intelligence test and the Weschler Adult Intelligence Scale (WAIS). The Stanford-Binet intelligence test was developed by Lewis Terman in 1916 and is a revised American adaption of the French Binet-Simon intelligence scale, which was the first IQ test in history (developed by Alfred Binet and Theodore Simon in 1905). The test assesses five factors of cognitive ability. These include fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and working memory (Sternberg, 2003). The first adaption of the WAIS was published by David Weschler in 1955. This test surpassed the Stanford-Binet test in popularity as it included both verbal and non-verbal items and was more cautiously developed (Kaufman & Lichtenberger, 2002).

Despite the effectiveness of these older and more established tests, newer ones, such as the International Cognitive Ability Resource (ICAR; Condon & Revelle, 2014), have been developed. The ICAR assesses cognitive ability using four dimensions, namely verbal reasoning, alphanumeric reasoning, matrix reasoning and three-dimensional rotation (Condon & Revelle, 2014). These newer developments of intelligence tests are important as they ensure that

individuals are not overexposed to the same tests and that the test content remains relevant to its time period.

Hot Intelligences

Hot intelligences refer to abilities which involve personally relevant information, such as emotional and social understanding (Schneider et al., 2016). This includes emotional, personal, and social intelligence. Abilities included in the hot intelligence category have displayed their importance in understanding human cognition and relationships, thus making these relevant abilities to possess in the workplace (Mayer et al., 2012).

Emotional Intelligence. Emotional intelligence is a concept introduced by Salovey and Mayer (1990). It refers to an individual's ability to: accurately perceive, evaluate, and express emotions, have a deep knowledge and understanding of emotions, and promote both emotional and intellectual growth (Mayer et al., 2000).

Personal Intelligence. Personal intelligence can be defined as the ability to reason about both one's own and others' personalities (Mayer, 2008). Mayer (2008) proposed a model of personal intelligence which involves recognising personally relevant information, forming precise models of personality, and using this information to guide choices. Based on this model, it is evident that personal intelligence can assist in predicting the behaviours of others (Sylaska, 2020).

Social Intelligence. The term social intelligence was created by Thorndike (1920) as he aspired to display intelligence as a multidimensional construct (Landy, 2005). Thorndike (1920) broadly defined social intelligence as the ability of an individual to understand and act wisely in their human interactions. Expanding on this definition, social intelligence can be split into two distinct categories, namely cognitive social intelligence, and behavioural social intelligence (Wong et al., 1995). Cognitive social intelligence can be defined as the ability to understand or perceive the social behaviours of individuals, while behavioural social intelligence explains an individual's effectiveness in social situations (Lievens & Chan, 2017).

Similarly to general mental ability, there is a distinction made between the fluid and crystallised components of social intelligence (Wong et al., 1995). Crystallised social intelligence describes the semantic understanding of social knowledge (Lievens & Chan, 2017).

Whereas fluid social intelligence can be referred to as social-cognitive flexibility and describes an individual's ability to apply social knowledge to unique situations (Lievens & Chan, 2017).

The Good Judge

The present research is rooted in attempting to understand the qualities and capabilities of a good judge. The term 'good judge' is often used to describe individuals who are considered trained experts in assessing and evaluating intelligence (Hastie & Dawes, 2010; Schmidt & Hunter, 1998). These individuals should produce accurate ratings and ideally demonstrate qualities such as impartiality, reliability, and validity (Hastie & Dawes, 2010). Additionally, a good judge should possess the ability to accurately measure personality characteristics as well as accurately predict outcomes based on these characteristics (De Kock et al., 2015).

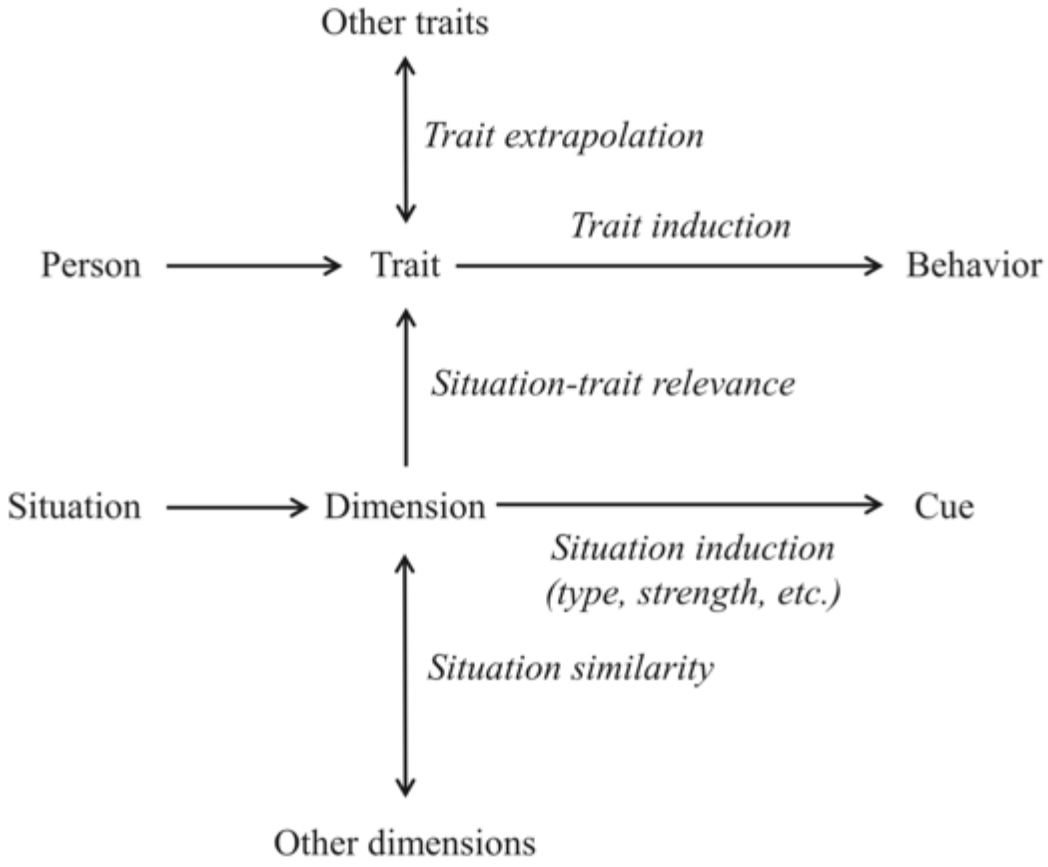
Based on the description of a good judge, it is suggested that one would need to possess qualities and/or abilities which would enable them to make more accurate predictions than the average individual, also referred to as hot intelligences (Mayer et al., 2012). While the present research will not be assessing accuracy, it will focus on the relationships between the abilities that an accurate judge should theoretically possess. This will provide us with an in-depth understanding of the profile of a good judge, consequently enabling organisations to acquire and/or produce good judges. These abilities are displayed in Figure 2 below and are expanded on in the following sections.

Specific Abilities Associated with The Good Judge Model

The present research is focused on the aspects of intelligence that are relevant to making accurate judgements in the field of human resource management. Research has indicated that accurate judges tend to have a higher cognitive ability (Christiansen et al., 2005; Funder, 1999) and a good understanding of the relationships between traits and behaviours (also known as dispositional reasoning; Christiansen et al., 2005; De Kock et al., 2015). It has also been suggested that situation induction may be influential in determining accuracy due to its relationship with traits and behaviours (De Kock, 2017). Thus, the study variables of this dissertation include general intelligence, inductive reasoning (with a specific focus on its subdimensions; trait induction, trait contextualisation, and trait extrapolation), and situation induction. While the present research will not measure accuracy, it does explore the relationships between these abilities in line with previous research and theories of intelligence.

Figure 2

Contextualized Model of Personality Judgment in Situations



Note. This model was developed by De Kock (2017) to illustrate the relationship between traits, situations and behaviours as they relate to the profile of a good judge.

Inductive Reasoning

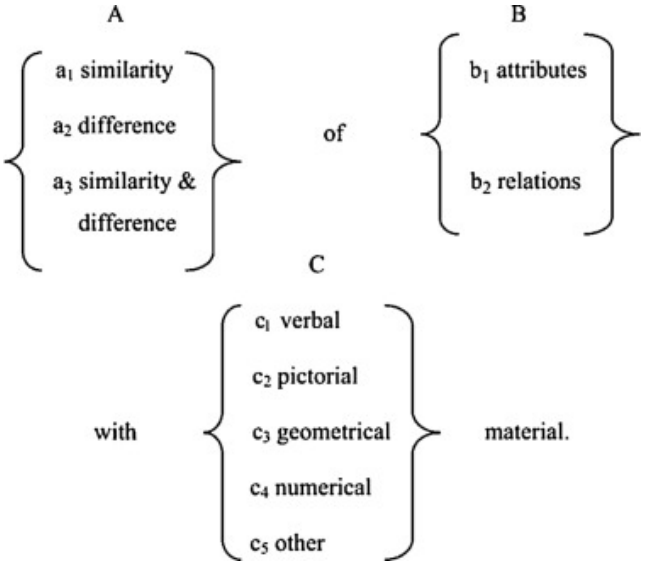
Inductive reasoning is a form of intelligence which involves using specific information or observations to infer general conclusions (Hayes et al., 2010). Furthermore, it explains how individuals evaluate known instances and generalize this knowledge to the unknown (Hayes & Heit, 2017). For example, if all students failed a particular mathematics exam, it can be inferred that the exam was difficult or even that mathematics is a difficult subject. Thus, it is evident that these inferences may not always be correct as they are based on making assumptions. Inductive reasoning influences both knowledge acquisition and application and is vital for problem-solving

(Molnar et al., 2014; Wu & Molnár, 2018). Furthermore, inductive reasoning has been identified as an important ability in the workplace as it facilitates innovation and could impact performance (Carnevale & Smith, 2013).

A figure of how inductive reasoning can be defined and measured has been constructed by Klauer and Phye (2008; Figure 3). This figure is useful in depicting the varying manners in which inductive reasoning ability can manifest and be assessed. A wide range of combinations can be made using the various options for this definition. These combinations include detecting consistencies and/or inconsistencies by discovering differences and/or similarities of attributes or relations with verbal, pictorial, geometrical, or numerical material (Klauer & Phye, 2008).

Figure 3

Definition of Inductive Reasoning



Note. This comprehensive definition of inductive reasoning was introduced by Klauer and Phye (2008)

Research has found that inductive reasoning is a form of general fluid ability and that there is an overlap between inductive reasoning and general mental ability (Cattell & Horn, 1978; Horn & Cattell, 1966). Furthermore, according to the CHC model, inductive reasoning can be considered a broad ability (Carrol, 1993). Thus, it can be hypothesized that inductive reasoning is positively related to general mental ability.

H1: Inductive reasoning is moderately, positively related to general mental ability.

Dispositional Reasoning

Definition. Dispositional reasoning can be described as the intricate understanding of the potential of behaviours, traits, and situations to elicit traits based on observable behaviours (De Kock et al., 2015). Thus, it is focused on the relationship between traits, situations and behaviours and the ability to identify and understand these relationships. In the field of accuracy, dispositional reasoning consists of three components, namely, trait induction, trait extrapolation, and trait contextualization (De Kock et al., 2015). These components are expanded on below, however, there is a specific emphasis on trait induction given that it is one of the study variables due to its perceived relationship with inductive reasoning and situation induction.

Components. Dispositional reasoning consists of three components, namely, trait induction, trait extrapolation, and trait contextualisation, all of which are expanded upon below.

Trait Induction. Trait induction can be described as an individual's ability to determine the manifestation of personality traits in behaviour (De Kock et al., 2015). Thus, an individual with high trait induction would have the ability to determine a personality trait of an individual based on the behaviours they display. For example, if an individual is able to determine that someone with a tendency to be quiet or shy (behaviour) is also likely to be an introvert (trait), then they would be displaying the ability of trait induction. Therefore, it can be said that this individual has the ability to accurately infer the traits which guide the manifest behaviours of others and can identify patterns of behaviour which are congruous with certain personality traits (De Kock et al., 2015).

Trait Extrapolation. Trait extrapolation refers to the ability of an individual to extrapolate from one trait to another (De Kock et al., 2015). It can further be described as the understanding of how traits are causally related to their demonstrated behaviours (De Kock et al., 2015). For example, if an individual notices someone exhibiting honesty (trait), the ability to determine that this person is also likely to be reliable (trait) is known as trait extrapolation. Trait extrapolation has its theoretical origins in personality literature and research, specifically implicit personality theory (Cronbach, 1955), which is further explored by De Kock et al. (2015).

Trait Contextualisation. Finally, trait contextualisation can be described as the ability to establish situations which are applicable to different traits (De Kock et al., 2015). Therefore, an

individual with a high trait contextualisation ability would have more insight into which traits are likely to be expressed based on the respective situation in which they are in. For example, if an individual is able to tell that working in a group project (situation) would likely elicit sociability (trait), then this would be considered the ability of trait contextualisation. The concept of trait contextualisation has been theoretically informed by interactionist perspectives on personality, in which behaviour is considered an outcome of the association between an individual and their environment (De Kock et al., 2015).

Relevance. Research has found that dispositional reasoning was a strong predictor of accuracy (Christiansen et al., 2005; Powell & Goffin, 2009) and that it represents specific intelligences (De Kock et al., 2015). A systematic review of the good judge conducted by De Kock et al. (2020) have also stated that the understanding of personality, in the form of dispositional reasoning, can be considered an essential quality for a good judge to possess. There tends to be an overlap between the dispositional reasoning components as all three represent trait relevant information and are required to utilize behavioural cues (Christiansen et al., 2005). This overlap is common among measures of ability, especially those which fall within the same conceptual domain, and is known as positive manifold (Horn & Cattell, 1966). Furthermore, according to the CHC model, trait induction can be considered a narrow ability (Carrol, 1993) Based on these concepts, it can be assumed that there is a relationship between trait induction and inductive reasoning ability as well as general mental ability.

H2: Trait induction is moderately, positively related to inductive reasoning and general mental ability.

Situational Reasoning

Definition. Situations can be broadly defined as a brief and significant circumstance which does not exist within an individual but rather in their surroundings (Rauthmann et al., 2014; Rauthmann et al., 2015). According to researchers (Ziegler & Horstmann, 2015; De Kock 2017), an individual's ability to understand situations should also be considered when establishing the accuracy of their judgements. However, this is often not taken into account as measuring situational understanding and/or reasoning has been deemed a difficult task (Sherman et al., 2013). Nonetheless, it had been suggested by Rauthmann (2015) that the understanding of situations requires utilising a physical cue to perceive and interpret the social environment in

order to create a situation characteristic which should then be categorised into situational classes. Based on this understanding of situations, it has been theorized that the components of dispositional reasoning can be extended to situational reasoning (De Kock, 2017). Situational reasoning can, therefore, be described as the ability of individuals to perceive, understand, interpret, and classify situations based on their psychological characteristics, using situation cues (Rauthmann & Sherman, 2015).

Components. Situational reasoning consists of two components, namely, situation similarity and situation induction. Situation similarity refers to the understanding of the relationships between real life situations (De Kock, 2017) and can be considered the situation equivalent to trait extrapolation.

Situation induction involves placing individuals in scenarios which simulate or replicate the challenges and/or demands associated with their job role. In the context of this study, situation induction can be described as the ability to determine a situation characteristic when presented with the available cues. Thus, focusing on how situational factors can influence behaviours. For example, if an individual is able to detect that a situation which induces fear and/or anxiety (cue) is negative (characteristic), then they would be displaying the ability of situation induction (Salgado, 2018).

Measurement. Several situational taxonomies have been developed by researchers over the years. These include Situation 5 (Ziegler, 2014), CAPTION (Parrigon et al., 2017), the Social Interdependence Scale (SIS; Gerpott et al., 2018), and the Situational Affordances for Adaptive Problems (SAAP; Brown et al., 2015). However, there have been concerns regarding the lack of predictive validity and limited scope covered by these taxonomies (Horstmann et al., 2017; Rauthmann et al., 2014).

The DIAMONDS taxonomy, developed by Rauthmann et al. (2014) through an analysis of the dimensional structure of the Riverside Situational Q-sort (RSQ; Wagerman & Funder, 2009), addresses these concerns by providing a comprehensive framework for measuring situations. The eight DIAMONDS dimensions include Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociability (Rauthmann et al., 2014). These dimensions can be used for individuals to perceive and interpret psychological situations (Rauthmann et al., 2014). Duty describes the extent to which individuals perceive a situation to contain work or attending to tasks, intellect describes the extent to which individuals perceive a situation to

contain cognitive engagement, adversity describes the extent to which individuals perceive a situation to contain threats or conflict, mating describes the extent to which a situation can be perceived as sexually or romantically charged, positivity describes the extent to which a situation can be perceived as enjoyable or playful, negativity describes the extent to which a situation can induce feelings of frustration, anxiety and/or anger, deception describes the extent to which a situation can be perceived to contain mistrust and betrayal, and sociality describes the extent to which a situation can be perceived to entail socializing and interaction (Rauthmann et al., 2014).

Relevance. Although both traits and situations are related to behaviour (Funder, 2006), the situational determinants of behaviour are often not considered in psychological assessments (Ziegler & Horstmann, 2015). Considering that situations can be complicated in its measurement and due to the perceived relationship between situation induction, trait induction, and inductive reasoning (De Kock, 2017), the present study will only focus on situation induction as a variable.

Assessments for situations are hard to acquire as there is a lack of consensus regarding the definition of situational perception which makes creating a measurement construct nearly impossible (Ziegler & Horstmann, 2015). Thus, based on the literature conducted on situations and largely on the RSQ (Wagerman & Funder, 2009) and DIAMONDS dimensions (Rauthmann et al., 2014), the present study aims to introduce a scale that measures situation induction. This scale will be further discussed in the methods chapter of this dissertation. This scale was developed based on the suggestion of Rauthamann et al. (2014) to replicate their scale using cross-cultural language and situational idioms.

The present study will, therefore, attempt to measure situation induction and its potential relationship with related abilities. Based on the CHC theory, in which situation induction can be considered a narrow ability (Carrol, 1993), and positive manifold (Horn & Cattell, 1966), it can be assumed that situation induction is positively related to inductive reasoning ability and general mental ability.

H3: Situation induction is moderately, positively related to inductive reasoning ability and general mental ability.

Relationship between Traits, Situations, and Behaviours

Trait and Situation Induction

There has been a long-standing debate on whether personal or situational factors are more accurate measures of determining behaviour (Funder, 2006; Lewin, 1951; Sherman et al., 2015). However, researchers have discovered that behaviour is determined by both personality and situations (Funder, 2006; Ziegler & Horstmann, 2015). Trait induction and situation induction can be considered related concepts in personality psychology (De Kock, 2017). While trait induction focuses on identifying consistent personality traits across various situations, situation induction focuses on the understanding of how behaviour is influenced by situational factors in certain contexts (Sherman et al., 2015).

As previously mentioned, the situation component of the personality triad has been neglected in literature, potentially due to the measurement difficulties associated with it (Sherman et al., 2013). Therefore, while it has been suggested that dispositional reasoning is theoretically related to behaviour (Christiansen et al., 2005; De Kock et al., 2015), the situation component needs to be further explored (De Kock, 2017). Based on previous research, De Kock (2017) has suggested that individuals should utilize both dispositional and situational reasoning in order to make accurate inferences about behaviours (Appendix A).

Drawing on the theories of intelligence, De Kock et al. (2015) have suggested that the components of dispositional and situational reasoning represent specific intelligences rather than general measures. Thus, the CHC model can be applied to the relationship between trait induction, situation induction, and inductive reasoning, in which trait and situation induction are the specific abilities of inductive reasoning, the group/broad ability. In addition to this, both trait and situation induction can further be described as forms of fluid social intelligence. Considering that the workplace is an inherently social environment which consists of many interpersonal interactions (De Kock et al., 2020), it has been suggested that the understanding of individuals' behaviour, as they manifest within situational contexts, is facilitated by the ability to interpret social information (also referred to as social intelligence; Lievens, 2017).

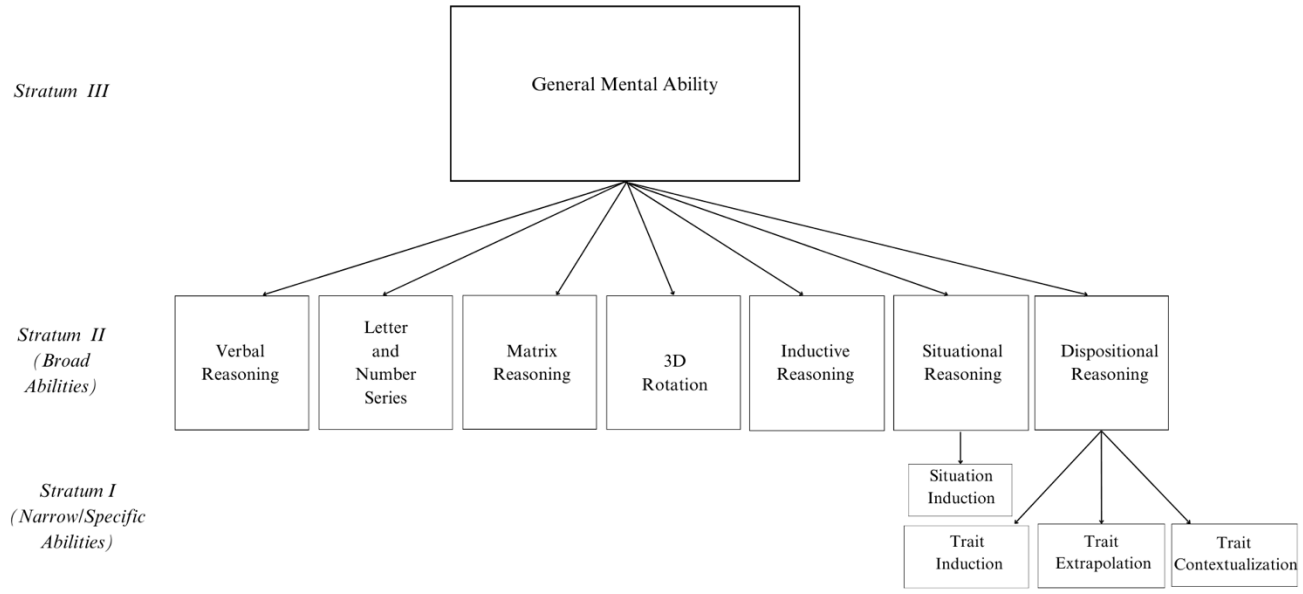
Therefore, it is evident that the relationship between these two specific abilities have shown to be theoretically related in view of research involving the personality triad (Funder, 2006; Ziegler & Horstmann, 2015). However, this relationship should also manifest in empirical

literature based on the positive manifold and the tendency of specific abilities to be positively correlated (Carrol, 1993; Carrol, 2003). Thus, it is hypothesized that trait induction and situation induction are moderately positively related.

H4: Trait induction is moderately, positively related to situation induction.

Figure 4

Conceptual Diagram of the Levels of Abilities Assessed in the Present Study



Discriminant Validity

Personality Traits

Discriminant validity or divergent validity is displayed when constructs that are not meant to be related to each other are, indeed, shown not to be highly correlated (Hubley, 2014). In the present study, we will assess the personality traits of participants to discern whether they are related to any of the abilities being tested.

Personality has shown to be theoretically linked to judgement accuracy; however, this has not been empirically supported by research (Christiansen et al., 2005; De Kock et al., 2015;

Lippa & Dietz, 2000; Powell, 2008; Vogt & Colvin, 2003). According to a systematic review conducted by De Kock et al. (2020), none of the Big Five personality traits (this includes Extraversion, Agreeableness, Conscientiousness, Negative Emotionality, and Open-mindedness) have emerged as a consistent predictor of accuracy. Furthermore, research that has reported significant effects on certain dimensions, such as dispositional reasoning ability and open-mindedness (r = .21), tends to have small effect sizes (Christiansen et al., 2005). Thus, scoring higher or lower on any particular personality dimension should not be related to dispositional reasoning (De Kock et al., 2020).

H5: Personality traits are not related to dispositional reasoning ability.

Chapter 3: Method

Research Design

This study utilized a cross-sectional, descriptive design due to time constraints and the nature of the study. A descriptive design measures the variables as they naturally occur and can be used to describe individuals' responses to questions regarding behaviours and attitudes (Gravetter & Forzano, 2018). Cross-sectional refers to data only being collected at one point in time, as opposed to longitudinal data which collects data from a group of individuals at different points in time (Rosnow & Rosenthal, 2013). This will allow the data collection to be more time-efficient and will allow for a greater response rate as no long-term cooperation will be required from participants (Gravetter & Forzano, 2018). Data was quantitative in nature and collected via an online platform (Qualtrics) as this is the most effective method of data collection for the study variables, given that the questionnaire consisted of ability tests (Wu & Molnár, 2018).

Sampling and Participants

Participants were sourced from Prolific. Prolific is a crowdworking platform that recruits research participants online (Palan & Schitter, 2018). The platform is reputable, reasonably priced, explicitly informs participants that they are being recruited for research, and has a detailed set of rules which researchers need to abide by (Palan & Schitter, 2018). Due to it being a fairly new platform, Prolific offers more naivety and diversity in comparison to its competitors, such as Amazon Mechanical Turk (MTurk) and CrowdFlower (Peer et al., 2017).

In total, there were 121 participants whose ages ranged from 18 to 55. Participants varied in nationality, race, gender, age, and occupation. This has allowed the study to be more generalisable across the population and enabled the researcher to obtain a larger number of participants. Keeping the sample this broad also allowed for a greater response rate as the survey is considerably long. An overview of the demographics are provided in Table 1 below. From these 121 participants, 57 (47.1%) were required to rate other individuals, 56 (46.3%) were not required to conduct ratings, and 8 (6.7%) were uncertain or preferred not to disclose.

Based on the table of demographics, it is evident that more males participated in the study than females. Furthermore, more than half (56%) of the participants were white, and the majority of the participants fell within a younger age range, with nearly 86% being between the ages of 18 and 34. The age demographic is favourable as it indicates the relevancy of the study and suggests

Table 1

Participants Demographic Information

Demographic Characteristic	Percentage (%)	Frequency
Gender		
Male	62	75
Female	35.5	43
Gender non-conforming	1.7	2
Other	0.8	1
Ethnicity		
Black	19.8	24
White	56.2	68
Indian	1.7	2
Asian	2.5	3
Hispanic/Latino	17.4	21
Middle Eastern	0.8	1
Prefer not to say	1.7	2
Nationality		
European	50.4	61
South African	19.8	24
American	7.4	9
Other	22.3	7
Age		

18-24	48.76	59
25-34	37.19	45
35-44	10.74	13
45-55	3.31	4

naivety amongst participants. However, it is noted that research in the past has shown that ability tests can be discriminatory towards females and black individuals, which were the minority in this study. While the potential effects of this discrimination could not be measured due to the limited sample size and scope of this study, this would be beneficial for future research to explore.

In addition to Prolific, non-probability sampling, specifically convenience sampling, was employed to source a South African sample of participants due to it being more accessible (Gravetter & Forzano, 2018). Snowball sampling was utilised in conjunction with this, in which existing participants were asked to share the survey link with any potential participants, in order to accumulate a larger sample size. However, the sample size was not large enough to undergo psychological assessment and differences in the results between the two samples made it unsuitable to be collapsed into a single sample. Thus, these responses were not utilised for data analysis.

Measures

General Mental Ability

A shortened version of the International Cognitive Ability Resource (ICAR) was administered to measure inductive reasoning, verbal reasoning and general mental ability (see Appendix B). The ICAR is a relatively new measure of general mental ability which has become more popular due to its flexible nature and affordability (Dworak et al, 2021).

The test consists of four item types, namely, verbal reasoning, letter and number series, matrix reasoning and three-dimensional rotation. The full ICAR consists of 60 items with a varying number of items in each category. However, given that the ICAR can be used flexibly (Condon & Revelle, 2014), only 24 items were used for this study. Thus, six items were chosen from each category based on a study conducted by de Vries et al. (2021).

The ICAR has been used across various contexts, including in South Africa (Baret, 2018), and has displayed considerable psychometric properties (Dworak et al, 2021). The construct and predictive validity of the ICAR yielded strong results and preliminary studies found good internal consistency (Condon & Revelle, 2014; Briley & Tucker-Drob, 2014). However, considering that it is a fairly new assessment, research regarding its reliability and validity are still ongoing and it is, therefore, important that results are interpreted in line with the context of the study.

Verbal Reasoning. The participants verbal reasoning ability was measured using the ICAR verbal reasoning test. This provides participants with questions which assess logic, vocabulary and general knowledge (Condon & Revelle, 2014). Participants are then expected to choose the correct answer to the question based on six provided options. The test has been widely used and has exhibited acceptable validity and reliability scores (Kirkegaard & Bjerrekaer, 2016).

Letter and Number Series. The letter and number series consists of various number and/or letter sequences. Participants were required to identify the next position in each sequence from six provided options (Condon & Revelle, 2014). This determines the participants ability to detect patterns and thus measures inductive reasoning by assessing similarities of relation with verbal and numerical material (Klauer & Phye, 2008).

Matrix Reasoning. The items in the matrix reasoning test are similar to those in Raven's Progressive Matrices (Raven, 1981). Participants were presented with a three-by-three array of geometric shapes, of which one shape was missing (i.e. eight blocks contained a geometric shape, and one contained a question mark). Participants were then expected to identify the missing geometric shape from six options provided to them (Condon & Revelle, 2014). Thus, this test measures inductive reasoning by assessing similarities of relation with geometric material (Klauer & Phye, 2008).

Three-Dimensional Rotation. The three-dimensional rotation test provides participants with a different cube rendering for each question. Participants were required to identify a possible rotation for each item based on six provided options (Condon & Revelle, 2014).

Inductive Reasoning

As aforementioned. the letter and number series and the matrix reasoning subscales of the ICAR are both measures of inductive reasoning. The letter and number series measures inductive reasoning by utilising numerical/verbal material, while the matrix reasoning scales measures inductive reasoning by use of geometric material. Therefore, a combination of these subscales were used to measure inductive reasoning. This was regarded as a completely separate scale. Thus, any removals made from the measurement of the psychometric properties on each of the subscales were still utilised in the measurement of the psychometric properties of the inductive reasoning scale.

Dispositional Reasoning

Dispositional reasoning was measured using the Short Dispositional Insight Test (S-DIT; de Vries et al., 2021; see Appendix C). This is a shorted version of the Dispositional Insight Test (DIT) constructed by de Vries et al. (2021) and is based on the HEXACO personality model (Ashton & Lee, 2020). The S-DIT consists of three categories (which measures trait induction, trait extrapolation and trait contextualisation, respectively) of six questions each, with a total of 18 questions. Trait induction was measured to test the hypotheses, while trait extrapolation and contextualisation were measured for discriminant validity purposes.

For the first category, participants were given the six HEXACO (Honesty-humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness and Openness to experience) personality traits and will be provided with six words describing a behaviour or attitude. They were then required to choose the personality trait that best describes each word. In the second category, participants were provided with information of different individuals and six descriptive phrases. Participants were then asked to choose the individual most likely to match the description provided. The third category provided participants with six traits (creativity, organization, forgiveness, sociability, sentimentality and fairness) and six different situations. They were then required to choose which personality trait best suits the specific situation. All the traits provided were defined before participants were expected to complete the respective category.

The S-DIT has displayed an alpha reliability of .71 in a previous study (de Vries et al., 2021). Considerable reliability was also displayed with the full DIT measures for trait induction

(α = .69), extrapolation (α = .68) and contextualisation (α = .64). However, the results of the shortened versions of these subtests, which will be used within this study, were not reported.

Situation Induction

Situation induction was measured using an unpublished measure constructed by Organisational Psychology honours students, with the aid of their supervisor, at the University of Cape Town (Salgado, 2018; Bezuidenhoudt, 2018) (see Appendix D). This measure is based on the Rauthmann et al. (2014) Riverside Situational Q-sort Eight scale (RSQ-8). It assesses an individual's ability to characterize a situation based on descriptors provided to them (Salgado, 2018). It utilizes eight situational characteristics, namely Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception and Sociality (DIAMONDS). These characteristics were thoroughly defined within the survey to ensure that participants understand what each of them mean. This measure contains 32 statements and was presented in a matrix in which participants were required to match the statement to the most appropriate situational characteristic (Salgado, 2018; Bezuidenhoudt, 2018).

Personality

The short Big Five Inventory 2 (BFI-2-S) was used to measure participants personality traits (Soto & John, 2017) for discriminant validity purposes (see Appendix E). The BFI-2-S is a shortened version of the Big Five Inventory 2 (BFI-2). It consists of 30 items which measures participants Big Five (or OCEAN) personality traits. These traits are Extraversion, Agreeableness, Conscientiousness, Negative Emotionality (also known as Neuroticism) and Open-mindedness (also known as openness). Items were measured on a self-report 5-point Likert scale ranging from 1 = "*Strongly Disagree*" to 5 = "*Strongly Agree*". Scoring higher on each trait indicated that the participant behaves favourably according to the relative trait. The BFI-2-S has been adapted to many different languages and used extensively in various contexts, in which it has displayed considerable validity and reliability (Cemalcilar, 2021; Halama, 2020; Rammstedt et al., 2020; Soto & John, 2017).

Procedure

Prior to the commencement of data collection, the research proposal was submitted to the UCT Commerce Faculty Ethics in Research Committee and was granted ethical approval (see

Appendix F). An online survey was then created in Qualtrics, and an anonymous survey link was generated for distribution. The link was shared with four students as a pilot study in order to identify any formatting or wording issues. The participants in the pilot study provided feedback on the display as well as the clarity of the questions and instructions.

Following the pilot study, a Prolific profile was created in order to source participants. A separate link was generated with a consent form, which stated that the study would operate in accordance with Prolific's rules and regulations and that participants would be remunerated £6 (GBP), which is roughly equivalent to R120 (ZAR), for their participation. The survey link was made available to all suitable users on Prolific and a survey code was provided at the end of the survey for participants to submit to Prolific to prove their completion. Once 142 responses were collected, the surveys were all evaluated to ensure adequate completion. However, 21 responses were incomplete or completed without sufficient effort (in two standard deviations below the average time). These responses were rejected, and the participants were informed that they would not be remunerated along with the corresponding reason/s as to why this was the case. After all surveys were checked, there were a total of 121 completed surveys. These participants were all remunerated the aforementioned compensation and were thanked for their participation.

Ethical Considerations

Ethical approval was obtained from UCT Commerce Faculty Ethics in Research Committee. All participants were required to sign a consent form before completing the survey. This form contained a brief description of the nature of the study and participants were made aware that there were no known risks associated with their participation. Additionally, participants were informed that their participation was voluntary and that they had the right to withdraw from the study at any point in time. This form also assured participants that the survey was completely anonymous, and that all data would be kept confidential. Data was be handled in line with the study data management plan (e.g., stored in a password-protected laptop). Finally, respondents were remunerated for their time at a reasonable and agreed upon rate.

Statistical Analyses

Data was collected on Qualtrics and then exported to IBM Statistical Package for Social Sciences (SPSS), version 27. The data was thoroughly cleaned and coded in SPSS in preparation for statistical analysis.

Measurement properties were evaluated in SPSS and R (version 4.2.2) by means of internal consistency and measurement validity. Following this, bivariate correlation analyses were conducted for hypothesis testing.

Chapter 4: Results

This chapter outlines the finding of this study based on the statistical analyses conducted. First the measurement properties of the scales were investigated in order to assess their validity and reliability. This was conducted through the use of confirmatory factor analysis (CFA), exploratory factor analysis (EFA), Cronbach's alpha (α) and McDonalds omega (Ω). Following this, the results from the correlation analyses will be presented in order to assess the study hypotheses.

Structure of Measurement Scales

Validity was assessed by means of factor analysis. A confirmatory factor analysis (CFA) was used for the ICAR and S-DIT. In addition to this, an exploratory factor analysis (EFA) was performed on the Situation Induction test and BFI-2.

Confirmatory Factor Analysis

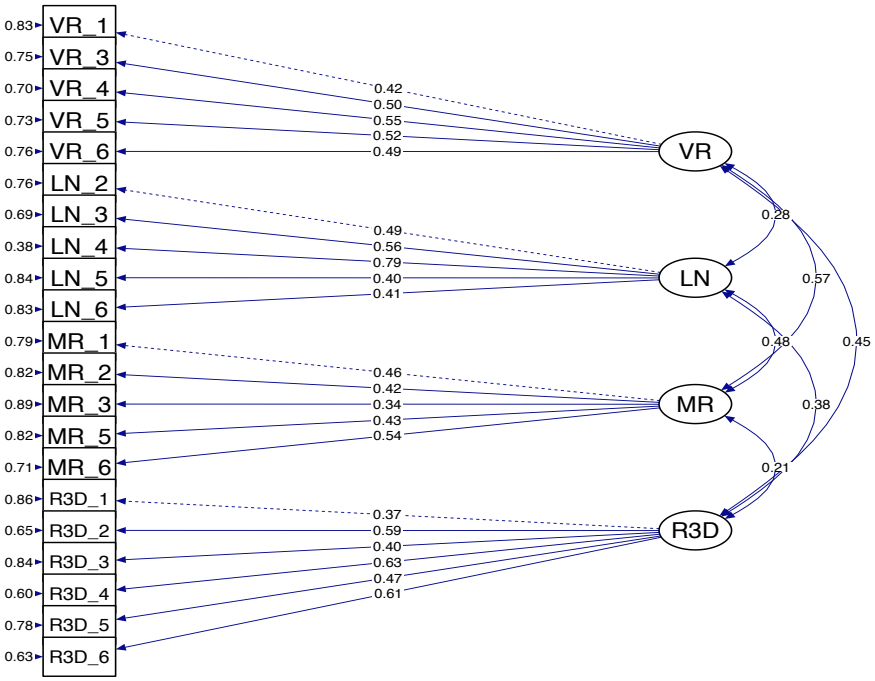
Confirmatory Factor Analysis (CFA) was conducted to verify the factor structure of the observed variables (Suhr, 2006). Prior to conducting a CFA analyses, the following assumptions were tested and met. Firstly, the sample was randomly attained and consisted of an adequate sample size. The adequacy of the sample size was determined through using a 10:1 ratio of participants to variables (Cohen, 1988). This study utilised four (nine if accounting for the sub-dimensions) study variables, thus the obtained sample of $n = 121$ was deemed acceptable to conduct a CFA. An a priori model of both the ICAR and S-DIT was determined and specified based on previous literature (Condon & Revelle, 2014; de Vries et al., 2021; Hair et al., 2006). These models are outlined in Figure 5 and Figure 6 below. Data was all normally distributed as displayed by the skewness and kurtosis values in Table 6 (Bryne, 2010).

When analysing the CFA results, the following thresholds were utilised in accordance with (Hair et al., 2006). The Comparative Fit Index (CFI) and Tucker-Lewis Index (NFI) were used to determine a good model fit. A value of .90 or greater was deemed an acceptable fit. Furthermore, the Root Mean Square Error of Approximation (RMSEA) indicates the amount of unexplained variance or residual. This value should be below .06 to be deemed acceptable. The chi-square value explains the similarities between the observed and expected matrices. This value should be as close to 0 as possible and the p value should be less than .05.

International Cognitive Ability Resource. The CFA was conducted on all of the ICAR items. The model fit was deemed acceptable (*CFI* = .961, *TLI* = .956, *RMSEA* = .020, *SRMR* = .072) 90% CI (.000; .043). However, three items, namely VR2, MR4 and LN1, did not meet the required factor loading threshold. Thus, these three items were individually removed, and the resulting model fit was (*CFI* = .928, *TLI* = .917, *RMSEA* = .031, *SRMR* = .072) 90% CI (.000; .043). The model, with its relative factor loading scores, is illustrated in Figure 5 below.

Figure 5

Factor Loadings of the International Cognitive Ability Resource

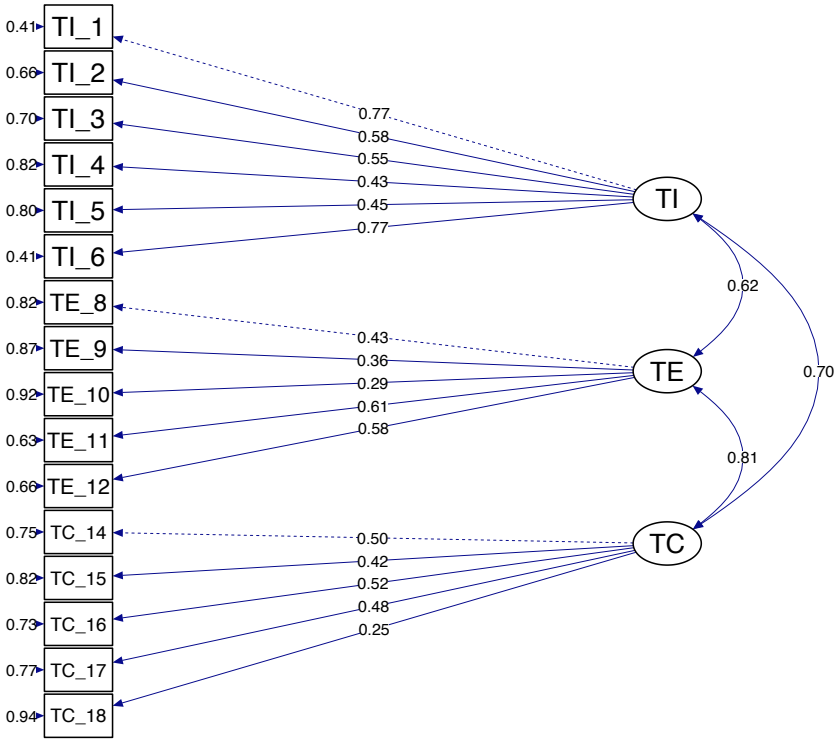


Short Dispositional Insight Test. The CFA was conducted on all of the S-DIT items. However, the model fit was below the required threshold of .90. (*CFI* = .825, *TLI* = .797, *RMSEA* = .065, *SRMR* = .083) 90% CI (.045; .082). Two items, namely TE7 and TC13 had low factor loadings (below .20). Thus, these items were individually removed, but the resulting model fit did still not meet the requirements (*CFI* = .868, *TLI* = .843, *RMSEA* = .062, *SRMR* = .0672) 90% CI (.039; .083). Thus, further research was consulted, and a Diagonally Weighted Least Squares (DWLS) was utilised for CFA.

According to literature, a DWLS estimator is a more suitable estimator for measures of ability (Mindrila, 2010). Thus, this estimator was applied to the dispositional reasoning test and the resulting model fit was (*CFI* = 1.000, *TLI* = 1.069, *RMSEA* = .000, *SRMR* = .079) 90% CI (.000; .000). The model was, therefore, deemed acceptable.

Figure 6

Factor Loadings of the Dispositional Insight Test



Exploratory Factor Analysis

Prior to conducting the exploratory factor analyses (EFA), two assumptions were assessed to ensure meaningful validity results. The first assumption was that the Kaiser-Meyer-Olkin (KMO) should be greater than .50 to illustrate that data are adequately distributed (Kaiser, 1974). The second assumption was that the Bartlett's Test of Sphericity must be significant ($p < .05$), in order to determine whether scale items are adequately correlated (Tabachnick & Fidell, 2014). Furthermore, research has suggested that a factor loading of .30 or above can be considered significant and has, therefore, deemed this an appropriate cut-off point (Field 2018).

Situation Induction

The situation induction test is a new measure and has, therefore, not undergone any statistical validation. Thus, an EFA was conducted to assess its validity. While the factor analysis assumptions were met (*KMO* = .672; χ^2_{465} = 1079.34, $p < .001$), many of the factor loadings fell below .30. Consequently, a total of 18 items were individually removed in order to meeting the .30 factor loading threshold. The remaining 14 items met the EFA assumptions (*KMO* = .791; χ^2_{91} = 484.01, p < .001) and its factor loadings can be seen in Table 2. While three factors were extracted with an eigenvalue above one, the items were forced onto one factor as it was only measuring one construct.

Table 2

Factor Loadings of the Situation Induction Test

Item	Factor One (Situation Induction)
SI_2	.350
SI_3	.330
SI_11	.417
SI_12	.420
SI_13	.424
SI_14	.381
SI_16	.607
SI_19	.431
SI_22	.622
SI_26	.311
SI_27	.703
SI_29	.494
SI_30	.726
SI_31	.409
Eigenvalues	3.375
Cumulative variance explained (%)	24.104

Inductive Reasoning. Inductive reasoning was measured using the letter and number series and matrix reasoning subscales of the ICAR. Although LN1 and MR4 were removed from the measurement of general mental ability, they were retained in the measurement of inductive reasoning as these are two separate constructs being measured. The factor analysis assumptions were met (KMO = .724; χ^2_{55} = 166.845, p < .001). Item three of the matrix reasoning subscale (MR3) was removed due to low factor loading.

Table 3

Factor Loadings of the Inductive Reasoning Scale

Item	Factor One (Inductive Reasoning)
LN_1	.250
LN_2	.555
LN_3	.516
LN_4	.703
LN_5	.326
LN_6	.411
MR_1	.295
MR_2	.398
MR_4	.236
MR_5	.332
MR_6	.346
Eigenvalues	2.682
Cumulative variance explained (%)	24.384

The Short Big Five Inventory 2. The BFI-2-S met the assumptions for EFA (KMO = .713; χ^2_{435} = 1433.09, p < .001). Furthermore, the scale loaded onto nine factors with an eigenvalue above one and explained a cumulative total of 68.09% of the variance. Considering that the BFI only has five dimensions, the scale was forced on five factors instead. There were crossloadings across the various dimensions, thus varimax rotation was applied as the scale items are uncorrelated (Soto & John, 2017). All items then loaded onto their stipulated dimensions except item 20 which was removed due to low factor loading (Field, 2018). The resultant EFA

assumptions were still acceptable (KMO = .716; χ^2_{406} = 1406.13, p < .001) and can be seen in Table 4 below.

Table 4

Factor Loadings of the Big Five Inventory 2

Item	Factor One (Negative-Emotionality)	Factor Two (Agreeableness)	Factor Three (Conscientiousness)	Factor Four (Extraversion)	Factor Five (Openness to experience)
BFI_E_1				.585	
BFI_E_6				.690	
BFI_E_11				.429	
BFI_E_16				.570	
BFI_E_21				.480	
BFI_E_26				.306	
BFI_A_2			.688		
BFI_A_7			.666		
BFI_A_12			.512		
BFI_A_17			.558		
BFI_A_22			.511		
BFI_A_27			.464		
BFI_C_3		.729			
BFI_C_8		.582			
BFI_C_13		.494			
BFI_C_18		.615			
BFI_C_23		.511			
BFI_C_28		.557			
BFI_N_4	.712				
BFI_N_9	.699				
BFI_N_14	.739				
BFI_N_19	.764				
BFI_N_24	.599				
BFI_N_29	.564				
BFI_O_5					.582
BFI_O_10					.573
BFI_O_15					.483
BFI_O_25					.298

BFI_O_30	.705
Eigenvalues	15.30
Cumulative variance explained (%)	52.75

Measurement Reliability

The internal consistency of the scales was assessed using Cronbach's coefficient alpha (α) and McDonald's omega (Ω). For the interpretation of Cronbach's alpha, Nunnally's (1978) guidelines were adopted and all items with corrected inter-item total correlations greater than or equal to .30 were retained (Field, 2018; Pallant, 2013). Due to the assumption of unidimensionality for the use of alpha, omega was used to measure composite reliability of the dispositional reasoning scale (McNeish, 2017). The mega total measure was generated in SPSS as this is the most conceptually related to Cronbach's alpha (McNeish, 2017). Results were interpreted according to Nunnally's (1978) guidelines in which; $\alpha < .50$ is considered unacceptable, $.50 < \alpha < .60$ questionable, $.60 < \alpha < .70$ acceptable, $.70 < \alpha < .80$ good and $\alpha > .90$ excellent. The alpha and omega values of the study variables were all above the .60 threshold.

The ICAR, Situation Induction, S-DIT and BFI-2-S scales all displayed good reliability according to their alpha and omega scores (Table 5). Some of the subscales displayed questionable reliability and were, therefore, not able to be utilised in isolation. These include matrix reasoning, trait extrapolation and trait contextualisation. Due to the assumption of unidimensionality for the use of alpha, omega was also used to measure composite reliability, specifically relevant for the ICAR and S-DIT (McNeish, 2017). The Omega total measure was generated in SPSS as this is the most conceptually related to Cronbach's alpha (McNeish, 2017).

While some items did have low corrected item-total correlations, they were retained as their removal would not significantly increase the alpha and/or omega scores. Additionally, their low correlations were predicted due to the multidimensionality of the scales (Piedmont & Hyland, 1993). Furthermore, the low internal consistency for the BFI-2-S is noted in its seminal paper (Soto & John, 2017) in which it is stated that emphasis should be placed on the content breadth rather than the internal consistency (Soto & John, 2017).

Table 5

Internal Consistency Reliability of Scales

Scale	Cronbach's Alpha	McDonald's Omega	Corrected Item-Total Correlations
ICAR	.744	.720	$.166 < r < .456$
Verbal Reasoning	.615	.614	$.312 < r < .422$
Alphanumeric Reasoning	.656	.663	$.312 < r < .577$
Matrix Reasoning	.538	.522	$.218 < r < .347$
3D Rotation	.679	.671	$.338 < r < .480$
Inductive Reasoning	.663	.676	$.189 < r < .534$
Situation Induction	.803	.804	$.287 < r < .659$
Dispositional Reasoning	.798	.794	$.195 < r < .616$
Trait Induction	.760	.764	$.285 < r < .642$
Trait Extrapolation	.561	.554	$.218 < r < .404$
Trait Contextualisation	.546	.551	$.171 < r < .451$
Extraversion	.726	.703	$.378 < r < .545$
Agreeableness	.738	.744	$.406 < r < .586$
Conscientiousness	.763	.770	$.394 < r < .637$
Negative Emotionality	.852	.853	$.469 < r < .725$
Open-Mindedness	.661	.672	$.243 < r < .525$

Descriptive Statistics

The descriptive statistics of all tests and subtests were analysed to determine how individuals scored on each of these abilities. All descriptive statistics are displayed in Table 6 below.

Table 6

Descriptive Statistics of Scales

Scale	M	SD	Min	Max	Skewness	Kurtosis
ICAR	7.50	3.82	0	20	.491	.325
Verbal Reasoning	2.73	1.54	0	5	-.167	-.980
Alphanumeric Reasoning	1.58	1.49	0	5	.709	-.493
Matrix Reasoning	2.27	1.44	0	5	.118	-.887
3D Rotation	.93	1.34	0	6	2.154	5.358
Inductive Reasoning	3.63	2.45	0	11	.585	.103
Situation Induction	8.75	3.00	0	14	-.504	-.239
Dispositional Reasoning	11.81	3.33	3	16	-.839	.053
Trait Induction	3.67	1.91	0	6	-.265	-1.138
Trait Contextualisation	4.15	1.12	0	5	-1.398	1.701
Trait Extrapolation	3.99	1.17	0	5	-1.245	.988
Extraversion	17.77	4.94	6	29	.068	-.084
Agreeableness	21.54	4.50	8	29	-.455	-.059
Conscientiousness	20.51	4.79	11	30	-.090	-.854
Negative Emotionality	18.34	5.95	6	30	-.094	-.630
Open-mindedness	18.70	3.75	6	25	-.613	.655

Note: M = mean, SD = standard deviation, Min = minimum value, Max = maximum value

The total mean score for the ICAR was well below the midpoint of 10.5 (M = 7.50), thus indicating that participants scored an average of 35.7% on their general reasoning ability which is fairly low. The scores on the various dimensions were 54.6% for verbal reasoning, 31.6% for alphanumeric reasoning, 45.4% for matrix reasoning, and 15.5% for three-dimensional rotation.

The total mean score for situation induction was above the midpoint of 7 (M = 8.75) with participants scoring an average of 62.5%. Thus, indicating good situation induction ability amongst participants. The total mean score for dispositional reasoning was well above the midpoint of 8 (M = 11.81) and participants scored an average of 73.8%. This indicates that

participants generally possessed a high dispositional reasoning ability. The scores for trait induction, contextualisation and extrapolation were 61.2%, 83% and 79.8%, respectively.

The means for extraversion (M = 17.77), agreeableness (M = 21.54), conscientiousness (M = 20.51), and negative emotionality (M = 18.34) all fell above their midpoints of 15. Furthermore, the mean for open-mindedness (18.70) was above its midpoint of 12.5, this was different from the other scales due to the removal of an item. Thus, indicating that, on average, participants were extraverted, agreeable, conscientious, negatively emotional and open-minded. All scales had individuals scoring on/close to the high and low ends of the scale. Thus, indicating adequately distributed data.

Skewness provides a measure of the asymmetry of the data, while kurtosis provides a measure of how heavy or light-tailed the data is in comparison to normal distribution. According to Bryne (2010), data is considered normally distributed if its skewness is between -2 and 2 and kurtosis between -7 and 7. Thus, all variables indicate normally distributed data. However, 3D rotation has shown to be leptokurtic, displaying a kurtosis value greater than 3. This indicates that individuals most likely scored on the extreme high and low ends of this test which could be attributed to its level of difficulty.

Hypothesis Testing

The hypotheses were assessed by means of correlation analyses. Before the correlation analysis was performed, its assumptions were tested and met. Furthermore, all correlations were interpreted according to the guidelines suggested by Cohen (1988) which has been widely cited throughout literature. These guidelines suggest that r = .10, r = .30 and r = .50 should be considered small, medium (or moderate), and large effect sizes, respectively (Cohen, 1988). Additionally, all correlations with $p < .001$ and $p < .005$ were considered statistically significant (Field 2018).

Assumption Testing

Preliminary analyses were conducted to ensure that the data met the assumptions for correlation analyses to be performed. All variables are continuous, and the sample size was adequate, based on the 10:1 ratio of participants to variables (Cohen, 1988).

As the present study consisted of ability tests, it was to be expected that participants would score on the extreme high and low ends of each variable. Thus, there were no outliers removed as the results were representative of the population.

A Kolmogorov-Smirnov and Shapiro-Wilk test of normality was conducted, the results are displayed in Table 7 below. In order for the variables to be considered normally distributed, the p-value should be greater than 0.05 ($p > .05$). Thus, results indicate that many of the variables deviate from a normal distribution. However, again, this was to be expected with the ability tests as participants scored on the high and low ends of each of these tests. Additionally, research has shown Pearson's *r* to be relatively robust in regard to nonnormality (Bishara & Hittner, 2012). Thus, the researcher proceeded with the correlation analysis.

Table 7

Kolmogorov-Smirnov and Shapiro-Wilk Test of Normality

	Kolmogorov-Smirnov		Shapiro-Wilk	
Scale	**Statistic**	**Significance**	**Statistic**	**Significance**
ICAR	.083	.041	.981	.082
Verbal Reasoning	.151	<.001	.925	<.001
Alphanumeric Reasoning	.213	<.001	.872	<.001
Matrix Reasoning	.142	<.001	.932	<.001
3D Rotation	.267	<.001	.688	<.001
Inductive Reasoning	.113	<.001	.953	<.001
Situation Induction	.145	<.001	.944	<.001
Dispositional Reasoning	.135	<.001	.916	<.001
Trait Induction	.153	<.001	.903	<.001
Trait Contextualisation	.298	<.001	.758	<.001
Trait Extrapolation	.263	<.001	.795	<.001
Extraversion	.085	.033	.987	.300
Agreeableness	.096	.008	.969	.006
Conscientiousness	.090	.017	.974	.017
Negative Emotionality	.081	.050	.980	.076

Open-mindedness	.087	.025	.964	.002

Correlation Analyses

A correlation analysis was conducted on all study variables, the results are depicted in Table 8 and expanded on below.

H1: Inductive reasoning is moderately, positively related to general mental ability.

Hypothesis one sought to determine whether there is a positive relationship between inductive reasoning and general mental ability according to Spearman's g (1904). The study found that there is a positive, significant correlation between inductive reasoning ability and general mental ability (r (119) = .792, p < .001, 95% CI [.715, .850]). While the effect size of this correlation is quite large (Cohen, 1988), this was expected due to the large overlap between the scale items for each of these variables. Thus, H1 is supported.

H2: Trait induction is moderately, positively related to inductive reasoning and general mental ability.

Hypothesis two aimed to ascertain that trait induction is positively related to both inductive reasoning and general mental ability. Results showed that there is indeed a positive, significant correlation between trait induction and general mental ability (r (119) = .335, p < .001, 95% CI [.167, .485]) as well as between trait induction and inductive reasoning and (r (119) = .238, p < .001, 95% CI [.062, .400]). The effect sizes were medium and small, respectively. While the significant relationships were displayed as hypothesized, the relationship between trait induction and inductive reasoning was smaller than expected. However, H2 is supported.

H3: Situation induction is moderately, positively related to inductive reasoning ability and general mental ability.

Hypothesis three stated that situation induction is positively related to inductive reasoning and general mental ability. According to the correlation analysis, there is indeed a positive, significant correlation between situation induction and general mental ability (r (119) = .377, p < .001) 95% CI [.213, .520] as well as between situation induction and inductive

reasoning ability (r (119) = .344, p < .001, 95% CI [.176, .492]). Both of these relationships can be considered moderate in size. Thus, H3 is supported.

H4: Trait induction is moderately, positively related to situation induction.

Hypothesis four postulated that trait induction is positively related to situation induction on account of Spearman's two-factor theory (1904) and the fact that both variables are assumed to have inductive reasoning as an underlying ability. Results indicated that there is a significant correlation between trait induction and situation induction (r (119) = .338, p < .001) 95% CI [.170, .487]. The effect size of this relationship is moderate. Based on these results, it is evident that H4 is supported.

H5: Personality traits are not related dispositional reasoning ability.

Based on previous research indicating that the theoretical relationship between personality and dispositional reasoning was not empirically present, hypothesis six stated that there is no relationship between personality type and dispositional reasoning ability.

The correlation analysis confirmed that there is no significant relationship between dispositional reasoning and any of the personality trait dimensions, namely extraversion (r (119) = -.053, p = .564), agreeableness (r (119) = .015, p = .874), conscientiousness (r (119) = -.078, p = .396), negative emotionality (r (119) = .122, p = .183) and open-mindedness (r (119) = .163, p = .075). Thus, H5 is supported.

Further Findings

Gender. Gender was found to have significant correlations with verbal reasoning (r (119) = -.183, p < .005) 95% CI [-.350, -.004], situation induction (r (119) = .201, p < .005) 95% CI [.023, .366], dispositional reasoning (r (119) = .181, p < .005) 95% CI [.003, .348] and trait extrapolation (r (119) = .268, p < .001) 95% CI [.094, .426].

This indicates that men scored significantly higher on the verbal reasoning test, while females scored significantly higher on the situation induction, dispositional reasoning tests as well as on the trait extrapolation subtest.

Personality traits and specific abilities. There were also significant correlations between agreeableness and inductive reasoning (r (119) = .182, p < .005) 95% CI [.004, .349], extraversion and situation induction (r (119) = -.209, p < .005) 95% CI [-.374, -.032], open-

mindedness and trait induction (r (119) = .209, p < .005) 95% CI [.032, .374] and negative emotionality and trait contextualisation (r (119) = .198, p < .005) 95% CI [.020, .363]. While all of these effects were fairly small, they provide groundwork for further research—further research to investigate the replicability of these findings is necessary.

Table 8

Descriptive Statistics and Intercorrelations of Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Gender	-																
2. General Mental Ability	-.076																
3. Verbal Reasoning	-.183*	.707**															
4. Alphanumeric	.059	.668**	.188*														
5. Matrix Reasoning	.034	.683**	.337**	.294**													
6. 3D Rotation	-.122	.548**	.264**	.229*	.105												
7. Inductive Reasoning	.087	.792**	.281**	.835**	.697**	.209*											
8. Situation Induction	.201*	.377**	.215*	.276**	.319**	.165	.344**										
9. Dispositional Reasoning	.181*	.381**	.342**	.227*	.234**	.178	.250**	.414**									
10. Trait Induction	.065	.335**	.237**	.240**	.169	.240**	.238**	.338**	.839**								
11. Trait Extrapolation	.268**	.201*	.203*	.048	.207*	.052	.090	.270**	.739**	.410**							
12. Trait Contextualisation	.129	.346**	.376**	.222*	.184*	.090	.242**	.364**	.766**	.441**	.421**						
13. Extraversion	-.037	-.112	-.117	-.059	-.012	-.113	-.067	-.209*	-.053	-.081	.049	-.075					
14. Agreeableness	.143	.080	-.054	.185*	.089	-.024	.182*	.006	.015	-.022	.117	-.043	.217*				
15. Conscientiousness	-.151	.028	-.081	.063	.016	.101	.050	.094	-.078	-.030	-.019	-.145	.254**	.186*			
16. Negative Emotionality	.012	-.027	.088	-.141	.019	-.048	-.087	-.052	.122	.082	.010	.198*	-.404**	-.268**	-.301**		
17. Open-Mindedness	-.008	.138	.081	.089	.014	.206*	.104	.066	.163	.209*	.021	.121	.131	.018	.169	-.105	-

Note: $N = 121$

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

Chapter 5: Discussion

The present study sought to further explore the profile of the good judge and evaluate the relationship amongst ability components associated with the ability to make accurate ratings. This was done through analysing the correlation between general mental ability (GMA), broad abilities, and specific abilities related to the understanding of traits, situations, and behaviours.

The following chapter will discuss the findings, contributions and limitations of this study as well as provide recommendations for future research.

The Psychometric Properties of Study Measures

The psychometric properties of each of the scales are discussed below. This includes explanations as to why certain items may have been deleted as well as an overview of how the psychometric results obtained in the study compares to previous research. While the study had a few measurement issues, this is a common occurrence with measures of ability.

International Cognitive Ability Resource

The ICAR is a newer measure of intelligence or mental ability and is, therefore, not as established as its predecessors. However, there is an importance for testing these newer measures as it ensures that individuals are not overexposed to the same tests (Ryoo et al., 2022). Thus, the fact that this measure is new provides novelty and suggests participant naivety. Due to its ability to be used flexibly (in terms of the number and type of items used), the ICAR often yields slightly varying results. The means obtained in this study were mostly in line with those reported by Condon and Revelle (2014; see Appendix G). However, the scores for the letter and number series questions were noticeably lower in this study. This could be explained by the fact that the participants scored generally high on negative emotionality (or neuroticism), which has shown to negatively impact numerical reasoning performance (Dobson, 2000; Reynolds, 2014).

Items two of the verbal reasoning subscale (VR2), one of the letter and number series (LN1) and four of the matrix reasoning (MR4) subscale were all removed. VR2 was removed as it possessed a negative factor loading, while LN1 and MR4 were removed due to low factor loadings, which fell below the threshold of .30. This may be due to the difficulty level of these questions as the mean scores in both this research and in the seminal study were the lowest in each of the subcategories (see Appendix G).

Inductive Reasoning

The psychometric properties for the inductive reasoning test were measured using all items from the letter and number series and matrix reasoning scales. Item three of the matrix reasoning scale (MR_3; see Appendix B) was removed due to low factor loading (.176) and inter-item correlation (.149). This may be because MR_3 was easier in comparison to the other inductive reasoning items given that its average score was much higher. Considering that the ICAR is fairly new, there has been no recorded research stating that these subtests measure inductive reasoning. However, these measures both fit Klauer and Phye's (2008) definition of inductive reasoning.

Situation Induction

The situation induction test is a new test which has not undergone any statistical validation or reliability tests and has not been used in any published research. The test was used in two honours research projects in which it displayed slightly lower mean scores than in the present study (Bezuidenhoudt, 2018; Salgado, 2018). However, all the original 32 items were used in both of these cases due to the lack of measurement analyses, as the developers were not able to assess validity and reliability as a result of inadequate sample size.

The present study found that more than half of the items did not have suitable measurement properties for it to be deemed an appropriate measure of situation induction. Thus, 18 items were removed for not meeting the factor loading threshold of .30. From the eight dimensions, three had all four of their items removed. These were adversity, positivity and negativity. Intellect had three out of four items removed, duty had two removed, mating had one removed, and all deception and sociability items were retained. These results indicate that the scale may require some revision and more in-depth psychometric review with a larger sample size.

Dispositional Insight Test

The Short Dispositional Insight Test (S-DIT) is also a fairly new test which has only been used by its developers (de Vries et al., 2021). Two items were removed from this scale due to low factor loadings (Field, 2018). These were item 7 from trait extrapolation (TE_7) and item 13 from trait contextualisation (TC_13). These questions, along with their correct answers, can be

found in Appendix C. The alpha reliability of the S-DIT in the present study (α = .798) was higher than that found within previous research (α = .710; de Vries et al., 2021). Regarding the subscales, the reliability for trait induction was higher in this study, while extrapolation and contextualisation was lower (de Vries et al., 2021). This indicates that the participants were more skilled in consistently understanding the relationship between traits and behaviours.

Big Five Inventory 2 (BFI-2)

The BFI-2 displayed relatively good reliability and validity scores which is consistent with previous literature (Soto & John, 2017). Item 20 'Has few artistic interests' had a low factor loading (.103). This may be due to the ambiguous nature of the question as the term 'few' is relative to what it is being compared to. Thus, it is possible that the question was interpreted differently by the various participants. Due to this low factor loading, item 20 was removed from data analysis. The subscales all loaded on to their respective factors and displayed adequate validity and reliability. The results from the EFA and reliability analysis were in line with those published by the developers (Soto & John, 2017) as well as with previous research (Cemalcilar, 2021; Halama, 2020; Rammstedt et al., 2020; Soto & John, 2017).

Main Findings

The present study sought to investigate the relationships between GMA and various specific abilities which are associated with the profile of a good judge. This was done in order to establish whether assessing specific abilities could provide additional insight to predicting behaviours. The study found a significant relationship between all measures of ability assessed. These relationships are discussed in detail below. Considering that research in this domain is fairly novel, there is limited prior information available on some of the assessed abilities.

All Abilities are Related – But How Related?

The present study focused on the abilities associated with the profile of a good judge and their relationships with each other. According to De Kock (2017), trait induction, trait extrapolation, trait contextualisation, and situation induction are specific forms of intelligence which are associated with the profile of a good judge. Thus, this study assessed the relationship between these specific abilities as well as relevant broader abilities. In confirmation of Spearman's g (1904, 1927), the study found moderate, significant correlations between all of

these variables. Therefore, it was evident that individuals who displayed a strong performance in one ability were likely to perform well in other abilities too. However, the differences in the strengths of correlations indicate that some abilities are more strongly related than others. Additionally, measures of ability that were similar (such as situation induction and trait induction), showed stronger correlations than those which were more distinct (Table 8). Although these differences were small, this affirms that measuring specific abilities can produce additional value.

These findings are in line with previous research which indicated that specific abilities may add more value than GMA in some fields and that GMA is not always the best predictor of job performance (Kell & Lang, 2017; Lang et al., 2010; McHenry et al., 1990). Results further displayed that on average, participants scored considerably higher on the specific ability assessments than on the GMA assessments. Based on this, we can infer that by only assessing GMA, we may be disqualifying candidates who have the correct skillset for the position or may have scored higher if they were tested on the abilities required for their position. This indicates that while Spearman (1904) was correct regarding the underlying g, the differences offered by specific abilities can provide further insight, especially for jobs that require highly specialised abilities.

General Versus Specific Abilities: The Good Judge Model

Through the assessment of various specific abilities, the present research aimed to evaluate how well individuals can predict traits and situational contexts based on given behaviours. Thus, assessing the accuracy of their predictions. This was compared to the general reasoning ability of the participants to ascertain whether specific abilities should be assessed to determine the accuracy of a judge. The relationship between behaviours and situations were assessed by means of the Situation Induction Test, while the relationship between behaviours and traits were assessed by means of the S-DIT.

While both situation induction and trait induction displayed moderate correlations with GMA, the correlation between GMA and situation induction (r = .377) was greater than that between GMA and trait induction (r = .335). This may indicate that predicting situations is more complex than predicting traits as it requires more general mental ability.

On average, participants scored well on the Situation Induction Test (62.5%) indicating a fair ability to determine situational contexts based on observable behavioural cues. Furthermore, in comparison to the other ability tests taken, participants scored the highest average on the S-DIT (73.8%). Therefore, indicating a good ability to determine traits based on observable behavioural cues. However, participants scored fairly low on the ICAR (35.7%), thus, indicating a low GMA.

Based on these results, it is evident that assessing for specific abilities is important given the context of the position being assessed for. While there was a significant relationship between both GMA and situation induction as well as GMA and dispositional reasoning, participants displayed a tendency to score higher in the specific ability tests. Considering that these specific ability tests would be more relevant to the position in the context of this study, we can infer that these results would carry more weight than the GMA score. Therefore, only assessing the participants' GMA would not provide an accurate reflection of their required abilities.

Thus, in the debate on whether the assessment of abilities should be generalised across domains or specified to a particular position, the present research suggests the latter.

Abilities and Personality

The Big Five personality traits were assessed to determine if they bore relation to the abilities assessed within this study, particularly dispositional reasoning. In line with previous research (Christiansen et al., 2005; De Kock et al., 2015; Lippa & Dietz, 2000; Powell, 2008; Vogt & Colvin, 2003), the findings of the present study indicate that general mental ability and dispositional reasoning ability are not empirically related to any of the Big Five personality traits.

Theoretically, we may expect to find particular personality traits to correlate with certain abilities (Christiansen et al., 2005; De Kock et al., 2015). For example, it may be presumed that a highly extraverted individual would score higher on the dispositional reasoning ability assessment as they are more adept at social situations. However, there has been no empirical evidence to corroborate this presumption. This may be attributed to the fact that abilities often change over time, while personality traits tend to remain stable (Graham & Lachman, 2012).

Furthermore, while cognitive ability is strongly related to job performance, the extent to which personality can predict job performance is highly dependent on contextual factors (Judge

& Zapata 2015). Thus, even if correlations emerge between specific abilities and personality traits, individuals should exercise caution when utilising one in lieu of the other.

Implications of the Present Study

Based on the findings of the present study, the following theoretical and practical implications are presented.

Theoretical Implications

The present study provides empirical insight into how GMA, broad abilities, and specific abilities are related. This furthers the understanding of prominent theories and models in the field of intelligence, such as Spearman's two-factor theory and the CHC model. While the study provided justification for Spearman's theory, it concluded that the CHC model was a more comprehensive approach towards understanding intelligence. A conceptualised diagram of the abilities assessed in this study, utilising the CHC model, is presented in Figure 4.

This study also contributes to the theoretical model of the good judge (Figure 2) by assessing the addition of situation induction. The study evaluated the relationship between the various abilities associated with being a good judge and noted how they are strengthened when utilised in conjunction. Thus, providing further insight into the personality triad, which is the relationship between behaviour, personality, and situations (Funder, 2006). This provides researchers with a better understanding of the abilities required for increased accuracy when making judgements.

Furthermore, the study provides insight into the construct of situational intelligence or, more specifically, situation induction and its relevance in the field of IOP. The measurement of this ability is understudied in the field of IOP, despite its relevance to the workplace and the personality triad (Funder, 2006). Thus, this study suggested a measure of situation induction based on the Riverside Situational Q-sort Eight scale (RSQ-8; Wagerman & Funder, 2009) and DIAMONDS dimensions (Rauthmann et al., 2014). This measure was formulated by students, Salgado (2018) and Bezuidenhoudt (2018), and had not yet undergone psychometric testing or been used in published literature. While this measure of situation induction experienced a few measurement issues, it serves as a good basis to further develop the assessment and explore various dimensions. Considering that the workplace is an inherently social environment, abilities

such as situation induction are becoming increasingly important as it provides an understanding of how individuals would respond to various situational scenarios.

The present study also utilises measures which are fairly new and have not been widely used in published research. Thus, providing further statistical research on the reliability and validity of these measures. This includes the Short Dispositional Insight Test (S-DIT), and the International Cognitive Ability Resource (ICAR).

While the Big Five Index 2 (BFI-2) has been widely used in literature, the present study assessed the relationship between personality constructs and various abilities. Thus, further affirming the work of previous research which found that the personality constructs are not significantly related to GMA and dispositional reasoning ability (Christiansen et al., 2005; De Kock et al., 2015; Lippa & Dietz, 2000; Powell, 2008; Vogt & Colvin, 2003). While there has shown to be a significant relationship between certain personality traits and specific abilities, these all displayed small correlations ($-.209 < r < .209$).

Practical Implications

The present study provides an in-depth understanding of the relationships between various specific abilities associated with the profile of a good judge. Thus, these results can be utilized to ensure that organisations assess for relevant skills when hiring individuals who are required to make judgements in the workplace (i.e. human resource personnel). This will result in more effective recruitment and selection (Schmidt & Hunter, 1998; 2004), and performance management processes (Schneider & Newman, 2015).

Furthermore, these results can be extended to various fields. Thus, allowing organisations to identify and assess for specific skills related to a particular position rather than only considering GMA. This will largely contribute to the field of assessments, as well as selecting the most appropriate candidate for the role (Kell & Lang, 2017).

Implementing the use of assessments for specific abilities can also help create more effective organisations through tailored training and development programmes (Goertz, 2014) and team performance (Offermann et al., 2004). Training and development programmes can be more effective by ensuring that employees can advance their skills in the specific abilities required for their position. Additionally, knowledge of the specific abilities that employees

possess can assist organisations in forming teams of individuals with different skill sets as this can improve innovation and problem-solving.

Limitations

Despite the implications and contributions made by the present study, there were some limitations present.

Due to the length and complex nature of the questionnaire, data was collected using a crowdworking platform, namely, Prolific. Because Prolific is a paid platform, participants may attempt to anticipate the answers that researchers expect and replicate this to produce favourable results (Palan & Schitter, 2018). Additionally, due to the online administration, there is a lack of control over the conditions and environment in which participants complete the measures (Palan & Schitter, 2018). Participants utilising crowdworking platforms have reported multi-tasking while completing surveys (Chandler et al., 2014; Necka et al., 2016), which may affect the results of this study.

This study comprised of a small sample size due to time and budget constraints. Considering that participants were paid per hour, shortened versions of the scales were used. This may lead to reduced reliability and validity results as well as a limited coverage of content.

Furthermore, this study targeted the general population rather than a specific target group. This was done due to time constraints and in order to maximise sample size. However, utilising a specific target group may lead to more detailed findings.

Suggestions for Future Research

Considering the study limitations and the incidental findings discovered while completing the present research, the following suggestions can be made for future research.

Future research should include the assessment of an outcome variable (e.g. accuracy) when exploring various general and specific abilities. This would enable researchers to determine whether specific abilities are stronger predictors of outcomes than GMA and provide a stronger argument for whether specific abilities should be assessed in the workplace.

Furthermore, it is suggested that future research make use of a bigger sample to run more in-depth statistical analyses, such as machine learning, as this would provide further insight into the relationship between GMA, broad abilities, and specific abilities. The bigger sample should also target a particular demographic (i.e., human resource managers) as this would provide

greater insight into the abilities being assessed. Additionally, future researchers should make use of the full scale in order to assess the study variables in more depth.

Considering the significance that situation induction has on making judgements in the workplace, future research should focus on the measurement on situation induction by conducting further analyses on the scale. The scale should also be further adapted to the cultural context in which it will be utilised.

Finally, given the correlations discovered between personality traits and certain specific abilities, future research should further investigate whether these relationships are consistently significant. This would allow for more integrated psychometric testing as well as a deeper understanding of the relationship, if any, between personality and abilities.

Conclusion

This final section will provide an overview of the main aims, findings, and contributions of the present research. The field of intelligence, particularly the difference between GMA, broad abilities, and specific intelligence, has been widely debated for centuries. While some researchers are of the view that the concept of intelligence can be generalised across various domains, others support the view that there are specific types of intelligence which should be acknowledged and assessed in an individual capacity. This is particularly relevant in the field of rating accuracy, in which researchers have developed a model of specific abilities which are related to the profile of a good judge.

Thus, the present research sought to: (1) understand the relationship between GMA, broad abilities, and specific abilities associated with the profile of the good judge; (2) investigate the relationship between judges' understanding of traits, situations, and behaviours; and (3) establish whether specific abilities relevant to personality and situation perception may be important in the workplace. Findings have indicated that while there is an overlap amongst judges' GMA, broad abilities, and specific abilities, assessing raters' specific abilities, including trait induction and situation induction, may provide additional value in future rating accuracy studies.

Results from this study contribute to literature in the field of intelligence, the profile of a good judge, as well as the measurement of various specific abilities. These results are pertinent in the field of IOP as effectively assessing abilities at different levels (broad vs. narrow) may help to ensure better organisational processes to identify and manage raters in human resource

management applications such as recruitment and selection, and performance management. While this study provides novel insight into the specific abilities assessed, it does not assess accuracy or any related outcome variables. Thus, future research should investigate how these abilities may influence rating outcome variables.

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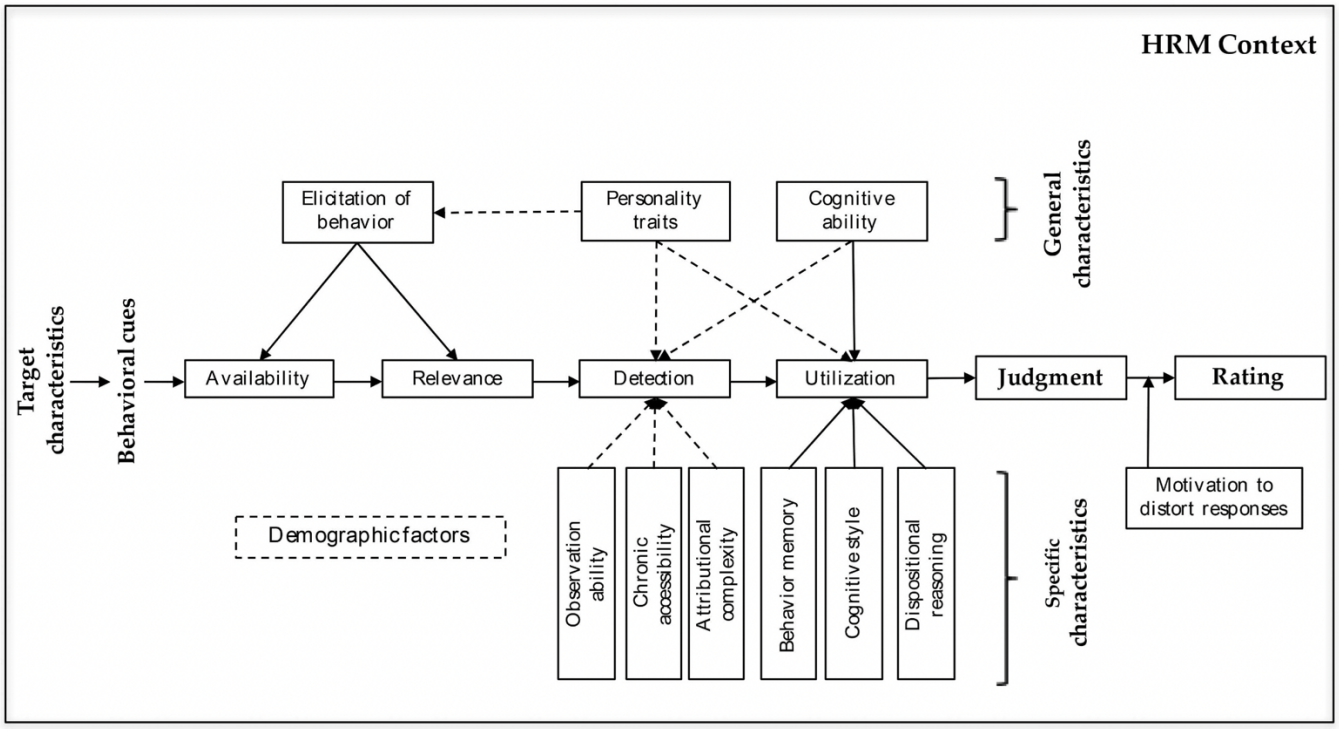
Appendix A

Figure 7

Model of Individual Differences in Judgement and Rating Accuracy



Note. This model individual differences in judgement and rating accuracy, as developed by De Kock et al. (2020)

Appendix B

International Cognitive Ability Resource

Example items from each category of the International Cognitive Resource Ability (ICAR; Condon & Revelle, 2014) are included below. Content of the item may have been amended in the interest of test item security.

Verbal Reasoning

Select the correct answer.

Joshua is 12 years old and his sister is three times as old as he. When Joshua is 23 years old, how old will his sister be?
(1) 35 (2) 39 (3) 44 (4) 47 (5) 53 (6) 57 (7) None of these (8) I don't know

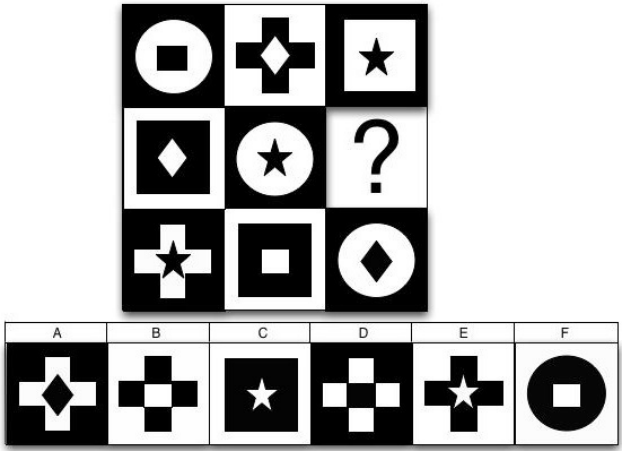
Letter and Number Series

Identify and select the next position in each sequence.

In the following alphanumeric series, what letter comes next? V, Q, M, J, H, ...
(1) E (2) F (3) G (4) H (5) I (6) J (7) None of these (8) I don't know

Matrix Reasoning

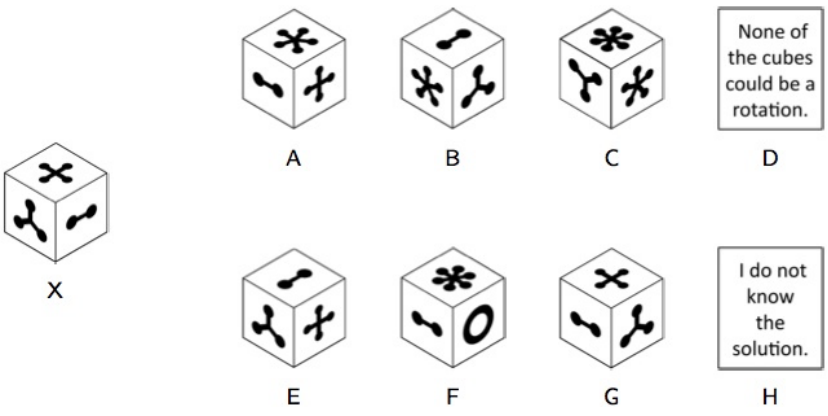
Please indicate which is the best answer to complete the figure below.



(1) A (2) B (3) C (4) D (5) E (6) F (7) None of these (8) I don't know

Three-Dimensional Rotation

All the cubes below have a different image on each side. Select the choice (A-H) that could be a rotation of the cube labelled X



Appendix C

Short Dispositional Insight Test

The Short Dispositional Insight Test (S-DIT; de Vries et al., 2021) was presented to participants as depicted below.

Instruction: Each of the words on the left side below describes a behaviour or attitude. Think about each word and circle the letter that corresponds to one of the personality traits (in the columns) that you think best describes the word. **Note**: The words can describe someone who is *high* or *low* on the personality trait. Select the correct answer.

	Honesty-humility	**Emotion-ality**	**Extra-version**	**Agree-ableness**	**Conscien-tiousness**	**Openness to experience**
1. Sloppy	H	E	X	A	***C***	O
2. Stubborn	H	E	X	***A***	C	O
3. Conservative	H	E	X	A	C	***O***
4. Vulnerable	H	***E***	X	A	C	O
5. Sincere	***H***	E	X	A	C	O
6. Shy	H	E	***X***	A	C	O

Instruction: Below, information is given about three individuals. In the questions that follow, match the name of the person that you think is most likely to match the description provided. Select the correct answer.

Leanne	Lucas	Sarah
Always finishes her work on time. Is not interested in abstract ideas. Wants to be a member of an exclusive club. Does not like studying. Does her best to not	Does not easily get annoyed by things. Rarely feels insulted. Is interested in alternative music. Remains in the background. Does not	Starts conversations. Takes time for others. Never finishes her work. Sacrifices herself for others. Gets engrossed in her problems.

make mistakes. Remains calm. Rarely becomes emotional.	talk much. Senses what others want.	Is quickly distracted. Is good at languages.

7. Finds him/herself less important than others	Leanne	Lucas	***Sarah***
8. Works according to a fixed routine	***Leanne***	Lucas	Sarah
9. Can handle criticism well	Leanne	***Lucas***	Sarah

Simon	Pieter	Vivian
Is good at many things, is full of ideas, and likes to start conversations. Sympathizes with the feelings of others.	Rarely feels depressed and has no fears. Makes plans, keeps to these plans and works with schedules. Makes friends easily.	Is a taciturn person. Makes time for others. Cannot handle a lot of information and prefers to do things in a fixed, predetermined way.

10. Will not worry quickly	Simon	***Pieter***	Vivian
11. Keeps to the background	Simon	Pieter	***Vivian***
12. Has a lively imagination	***Simon***	Pieter	Vivian

Instruction: The following items ask you to choose the trait that is most relevant in a given situation. *A trait is relevant in a situation if the situation can be expected to provoke the trait in some form of a behavioural response*. For example, a situation that makes "aggression" relevant (for instance if someone threatens you) will offer an opportunity for you to behave aggressively- or peacefully-towards the person who threatens you. Select the best answer.
Which trait (of you) is relevant in the following situation?

13. You bump into a colleague who has – behind your back – blamed you for something that was not true to your supervisor.

Creativity Organization ***Forgiveness*** Sociability Sentimentality Fairness

14. You have the choice to work on a project alone or in a group.

Creativity Organization Forgiveness ***Sociability*** Sentimentality Fairness

15. You are asked to come up with alternative ideas to recruit a client.

Creativity Organization Forgiveness Sociability Sentimentality Fairness

16. You are given responsibility over an archive that has not been touched in many years.

Creativity ***Organization*** Forgiveness Sociability Sentimentality Fairness

17. A good friend tells you that he is moving to another country for a long time.

Creativity Organization Forgiveness Sociability ***Sentimentality*** Fairness

18. You are allowed to bring a piece of art that you just purchased abroad over the border without paying import duty.

Creativity Organization Forgiveness Sociability Sentimentality ***Fairness***

Appendix D

Situation Induction Test

The Situation Induction Test (Salgado, 2018; Bezuidenhoudt, 2018) was presented to participants as a list of descriptions to be used to answer questions in a matrix. The list of descriptions and examples of the matrix questions are included below.

Participants were asked to read what each of the of the DIAMONDS dimensions means in the context of a situation. The measure was not timed as participants needed time to read and understand the situation characteristics. Table 1 was presented to participants before completing the 32-statement matrix in which participants had to match a statement to a particular situation characteristic.

Table 9

DIAMONDS Dimension Descriptions

Characteristic	Description	Example	
	This is a characteristic of situations in which…	High A situation high on this characteristic involves…	Low A situation low on this trait involves…
Duty	This is a characteristic of situations in which something needs to be done.	…an individual works hard at a task and concentrates on its completion.	…being relaxed and enjoying a situation such as watching a movie.
Intellect	… deep information processing is relevant.	… an individual being interested in cognitive matters.	… an individual engaging in physical activity.

Adversity	…someone is being threatened by external forces.	…blaming others or trying to control a situation	…expressing warmth and comfort in a situation.
Mating	…potential mates can be attracted or courted.	… individuals expressing sexual interest or making physical contact.	…an individual being alone and exhibiting a high degree of intelligence.
p**O**sitivity	…there are pleasant aspects of the situation.	… an individual smiling frequently in a situation.	… an individual acting irritated.
Negativity	… unpleasant feeling can ensue.	… an individual displaying physical signs of tension in a situation.	…behaving in a cheerful manner.
Deception	… there is mistrust or dishonesty involved.	…an individual expressing hostility in a competitive situation.	… being relaxed and comfortable.
Sociality	… social interaction possible or important.	… an individual behaving sociably in a situation by being talkative.	… seeming detached from the situation.

Statements were presented in a matrix form. For example, the situational characteristic of Duty can clearly be identified as the dominant characteristic in the statement "A job needs to be done". The full matrix asked in the questionnaire is given as well as the correct answers (Table 2). The researcher scored the test and the correct statement with its matched dimension that was obtained from Rauthmann & Sherman (2015). The answers received from participants were cleaned on SPSS and correct answers where marked with a 1 and incorrect answers were marked

with a 0. Total scores when then calculated and used for the statistical analyses that were conducted.

Table 10

Situation Induction Matrix with Answers

	D	I	A	M	O	N	D	S
Minor details are important.	**D**	I	A	M	O	N	D	S
Being criticized, directly or indirectly.	D	I	**A**	M	O	N	D	S
Situations includes intellectual or cognitive stimuli.	D	**I**	A	M	O	N	D	S
Situation is potentially enjoyable.	D	I	A	M	**O**	N	D	S
Close personal relationships are present or could develop.	D	I	A	M	O	N	D	**S**

Appendix E

The Short Big Five Inventory

The Short Big Five Inventory (BFI-2-S; Soto & John, 2017) was presented to participants as depicted below.

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please select a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1. Tends to be quiet.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

2. Is compassionate, has a soft heart.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

3. Tends to be disorganized.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

4. Worries a lot.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

5. Is fascinated by art, music, or literature.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

6. Is dominant, acts as a leader.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

7. Is sometimes rude to others.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

8. Has difficulty getting started on tasks.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

9. Tends to feel depressed, blue.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

10. Has little interest in abstract ideas.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

11. Is full of energy.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

12. Assumes the best about people.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

13. Is reliable, can always be counted on.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

14. Is emotionally stable, not easily upset.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

15. Is original, comes up with new ideas

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

16. Is outgoing, sociable.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

17. Can be cold and uncaring.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

18. Keeps things neat and tidy.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

19. Is relaxed, handles stress well.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

20. Has few artistic interests.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

21. Prefers to have others take charge.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

22. Is respectful, treats others with respect.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

23. Is persistent, works until the task is finished.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

24. Feels secure, comfortable with self.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

25. Is complex, a deep thinker.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

26. Is less active than other people.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

27. Tends to find fault with others.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

28. Can be somewhat careless.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

29. Is temperamental, gets emotional easily.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

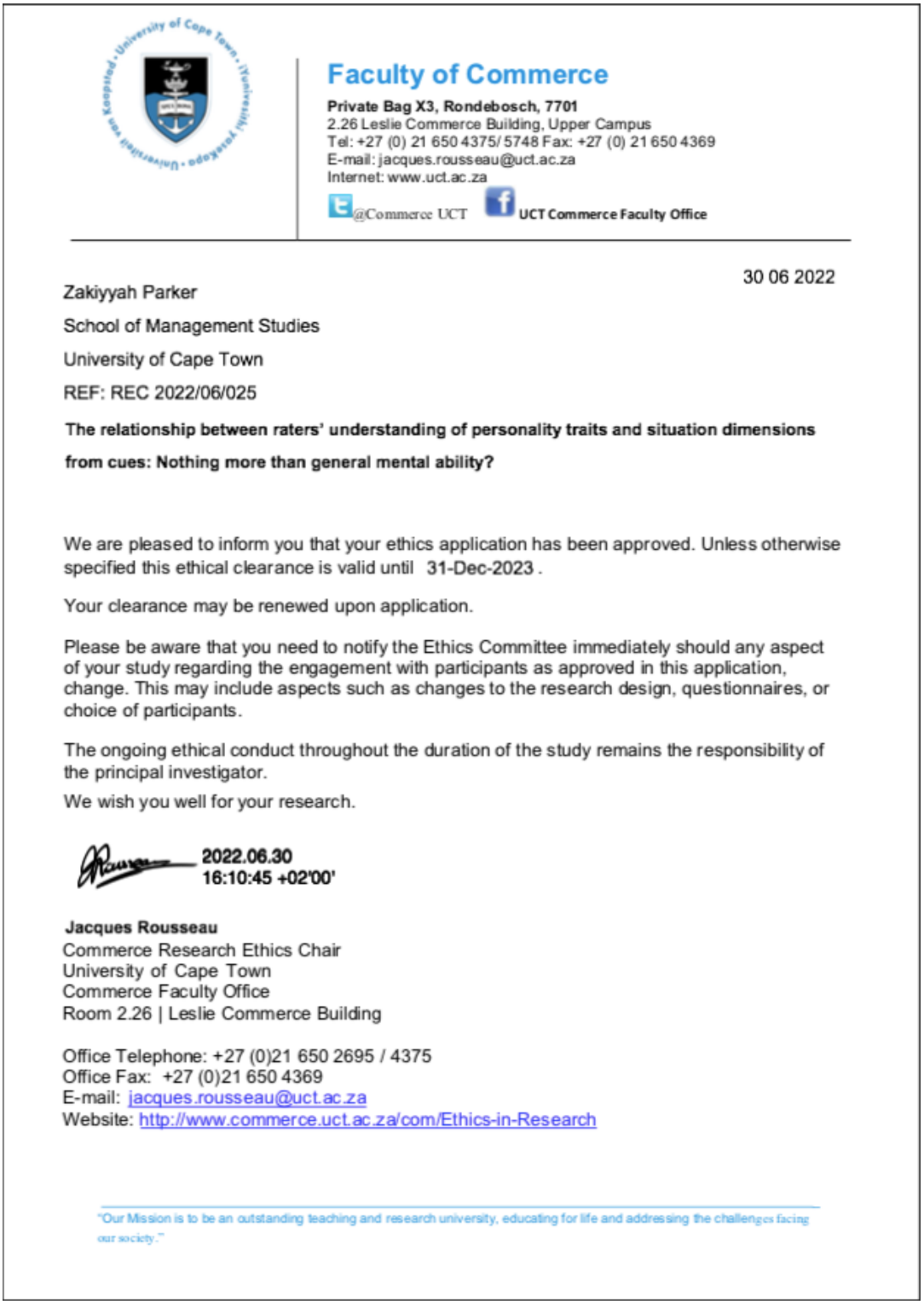
30. Has little creativity.

1.	2.	3.	4.	5.
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

Appendix F

Figure 8

Letter of Ethical Approval from the Commerce Research in Ethics Committee



Faculty of Commerce
Private Bag X3, Rondebosch, 7701
2.26 Leslie Commerce Building, Upper Campus
Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Internet: www.uct.ac.za
@Commerce UCT **UCT Commerce Faculty Office**

30 06 2022

Zakiyyah Parker

School of Management Studies

University of Cape Town

REF: REC 2022/06/025

The relationship between raters' understanding of personality traits and situation dimensions from cues: Nothing more than general mental ability?

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 31-Dec-2023 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

2022.06.30 16:10:45 +02'00'

Jacques Rousseau
Commerce Research Ethics Chair
University of Cape Town
Commerce Faculty Office
Room 2.26 | Leslie Commerce Building

Office Telephone: +27 (0)21 650 2695 / 4375
Office Fax: +27 (0)21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Website: http://www.commerce.uct.ac.za/com/Ethics-in-Research

Appendix G

The table below depicts the comparison between the mean ICAR scores obtained in this study as well as in the seminal study conducted by Condon & Revelle (2014).

Table 11

Comparison of Mean Scores for ICAR Items

Item	Present study	Seminal Study
VR1	.51	.67
VR2	.09	.24
VR3	.55	.69
VR4	.71	.73
VR5	.50	.61
VR6	.45	.40
LN1	.15	.46
LN2	.42	.62
LN3	.26	.59
LN4	.40	.62
LN5	.25	.47
LN6	.26	.42
MR1	.45	.52
MR2	.54	.60
MR3	.61	.62
MR4	.24	.28
MR5	.29	.36
MR6	.39	.40
R3D1	.16	.17
R3D2	.15	.21
R3D3	.22	.29
R3D4	.12	.12
R3D5	.15	.17
R3D6	.12	.13