

THE RELATION BETWEEN PERSONALITY TYPES AND ACADEMIC  
PERFORMANCE AMONGST GRADE 9 LEARNERS IN WINDHOEK.

A RESEARCH PROPOSAL SUBMITTED IN PARTIAL FULFILMENT  
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## **ABSTRACT**

Research suggest that personality is a strong predictor of academic achievement at school level and beyond, but also at societal level as it serves as the building blocks to future success and economic advancement. The purpose of this study was to investigate the effect of personality traits on academic performance in the subjects of English and Mathematics at grade 9 level. It also aimed to contribute to the limited research done on this topic specifically in Namibia. Personality traits were compared to participants' academic performance in term 1 in the subjects of English and Mathematics. Results indicated that there was no statistically significant relationship between personality traits and performance in English. The personality traits of Thinking, Sensing and Perception showed statistical significance to performance in Mathematics, whereas the personality traits of Feeling, Intuition and Judgement showed no statistical significance to performance in Mathematics. This information may inform teaching approaches and could also be beneficial to Educational Psychologist as it could partially explain why some learners do not perform in Mathematics.

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## LIST OF ACRONYMS

<b>E</b>	Extrovert
<b>EFNJ</b>	Extroverted Feeling Intuition Judgement
<b>EFNP</b>	Extroverted Feeling Intuition Perception
<b>EF SJ</b>	Extroverted Feeling Sensing Judgement
<b>EFSP</b>	Extroverted Feeling Sensing Perception
<b>EMIS</b>	Education Management Info System
<b>ETNJ</b>	Extroverted Thinking Intuition Judgement
<b>ETNP</b>	Extroverted Thinking Intuition Perception
<b>ETSJ</b>	Extroverted Thinking Sensing Judgement
<b>ETSP</b>	Extroverted Thinking Sensing Perception
<b>F</b>	Feeling
<b>I</b>	Introvert
<b>IFNJ</b>	Introverted Feeling Intuition Judgement
<b>IFNP</b>	Introverted Feeling Intuition Perception
<b>IFSJ</b>	Introverted Feeling Sensing Judgement
<b>ITNJ</b>	Introverted Thinking Intuition Judgement
<b>ITSJ</b>	Introverted Thinking Sensing Judgement
<b>ITSP</b>	Introverted Thinking Sensing Perception
<b>J</b>	Judgement
<b>JPQ</b>	Jung Personality Questionnaire
<b>JSC</b>	Junior Secondary Certificate
<b>N</b>	Intuition
<b>NSSC</b>	Namibian Senior Secondary Certificate

<b>P</b>	Perception
<b>PTC</b>	Personality Type Code
<b>S</b>	Sensing
<b>T</b>	Thinking

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## **DEDICATION**

I would like to dedicate this thesis to everyone who supported and uplifted me throughout my studies. Without your support, this would not be possible. I would specifically like to dedicate this to my little baby girl, mother and beloved father. To my little girl, thank you for being my pride and joy. Mom, I never have the words to express my gratitude. If I could be half of the mother that you are, I would be happy. Thank you for all your love, endless support and sacrifices you have made for me throughout life. To my Dad, you were always so proud of me and I wish I could grant you the opportunity to read my work as you always so eagerly hoped to do. You will be forever missed. As a family, we have faced many challenges throughout this process, but together we came out stronger.

## DECLARATION

I, **Elzaan Swart**, hereby declare that this study is my own work and is a true reflection of my research, and that this work, or any part thereof has not been submitted for a degree at any other institution.

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14 April 2021  
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Date

# **CHAPTER 1: OVERVIEW OF THE STUDY**

## **1.1 Introduction**

This chapter provides background on the study, discussing both international and national research conducted on personality theories and how they relate to academic performance and job success. In this regard, the chapter also provides background on the personality theory of Jung and information on the 2016 Junior Secondary Life Skills Curriculum. The chapter outlines the research problem that leads to the specific research objectives for the study. Specific limitations and delimitations also form part of this chapter. Lastly the chapter includes specific ethical guidelines that were adhered to during this study.

## **1.2 Background of the study**

Rosander and Bäckström, (2014) argue that personality traits could be seen as the strongest predictor of academic performance at school, after intelligence. Hakimi et al. (2011) support the findings with their study among Iranian students. The results indicated that personality traits accounted for a 48% variance in academic achievement, of which conscientiousness accounts for the largest overall percentage. According to Furnham and Monsen (2009), school-aged children in South East England's intelligence, personality and gender accounted for a quarter of the variance in all four core subjects. South African studies focussed more on personality traits contributing to the prediction of examination performance (Hesqua, 2018) and the personality trait of conscientiousness as advantage to higher education accounting students' level of adjusting to university life (Papageorgiou & Callaghan, 2018). Very little research has focussed on school aged learners and academic performance within

both South Africa and Namibia. The majority of studies on personality traits used the Big Five Factor Model (Costa & McCrae, 1992) to assess personality.

For purposes of this study the Jung Personality Questionnaire [JPQ], were used where both the conscious and unconscious mind of the individual are investigated in the instrument. Jung formulated eight individual personality typologies (extraversion, introversion, thinking, feeling, sensation [as in the JPQ Manual and referred to as sensing from here on out], intuition, judgement and perception) which forms the basis of the JPQ. Only these personality traits will be the focus of this study. The majority of research on personality traits, both nationally and internationally, have focussed on these traits in relation to occupational performance (Chiang et al., 2017; Mould, 2014) and tertiary education (Corcoran & O’Flaherty, 2016; Vedel, 2014), with very little focus on school-aged learners. Academic performance and its relation to personality should not only be considered at tertiary or occupational level, but starts at school level. Performance and success at school level plays an important role for grade 9 learners in Namibia. They are required to make subject choices based on their future occupation and interest during the Senior Secondary Phase. It is evident that there seems to be a lack of proper guidance in this regard as many learners decide on a career without the knowledge of subject requirements, special aptitudes required for the career or knowing what training is required (Maduakolam, 2000). A staggering school-leaving rate of 29.7% (Education Management Information System [EMIS], 2018) are recorded after grade 10 largely due to the option of exiting secondary education after completing ones Junior Secondary Certificate [JSC]. A decline in enrolment in the Senior Secondary Phase has an impact on future success as many employers and universities require a grade 12 or Namibian Senior Secondary Certificate [NSSC].

### **1.3 Statement of the problem**

People use different approaches when learning and mastering a language as to learning and mastering mathematics. Learning a language includes the development of communication abilities (listening, speaking, reading and writing) whereas learning mathematics includes the ability to apply abstract logical thinking and reasoning (Pečjak et al., 2015). Research has also indicated that personality traits have a direct connection to academic achievement (Brandt et al., 2019). However, little research has investigated whether personality traits are considered during teaching, or whether certain traits could have a bearing on academic achievement. The results of this study could provide guidance to teachers and curriculum developers, substantiating Gardner (2011) suggestion that learners who are taught in a way that fits their reasoning approaches are more likely to achieve academically. There is also little research done on the personality types of Namibian learners and how these relate to their performance in school subjects and therefore the researcher wishes to investigate this matter.

### **1.4 Research objectives**

The objectives of this study are:

1. To determine the personality types of grade 9 learners in Windhoek based on the JPQ.
2. To compare the personality types of grade 9 learners in Windhoek to their academic performance in English and Mathematics.

### **1.5 Significance of the study**

This study may contribute to limited research both locally and internationally on personality types and its relation to the academic success of learners. Data obtained could invoke a change in teaching approaches to incorporate all personality types. Results can also inform Life Skills Curriculum development both on learning styles suited to one's personality type as well as career guidance to aid learners to select subjects best suited to their personality type and preferred career. Higher academic success rates could also have a positive effect on learner self-esteem and grade repetition rates within the Namibian schooling system. Better success at school could also motivate learners to complete school past the first exit point provided.

### **1.6 Limitations of the study**

A limitation of the study is that the JPQ is not standardised for the Namibian population. It will only be limited to a small sample of learners within the area due to time and financial constraints, which takes away from the richness of a longitudinal study with more than one data collection period. Although recognised as important, other contributing factors to academic success, such as motivation and resilience, are not considered in this research.

### **1.7 Delimitations of the study**

A delimitation of this study is that grade 9 learners were selected from four government secondary schools within Windhoek only.

## **1.8 Research Ethics**

Ethical clearance from the University of Namibia was obtained before the commencement of the study. All participants were required to provide written assent and parental consent was obtained for all respondents. All participants received feedback on their results. Anonymity was kept as reports were not made public to all participants involved and was directly forwarded to the respective teachers or parents. Confidentiality was ensured as no names were recorded in the study results. Participants also had the freedom to withdraw from the study at any time. The results of the study were not used to stigmatize participants, but only to provide them with personal information. Data were stored safely in a filing cabinet with a lock and will be destroyed after six months or after the study is fully completed. Passwords were set on any digital sheets containing data or personal information of participants.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

A literature review is important as research builds on existing knowledge to be able to draw new conclusions or in order to establish new facts (Pubrica Academy, 2019). Literature reviews add value to a study as it provides relevant facts and knowledge to the study at hand. This chapter includes a review on historical and modern perspectives of personality. It discusses Carl Jung's perspective on personality which serves as the theoretical framework for this study. The chapter ends with an overview of research conducted on the topic of personality and academic performance.

### **2.2 Defining Personality**

The word personality is derived from the Latin word "persona" which can be translated to the word "mask" (McClain, 2007). These masks are a representation of the different personality characteristics. Every person can be differentiated by their unique physical attributes and personal characteristics. Personality is the unique internal characteristics of a person to which others individuals gravitate toward, or finds intriguing and interesting. These characteristics is what makes "you, you". In Al-Dujaily et al. (2013), Million notes that personality determines a person's emotional and behavioural adjustments to their surroundings, influencing a personal perspectives on the environment and the establishment of relationships (Husain & Adam, 2018). Interpretations made based on personality shapes how individuals view the world. Such interpretations are individualised and unique to each individual. An empathetic person, for example, is someone who has involuntary feelings for another when seeing someone else in pain, or as described by Fagiano (2019) as feeling into, with or for a

person or object. Whereas others who do not possess such a personality trait would not be emotionally affected by such an event, or would not even come to the aid of such a person.

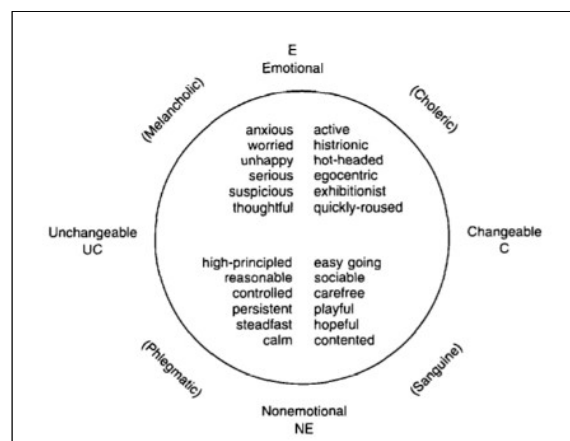
### **2.3 Historical Perspectives on Personality**

Personality has been studied for many years, dating as far back as 370 Before the Common Era [BCE]. Hippocrates theorized that personality is built based on four temperaments associated with four body fluids, referred to as humours, namely blood, phlegm, yellow bile and black bile (Jouanna, 2012). These humours were also linked to various zodiac signs in the field of astrology to explain why individuals born under a specific zodiac sign shared some similar traits. The humour of blood were assigned to the Gemini, Libra and Aquarius signs; yellow bile to Aries, Leo and Sagittarius; black bile to Taurus, Virgo and Capricorn; and phlegm to Cancer, Scorpio and Pisces (Okal et al., 2012). Galen built on Hippocrates' theory and added that personality is a unique construction of these four liquids making up different personalities and temperaments. These traits were then further categorized as being hot, cold, dry and wet and divided into four primary elements to describe certain behaviours, namely fire (warm and dry), air (warm and moist), earth (dry and cold) and water (moist and cold) (Bos, 2009). These elements were then further developed into the four humours; The sanguine (blood), melancholic (black bile), choleric (yellow bile), and phlegmatic type (phlem) (Bos, 2009; Grant, 1999; Merenda, 1999). Each humour consists out of various temperamental characteristics. The sanguine type person is described as being hopeful and optimistic (Merenda, 1999), helpful to others, friendly, cheerful and not timid (Bos, 2009). The melancholic type person is described as being indecisive, focussed on their difficulties, depressed and sad (Merenda, 1999). The choleric type is

calm but easily irritable, strong-willed and sometimes aggressive (Grant, 1999). The phlegmatic type person is apathetic (Merenda, 1999) calm, attentive and thoughtful (Bos, 2009). Galen added to Hipocrates' work by adding that an imbalance in these humours could explain personality differences as well as diseases. From this, Kant further went to compose a list of traits to describe characteristics of each of the above four humours. Lastly, Wundt divided personality into changeable and unchangeable temperaments, and strong and weak emotions (Merenda, 1999).

**Figure 1**

*Types of Temperaments*



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## 2.4 Modern Perspectives on Personality

A wide variety of modern perspectives on personality exist; including the biological, behavioral, psychoanalytic, humanistic, trait and social cognitive theory.

Biological theory views the construction of personality as having a physiological basis and considers the brain, central nervous system, immune system as well as genetics as key aspects (Cherry, 2019). Panksepp's (1982) biological theory explains the core systems of underlying human personality as located in different regions of the brain and hormones. The emotions of expectancy and positive motivation are linked to the lateral hypothalamus and dopamine, whereas the emotions of fear and anxiety being linked to serotonin levels (McNaughton, 2020). Additional research on biology of personality further includes the Central Nervous System's (CNS) serotonergic function as underlying factor for personality traits such as aggression, hostility and depression (Brummett et al., 2008). Studies on the personality trait of extraversion has connected this personality trait to dopamine levels (Declerck et al., 2006), the amygdala (Aghajani et al., 2014), and having a strong central nervous system (Kaplan et al., 2002). Levels of cortical arousal have also been studied based on extravert and introvert differences. Extraverts show a smaller change when aroused than introverts (Fink et al., 2002). Eysenck (as cited in Kehoe et al., 2012), argues that it is because of this level of low left and right frontal cortical arousal that extraverts engage in extraverted types of behaviour.

Behavioural theories explain behaviour as being shaped by ones environment. These theories describe personality as imbedded merely within the individual shaped by the environment around us. Skinner is seen as the leader in the construction of a radical behaviourist theory. Skinner's theory distinguishes between respondent and operant behaviour. Respondent behaviour is an automatic response including a preceded stimulus, whereas operant behaviour is produced by the person, known as emergent behaviour (Meyer et al., 2003). An example of respondent behaviour would be the automatic crunching into foetal position whenever a loud banging noise (preceded

stimulus) goes off. An example of operant behaviour could be a dog lifting his paw to get a treat from its owner. To Skinner (1953), behaviour is learnt through reinforcement (XiaoGang & Xuan, 2013). His concepts of operant and respondent conditioning explain how reinforced behaviour is learnt. Respondent conditioning, also known as classical conditioning, incorporates the association of a common response to a new stimulus (Commons & Giri, 2016), whereas operant conditioning explains behaviour as shaped by what comes after a certain behaviour known as reinforcement (XiaoGang & Xuan, 2013). In this way negative behaviour can be changed to positive behaviour in order to receive what is desired.

Sigmund Freud is synonymous with the theory of psychoanalysis and his portrayal of the psyche consists of the id, ego and superego. To Freud, the unconscious mind is an unaware state hosting desires, dreams and urges that play a prominent role in governing our conscious decisions and behaviours. He believes that the goal of these three aspects (id, ego and superego) is to ensure survival, allow the experience of pleasure, and to minimise guilt (Meyer et al., 2003). The superego is classified as one's moral conscience. It constantly judges one's feelings, thoughts and actions and whether they conform to the conscience (Kapustin, 2015). The id is driven by the pleasure principal. This drive is instinctual and natural to humans. The ego includes our perceptions and consciousness which is in constant interaction with the environments. The ego is also known as the reality principal which drives our thinking, ability to solve problems and decision on when to take action (Koenane, 2014). According to Freud, humans are in constant conflict between their instinctive drive (id) and moral conscience (superego) and how society view them (ego). For example, instinctively one would want to physically attack someone who harmed your family

member (id), but ones conscious steps in and you refrain from doing so (superego) as it is viewed as unacceptable by society (ego).

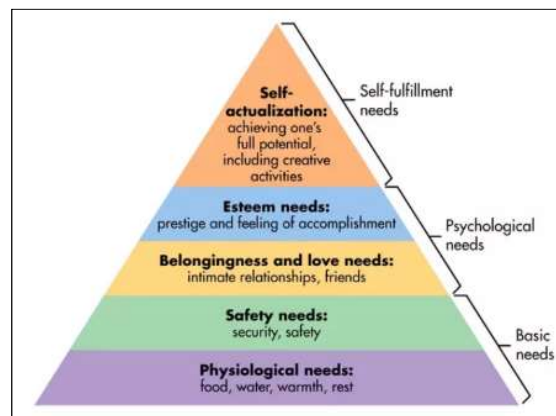
Erik Erikson also viewed the id, ego and superego as important entities in personality, similar to Freud. Rather than classifying each of these entities as three different parts of a person's personality, Erikson more simply distinguish them as a person's drives (id), morals (superego) and executive elements (ego) (Meyer et al., 2003). Erikson further contributed to the study of personality by adding eight developmental stages which people go through. Each stage is sparked by a crisis, each with its own challenges, in order to establish a sound sense of self (Knight, 2016). An example of a crisis includes the interaction between a mother and her new born during feeding. Erikson's eight stages of development are not connected to age, but divided into stages during childhood (stage 1 – infancy period, stage 2 – early childhood period, stage 3 – play age period and stage 4 – school age period), adolescence (stage 5 – adolescence period) and adulthood (stage 6 – young adulthood period, stage 7 – adulthood period and stage 8 – old age period) (Orenstein & Lewis, 2020). Each stage has its own crises which need to be mastered in order to successfully deal with crises in the next stage of personal development. Failing to master the crises of trust versus mistrust during infancy, for example, could affect one's sense of trust later in life (Nassida, 2019). Erikson also leaves room for revisiting crises not resolved in their intended stage of development in later stages. These stages also contribute to the understanding of the needs of children with learning difficulties (Batra, 2013) as learning difficulties can arise from lack of mastery in previous grades. The mastery of mathematics can be used as an explanation, where children who for example struggle to master the concept of division may have failed to master the basic foundation of it set in previous grades.

The Humanist theory of personality is concerned with the “freedom, dignity and potential of humans” (Tangney, 2014, p. 267). The main objective of humanist theory is mainly holistic. Carl Rogers contributed largely to humanist theory and describes the individual as a whole and an active player in their self-actualization (Meyer et al., 2003). To Rogers, human beings are the constructors of their own personality which changes when a person confronts meaninglessness by altering their lives either positively by becoming more open or negatively by becoming more closed off to certain experiences (Hounkpatin et al., 2015). The main structures of Rogers’ theory include the self, ideal self, self-regard and self-concept (Yazdani & Ross, 2019) with the self being at the centre of the self-actualization process. Rogers contributed 19 propositions to the study of personality. In this theory, the individual is the central element which interacts with the “total experimental world” (Meyer et al., 2003, p. 365).

Similar to Rogers, Maslow postulates that to self-actualize is to function at ones fullest potential (Montag et al., 2020). To Maslow, everyone has the ability to reach this stage as it is already within each of us, stating that “[w]hat a man can be, he must be” (Valiunas, 2011). However, man will only become what he must be once his basic needs are met. Need gratification not only relieves frustration but is also needed for growth and the development of one’s full potential (Meyer et al., 2003). From this, Maslow developed his famous hierarchy of needs. Each need has an urgency of its own. The lower needs on the hierarchy is viewed as the most important to meet before higher needs can be met.

## Figure 2

### *Maslow's Hierarchy of Needs*



Reprinted from *Maslow's Hierarchy of Needs* by S. McLeod, 2020, retrieved from <https://www.simplypsychology.org/maslow.html>

Maslow also acknowledges the fact that the gratification of needs do not always happen as systematically as he proposes. Sometimes higher needs motivate ones behaviour, even in the absence of gratified lower needs. For example, a child living in poverty who achieved top marks in the National Examination. The basic human needs include physiological (drives for hunger, thirst and sex) and safety needs (the need to feel safe and secure), followed by the love and belongingness need (to have a partner, spouse and/or family), followed by self-esteem needs (personal achievement) and self-actualization needs (personal growth) (Montag et al., 2020). The need for self-actualization encompasses one's life purpose. Only once all pervious needs are met to the minimum level, can the process of fulfilling ones calling come into play. Maslow includes 17 growth motivations at this stage, also known as meta-needs or B-values (Meyer et al., 2003).

Fleeson and Jayawickreme (2015) mention the earliest recordings on the importance of traits dating back to Allport (1968) and Hartshorne and May (1928). According to

Trait Theory, human behaviour is formed by different traits which make up a person's personality. Traits are an individual's thoughts, emotions and behaviours, which provide an explanation for why people think, feel and behave the way they do (Jayawickreme et al., 2019). Traits are also further described as basic potentials that are within the individual that changes over time, which manifests itself as concrete realisations. For example, infants have the capacity to develop language over time (McCrae & Sutin, 2018). Language is the basic trait and the ability to communicate in their mother tongue will be the concrete realisation of this trait. Traits also have a physiological basis as some traits can be viewed as inherent (Matthews, 2018), but no individual would be a full copy of their elders. Just as individuals are different, so are traits an individualized characteristic. Hans Eysenck contributes to trait theory by arguing that our conscience is conditioned through the emotional responses which is elicited through our actions (Jackson & Center, 2002), such as being punished when going into the street (neutral stimulus). These stimuli will elicit certain responses from a child when coming into contact with them in the future, similarly to Pavlov's method of classical conditioning. Personality traits can be structured in a hierarchical manner, such as in the Big Five model of personality as developed by Paul Costa and Robert McCare in 1992 (Yates, 2017). It consists out of five clusters of behavioral traits which form the basis of individual personality. The Big Five behaviors are conscientiousness, agreeableness, extraversion, openness to experience and neuroticism. Low scores on each scale would transform the trait to its opposite pole. For example, individuals with a score low on extraversion would be considered to be more introverted, similar to the personality traits discussed under Jung. Kristjánsson (2012) ascribes a range of characteristics to each of the Big Five Personality Traits mentioned above. In short, he describes extraverted people as friendly and energetic, agreeable people as being

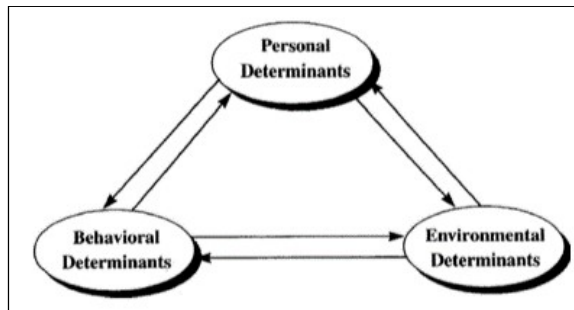
considerate and modest, conscientious people as disciplined and self-efficient, neurotic people as anxious and easily depressed, and open people as imaginative and art-loving (Kristjánsson, 2012). McCrae (as cited in Kristjánsson, 2012) notes that these personality traits remain quite stable in adulthood with correlations of 0.5 and 0.8. In closing, one of the shortcomings of trait theory is that it explains what traits are, but not why or how they produce different behaviours in individuals. Traits remain fairly consistent over time but vary from situation to situation (Horstmann et al., 2020). For example, an introverted person will be labelled as not being social and spontaneous, but how would one then explain them being spontaneous within their closer friendship group? In conclusion, traits should not be viewed as a totality but varying in degree from person to person.

Similar to behavioural theory, social cognitive theory views personality as unstructured and constructed through interactions with ones surroundings. This theory takes a more cognitive approach in explaining behaviour by looking at unobservable matters, such as feelings, to explain learnt behaviour. Bandura adds that human behaviour can only be understood and explained once interaction with their environment and cognitive processes are taken into account (Meyer et al, 2003). In this way people plan and shape their actions according to their personal goals and standards as they carry personal meaning (Alessandri et al., 2015). Bandura explains this interaction as triadic codetermination (Bandura, 2012). For Bandura, behaviour is learnt through interaction and expected outcomes for displaying such behaviours (Palmer, 2013). People can evaluate the consequences of their behaviour and remain constant despite changes in circumstance. He further adds that behaviour is not only learnt in correlation with environmental influences, but also set standards individuals have for themselves. We evaluate our behaviour against these standards in order to

self-actualize through self-reflection and self-regulation. These abilities are utilized by the individual to select and change their surroundings in order to contribute to the course of life (Caprara et al., 2013).

**Figure 3**

*Triadic Reciprocal Determination*



Reprinted from On the Functional Properties of Perceived Self-Efficacy Revisited by A. Bandura, 2012, *Journal of Management*, 38(1), 9-44. DOI: 10.1177/0149206311410606

In addition, Hergenhahn (1993) notes that individuals approach situations in specific ways due to experiences from previous situations. The way we deal with certain situations is a result from prior interactions, and will also determine how one deals with future similar situations. One's level of self-assurance is also a determining factor in how we use our competencies in experiences, and put them either to good or bad use. Major theorists in the field of social cognitive learning include Rotter (1954), Bandura (1986) and Mischel (1968; 1973), who are regarded as the founding fathers of social cognitive theory.

## **2.5 Theoretical Framework**

The views Carl Jung, the son of a Swiss Reformed Church pastor, were greatly influenced by the religious background in which he grew up. Jung became familiar with Freud's psychoanalytic approach during his internship at the Burgholzli Psychiatric Hospital in Zürich. He became so interested in the work of Freud that he wrote to him in 1906, and a friendship started between the two, which turned sour in 1913. Jung could not agree with Freud's view of people being suppressed by their sexual past, but believed that behaviour is not only embedded in the past but also directed towards the future to achieve a complete self-actualization (Meyer et al, 2003). He further adds that personality is formed through the integration of the conscious and unconscious mind, with an imbalance leading to abnormal personality disorders (Kapustin, 2016). To Jung, self-actualization is formed through the constant imbalance between an individual's consciousness and unconsciousness. This imbalance is created by opposite tendencies dominating the conscious and unconscious mind. The ego is the essence of the conscious, which is divided into two elements, namely the personal and collective unconscious (Walker, 2017). The personal unconscious inhibits individual complexes. A complex arises when there is a disruption to an individual's pleasure principal, which creates feelings of angst, conscience and guilt (Gildersleeve, 2016). According to Jung, a complex then develops when an archetype or instinct is combined with a personal experience. An instinct is described as being a physiological impulse determining behaviour. An archetype is regarded as an intuition which influences how one perceives experiences expressed through symbols. As an example, an individual can develop a spider complex when their experience with a spider is combined with the archetype of a spider.

Jung is known to have developed one of the most applicable personality typologies to date; including the concepts of Extraversion (E), Introversion (I), Thinking (T), Feeling (F), Sensing (S), Intuition (N), Judgement (J) and Perception (P). The first six typologies are divided into two main categories namely; attitudes and functions of the human psyche. Attitudes include the typologies of E and I. Functions of the psyche include the typologies of T, F, S and N. These attitudes and functions are combined to form a combination of fifteen individual psychological types. The remaining two typologies (J and P) are used to distinguish between rational and irrational functions which individuals use to arrive at a decision. Rational functions (J) include the personality typologies of T and F, whereas irrational functions (P) of the psyche include the personality typologies of S and N. Only the first six typologies will be included in the present study as the typologies of judgement and perception is only used to distinguish between which of these typologies are classified as being rational or irrational.

### *2.5.1 Attitudes - Extroversion & Introversion*

E and I is either an external or internal orientation to the world and source of energy. Jung describes an E person as someone who orientates their energy toward the external world, investing their energy into things outside of themselves, whereas an I person lives more subjectively within themselves (Du Toit, 2006), being more reflective (Al-Dujaily et al., 2013). People with E personality traits are seen to be more sociable as they easily communicate and interact with other people. E are also seen as having a happy nature, being active, capable and more optimistic, while individuals with I personality is seen to be quiet, passive, not easy to get along with, conscientious, pessimistic, calm and controlled (Husain & Adam, 2018).

### *2.5.2 Rational functions - Thinking & Feeling*

The rational functions of T and F is the use of either thought or emotions in making decisions. Indirectly it connects to the ways in which information is processed in the psyche, and reacting in a rational way to make decisions. The psyche uses the function of T to interpret what it perceives, by relating ideas to reach a conclusion. An individual possessing T as dominant personality trait will be more logical and objective when making decisions (Robertson & Putnam, 2008). The function of F is described as being more evaluative. The personality typology of F accepts or rejects ideas based on the impact it makes on their emotions, whether it arouses their feelings or creates an unpleasant feeling (Du Toit, 2006). The function of F is influenced by the function of reflection, rather than perception. Individuals dominant in F will be more caring in their decision making by focussing more on people concerned in the process (Robertson & Putnam, 2008). In addition, the personality typology of J is seen to supplement the rational functions of T and F as these functions make use of J to arrive at a decision.

### *2.5.3 Irrational functions - Sensing & Intuition*

The irrational functions of S and N refers to the way in which information is taken in and processes within the psyche. The psychological function of S refers to the way external impulses are experienced through the sensory organs. This function is the product of facts and can also originate as a reaction inside a person's body, such as a headache. S individuals are more practical and active, and prefer concrete information and tasks (Truity, 2020). These individuals are guided by their past experiences. N is an uncontrolled immediate reaction with the absence of thinking (Du Toit, 2006). The

feeling of a hunch about something or someone is not explainable as it merely appears out of the blue. These individuals are good at reading between the lines and can easily create meaning between random disconnected facts (Truity, 2020). Other than S individuals, N individuals are more abstract and theoretical. They focus more on the future than the present. In summary, one kind of thinking is slow and reflective, whereas the other is quick and intuitive. As an example to explain the concepts of S and N - having bad stomach cramps (S) could direct the person to acting on the hunch by taking stomach medicine to try and solve the problem of having a possible stomach bug (N). In addition to the irrational functions of S and N, the personality typology of P is used to distinguish them from the rational functions of T and F.

## **2.6 Personality and Academic Performance**

As discussed in Chapter 1, early research on academic success focussed on cognitive and non-cognitive factors as contributing to academic success. Non-cognitive factors such as motivation and personality (Cattell as cited in Yates, 2017), level of engagement and social norms values (Walker, 2017), anxiety (Ariza, 2002) and self-esteem (Higbee & Thomas, 1999) could carry equal importance to intelligence in predicting academic achievement. The widespread use of the Big Five or Five-Factor Model (FFM) enabled the reassessment of some personality traits as having a positive relationship to academic performance (Vedel & Poropat, 2017). This model possess five domains of personality traits namely neuroticism, openness, agreeableness, conscientiousness and including extraversion, as also included by Jung as relevant to this study and discussed in detail above. The Big Five trait of conscientiousness showed to be the strongest predictor (Conrad & Patry, 2012) and neuroticism the most negative predictor on academic performance (De Feyter et al., 2012).

Academic performance is the extent to which educational goals are met for student, teacher and learning institution (Kumari, 2014). The extent of academic performance stretches further than just a percentage on a report card, with also having a deep impact on future success within a student's life and the economy of a country (as mentioned in Chapter 1). Various studies note that certain personality traits can be related to academic performance and methods of learning. Studies comparing E and I to academic success differ in opinion. Some suggest that I can achieve higher when using good study methods, while others suggest that E correlate higher with academic success (Al-Dujaily et al., 2013) as they are more confident in their abilities (Chiang et al., 2017). Whereas others found a negative correlation between E and academic performance (Bauer & Liang, 2003), suggesting their sociability and impulsiveness as contributory factors (Sanchez et al., 2001). Tests examining the academic task of English essay writing showed no difference in performance between E and I personality types (Husain & Adam, 2018). Researchers found that individuals with personality combinations that include T and S or F and S learn better practically, while those with personality combinations that include F and N learn best by using their imagination, working with others, and writing, and those with T and N learn best by categorizing items, analyses and logic (Myers, 1998).

There are different cognitive dimensions involved in mastering the academic subjects of English and Mathematics. Language learning has changed over the years from the typical old school drilling techniques with interaction only between the learner and teacher, to a more communicative approach where learning happens in more natural setting with directive feedback from whomever is listening (Ariza, 2002). Mastering a language is a more parallel process which develops through continuous exposure, analogy and similarities. The conscious and active use of Language Learning

Strategies by learners also show to make language learning easier and more enjoyable (Teh, 2013). According to structure-mapping theory, the process by which relational commonalities between objects are acquired is called structural alignment (Gentner & Namy, 2006). Many studies on context-aware technologies are in favour of using such methods to improve language learning. Wang and Haung (2017) argue that these technologies tend to focus too much on vocabulary learning, rather than listening and speaking capabilities which are commonly weaker in those attempting to master English as a foreign language.

Inductive reasoning and spatial ability is linked to success in Mathematics (Gilles & Bailleux, 2001). Mathematical knowledge is acquired through building upon previous concepts and manipulation (De Jong, 2015). This type of knowledge acquisition is obtained through constructivist teaching, as knowledge is built upon previously learned concepts using the scaffolding technique (Bosman & Schulze, 2018). For learners to master mathematics, it is vital for it to make sense to them. Biccard (2018) discusses the concern of mathematics as being a non-sense-making subject. Many learners experience a disconnection between the procedural and conceptual understanding of the subject. This disconnect happens when learners need to transition from applying the basic manipulation of the subject to applying their skills to solve word problems. It is also necessary for learners to connect these concepts to reality, in order for learners to understand it. A plus side to mathematics learning is that learners have some flexibility in how they approach mathematical problems. Being able to use their “own methods” (Biccard, 2018, p. 2), allows them the freedom to solve problems with methods which works best for them. Many articles also attribute the success in Mathematics to teaching styles. Teachers need to be well informed on the content and concepts of the subject in order to provide maximum benefit to the learners.

Understanding why some perform differently academically is important in order to meet the needs of the diversity of learners teachers are faced with each day (Conrad & Patry, 2012). Various studies were done based on Big Five or FFM of personality, as mentioned above, and academic performance in the subjects of English and Mathematics. The various facets related to these traits are discussed as follows. Conscientiousness includes dutifulness, self-discipline and deliberation; agreeableness includes trust, compliance and modesty; extraversion includes assertiveness, excitement-seeking and warmth; openness includes actions, feelings, ideas and values; and neuroticism includes facets such as anxiety, depression, impulsiveness and vulnerability (Shams et al., 2011). The personality traits of introversion, openness to experience and agreeableness has shown positive correlation to the learning of English (Homayouni, 2011) with openness (Shams et al., 2011), extroversion, agreeableness and conscientiousness (Homayouni, 2011) showing correlations to the learning of Mathematics. The personality trait of neuroticism has shown the lowest correlation to academic performance (Faisal, 2019).

## **2.7 Summary**

Researcher on personality dates back as far as 370 BCE with modern research highlighting personality as an important predictor of academic performance. This study is based on the theoretical framework of Jung's personality typology and how personality types of this theory relate to academic performance in the subjects of English and Mathematics, which require different cognitive dimensions in its mastery. The next chapter will discuss the research methodology used to collect data in order to correlate whether the personality traits as tested by the JPQ show positive correlations to academic performance in the subjects of English and Mathematics.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter outlines the research design, research population and sampling procedures, research procedures and a description of the research instrument used in order to reach the objectives of determining grade 9 personality traits and comparing them to the learners' performance in English and Mathematics. It ends off with a description of how research data were analysed as well as a discussion on ethical considerations throughout the data collection process.

### **3.2 Research Design**

This quantitative study employed a causal-comparative research design. Such a design aims to find a relationships between independent and dependent variables after an action or event has transpired, by comparing two or more groups of individuals (Mertens, 2015). Personality traits (independent variable) of grade 9 learners were identified and compared to their academic performance in English and Mathematics (dependent variables). The variables were compared using the SPSS (Statistical Package for Social Sciences – version 25).

### **3.3 Population and Sampling Procedure**

The population is defined as all individuals existing within a specific group (Coolican, 2009). The selected population for this study were grade 9 learners within Windhoek in the Khomas region of Namibia. Grade 9 learners were chosen due to the important task of selecting career-orientated subjects for grade 10. There were a total of 86 188 learners within the Khomas region in 2018 (EMIS, 2018), with 18 791 of those learners

in the Junior Secondary Phase. A total of 5444 grade 9 learners were enrolled within this region (EMIS, 2018). Convenience sampling was used to select the schools and participants within these schools for the study. Convenience sampling selects participants who are easily available and willing to participate in the study (Taherdoost, 2016). This method was used to select schools and participants for the study as it is inexpensive and helps to overcome specific limitations of the research process. During the time of the study there were approximately 27 state owned secondary schools within Windhoek (Ministry of Education, Arts and Culture, 2018). Four schools were included in this study. Two of the schools were moderately resourced with the basic necessities, and the other two were poorly resourced and rural. Participants included in the study were 260 grade 9 learners who were willing to participate in the study. Of the 260 participants, 109 were male and 151 were female. Borderline cases were removed from each personality type combination. A total of 80 E/I, 76 T/F, 83 S/N and 39 J/P borderline cases were removed, leaving varied sample sizes for the different personality type combinations at 180 E/I, 184 T/F, 177 S/N, and 221 J/P cases which were included in the study. Dominant personality traits provide all participants with a four letter Personality Type Code [PTC] combination comprised of the dominant personality traits scored. All 260 participants were included in the PTC testing: 40 ITSJ, 35 ETSJ, 28 EFSJ, 27 EFNJ, 23 ETNJ, 22 EFNP, 20 IFNJ, 17 ETNP, 12 ITNJ and IFSJ, 8 IFNP, 6 ITNP, 5 ETSP, 3 EFSP and 2 ITSP.

### **3.4 Research Procedure**

Ethical clearance was received from the University of Namibia (APPENDIX A), as well as permission from the Director (APPENDIX B) and Executive Director of the Ministry of Education, Arts and Culture (APPENDIX C). The Life Skills Teacher for

each school was used as communication-line to make arrangements on the appropriate time-slots to test learners at the school. They also provided Term 1 of 2019s academic schedules in order to capture performance in English and Mathematics more conveniently. Consent forms were delivered to each school before the intended date of testing (APPENDIX D). Only those who provided completed consent forms were included in the study. All testing happened during school hours during a Life Skills period. Before testing, the purpose of the study was thoroughly explained to the learners. Hereafter all assent forms were completed by the participants as well as the investigator's declaration (APPENDIX D) before participants were guided on completing the answering sheet (APPENDIX E). Test booklets were handed out and test instructions were read aloud to participants (APPENDIX F). Completion time of the assessment differed from individual to individual and extra time was provided in many cases. During assessment explanations of various terms were common, such as seldom (Question 5), sympathetic (Question 10), premeditation (Question 18), methodical and spontaneous (Question 28) (APPENDIX F). All learners received feedback in the form of a detailed report with their results and career suggestions to aid them in their subject choices for the year to come.

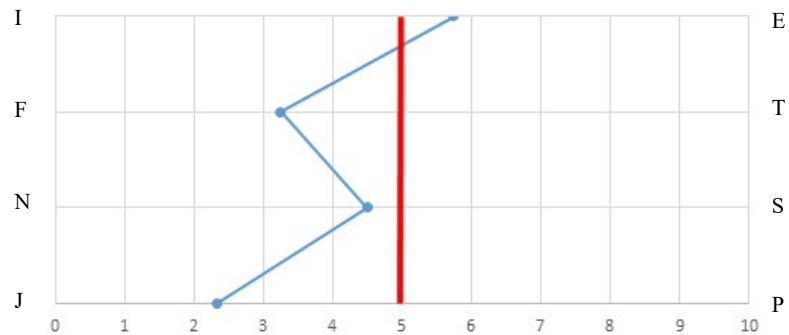
### **3.5 Research Instrument**

The Jung Personality Questionnaire [JPQ] compiled by Du Toit (2006) with its first edition printed in 1983, second print in 1994 and third print in 1997 was used to assess all learners who participated in the study. The main aim of the JPQ is to assist learners in choosing careers based on their individual personality combination. This test consists of 75 statements to which learners are instructed to respond to, indicating which option they feel would suite them best (APPENDIX F). Three options are given

to respond to. Options A and B each consist of two worded options to which participants can select, whereas option C provide the response of “Uncertain” throughout the questionnaire. Learners are instructed to only choose option C in cases where they really cannot choose between option A or B as it complicates scoring and makes it more inconsistent. The test sheet has four columns to score participant responses. Each column represent the different personality categories (E-I, T-F, S-N and J-P). A scoring stencil is used to score responses only relevant to the specific category. All option C responses are visible on the stencil. Each column represents a dominant personality trait which makes up the complete personality profile. The first column indicates scores for E-I, the second column for T-F, the third column for S-N, and the fourth column scoring for J-P. A score of two was added for each A and B response, with C responses only adding one. Scores are totalled at the bottom of each column in the first block. The totalled score is then divided by four (column 1-3) and three (column 4) to provide a score between 0-10. Personality traits are placed opposite each other on a scale of 0-10 with the score of 5 as an average (indicated by a red line in Figure 4: EFNJ Personality Type). Dominant personality traits are determined by the proximity of the converged score to each pole; line 1 I/E, line 2 T/F, line 3 S/N, and line 4 J/P. To provide clarity, a score between 0-4.99 on line 1 (I-E) would indicate that the learner is more I than E. Any score of 5 and above would then indicate that the learner is more E than I. In this manner a PTC is compiled.

**Figure 4**

*Example of an EFNJ Personality Type*



Note. This figure was adapted from the Manual for the Jung Personality Questionnaire (Du Toit, 2006). It serves as a visual representation of personality scores and their placement around the average (mean) of 5.

Based on the four personality types with opposite preferences, the JPQ (Du Toit, 2006) allows for 15 PTC types, for example: Extraverted Feeling Intuition Judgement (EFNJ), Extraverted Thinking Intuition Judgement (ETNJ), Introverted Feeling Intuition Perception (IFNP) and Introverted Thinking Sensing Perception (ITSP). The test manual provides a personality descriptive as well as suggested possible careers for each three Personality Type combination EFN, EFS, ETN, ETS, IFN, IFS, ITN and ITS (Du Toit, 2006). An Extraverted Feeling Intuition (EFN) individual is described as being sensitive and considerate. Such people also possess great insight into other people's needs and problems, and solve problems based on what their gut tells them rather than analysing a situation. Suggested career fields include a musician, photographer, politician or teacher. An Extraverted Feeling Sensing (EFS) individual is described as being a warm-hearted, down to earth, talkative and popular co-worker who likes routine. They are also described as being co-operative and active in society. They also possess great common sense in social environments and dislikes mechanical

problems. Suggested career fields for these individuals include hairdresser, public relations officer, travel agent and radio broadcaster. Extraverted Thinking Intuition (ETN) individuals are described as frank persons who are very persuasive. These individuals are usually seen as the leaders who are very resourceful and ingenious, who dislikes routine. Suggested career fields for ETN individuals include a jeweller, auditor, economic adviser and insurance broker. An Extraverted Thinking Sensing (ETS) individual likes to work with facts and is a total realist. Such individuals like to work with people and mechanical things and are usually good at organising events. This personality type suggests a wide range of possible career fields including caretaker, buyer, detective, lawyer, public prosecutor and policeman. Introverted Feeling Intuition (IFN) individuals are usually very gifted individuals who are a sensitive observer of human relationships. As a worker they usually prefer to work alone. Suggested career fields include a proof-reader, sculptor, criminologist, psychiatrist and sociologist. An Introverted Feeling Sensing (IFS) individual is sympathetic and patient who gives attention to detail. They are slow and thorough workers who take considerably longer to complete their work than their fellow colleagues. Suggested careers include a taxidermist, nurse, physician and social worker. Introverted Thinking Intuition (ITN) individuals usually have great insight, is very curious and driven. In the world of work, they are the ones who like theoretical and scientific work as they are very imaginative and critical. These individuals are also usually very anti-social and stubborn. Possible career fields suggested to such individuals include caterer, programmer, actuary, biochemist and researcher. Introverted Thinking Sensing (ITS) individuals are practical, thorough and logical people who would prefer the outdoors. They like mechanical work and are also anti-

social. Possible career fields include a baker, banker, pharmacist, diesel mechanic, panel beater and horticulturalist.

### **3.6 Data Analyses**

All responses were manually calculated using the JPQ scoring stencil to obtain a score from 0 to 10. Raw data was quantified using Microsoft excel and SPSS (Statistical Package for Social Sciences – version 25). Excel spreadsheets were used to generate feedback reports to participants on their personality typology and suggested careers, and to capture raw scores from the questionnaire and academic percentages in English and Mathematics from the academic schedules provided by each school. The eight personality typologies were sorted and borderline cases were removed (cases scoring between 4.5 and 5.5 for traits E/I, T/F, S/N, and between 4.6 and 5.3 for J/P). A total of 80 borderline cases were removed for E/I, 76 for T/F, 83 for S/N and 39 for J/P. This left the total sample size for E/I at 180 participants, T/F at 184, S/N at 177 and J/P at 221 participants for testing. The Levene's Test for equality of variances were conducted for the dominant individual personality traits, followed by a t-test for equality of means to establish whether there were any statistically significant differences between dominant personality traits and academic performance in the subjects of English and Mathematics. The ANOVA One-way Analysis was used to identify whether there were significant differences among the 15 PTC groups and academic performance in English and Mathematics.

### **3.7 Ethical Considerations**

Before the commencement of the research, ethical clearance was obtained from the University of Namibia (Ethical Clearance Reference Number: FOE/469/2019)

(APPENDIX A) as well as approval by the Khomas Regional Council (APPENDIX B) and Ministry of Education, Arts and Culture (APPENDIX C). The purpose of the research was clearly described to all learners before commencement of the study. Learners were informed that it is only for research purposes and that no personal information will be made public, or reported on, ensuring total anonymity of the schools as well as participants involved. Participants were also informed that they could withdraw from the study at any time, with no consequence. The point of voluntary participation was specifically reiterated and on one occasion Section e of Section 11 (assent) (“I may be asked to leave the study before it has finished, if the study doctor or researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to”) of APPENDIX D were enforced with a learner who was disruptive. The participant was asked to leave the classroom, and their questionnaire and consent were destroyed. Parental consent and participant assent were obtained for 257 participants who were under the age of 18 years, with three participants providing consent as they were over the age of 18 years (18 years and 6 months, 19 years and 19 years and 2 months). The ethical consideration on boundaries of competence state that “factors associated with ... language ... is essential for effective implementation of their services or research” (American Psychological Association [APA], 2017). During testing, it was prevalent that many learners struggled with some of the vocabulary used in the test (as mentioned under Research Procedure). This ethical consideration is worth noting as it could have an impact on participant understanding of statements to which they had to respond to. No prior training could have prepared the researcher on this matter. The researcher has prior experience in working with the specific age group tested and were able to provide simplified explanations of such terms on the level of the participants in order for them to understand better, falling in

line with section e under this section of ethical considerations stating that “[i]n those emerging areas in which generally recognized standards for preparatory training do not exist, psychologists nevertheless take reasonable steps to ensure the competence of their work” (APA, 2017).

## **CHAPTER 4: RESULTS**

### **4.1 Introduction**

This chapter presents the quantitative data collected from the 260 participants for this study as guided by the research objective of comparing learner personality with academic performance in English and Mathematics. Firstly, the biographical information of the participants is offered. Secondly, results generated from individual personality trait assessment as well as from the 15 PTC combination groups will be presented and discussed in percentage tables and in descriptive form. Third and fourthly, inferential statistics are presented on the results generated for the eight individual personality traits and 15 PTC combinations, and their statistical significance to academic performance in the subjects of English and Mathematics.

### **4.2 Biographical Information**

A gender analysis of the 260 participants showed that 109 (42%) were male and 151 (58%) were female. The majority of the learners were 15 and 16 years old (60% and 21% respectively), the typical age for grade 9 in Namibia. A total of 8% were 14 years old and 11% were from 17 to 20 years old. All learners were in grade 9 with ages ranging between 14 and 20 years old. Four Secondary Government Schools within the Windhoek region were included in this study. Two of the schools were moderately resourced and located urbanely, with the other two presenting to be more poorly resourced and within rural settlements.

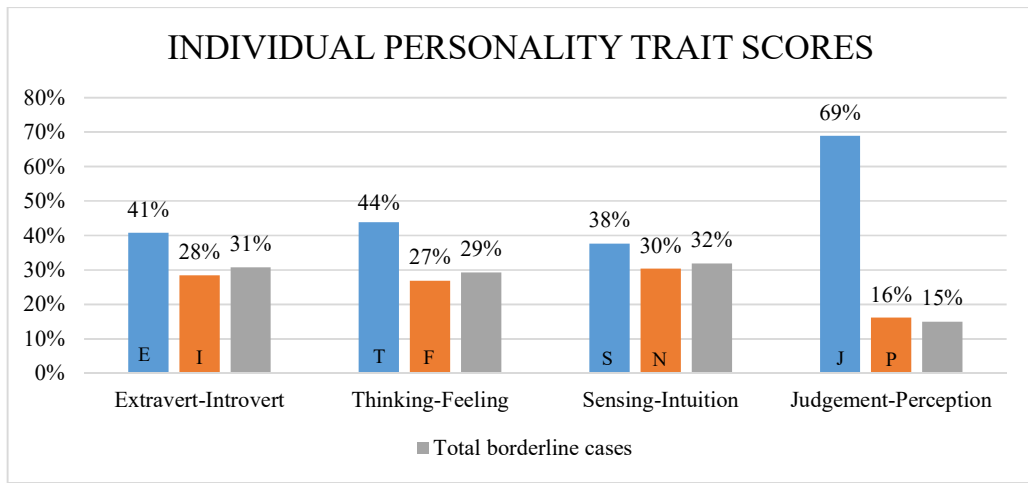
### **4.3 Individual Personality Traits and PTC combination results**

As discussed in Chapter 3, dominant personality traits are determined by the proximity of the converged score to each pole; line 1 E-I, line 2 T-F, line 3 S-N, and line 4 J-P (see figure 4). Each participant's personality type code was broken down into the individual personality traits (E/I, T/F, S/N, J/P), with borderline cases (cases scoring between 4.5 and 5.5 for traits E/I, T/F, S/N, and between 4.6 and 5.3 for J/P) removed and excluded from the study (Figure 5). As can be seen from the figure a large number of participants tested as borderline cases on each of the scales. Under E/I; 41% of participants were E and 28% I with 31% borderline cases. Under T/F; 44% of participants were T and 27% F with 29% borderline cases. Under S/N: 38% of participants were S and 30% N with 32% borderline cases. Under J/P: 69% of participants were J and 16% P with 15% borderline cases. The four individual personality traits that received highest percentages from participants were J (69%), T (44%), E (41%) and S (38%).

With regard to the 15 possible personality type code (PTC) combinations, the highest number of participants were identified as ITSJ (Introverted Thinking Sensing Judgement) (15%), followed by ETSJ (Extraverted Thinking Sensing Judgement) (13%) with the least number of participants identified as ITSP (Introverted Thinking Sensing Perception) (1%). (Figure 6).

**Figure 5**

*Percentage of Learners per Individual Personality Trait*



**Table 1**

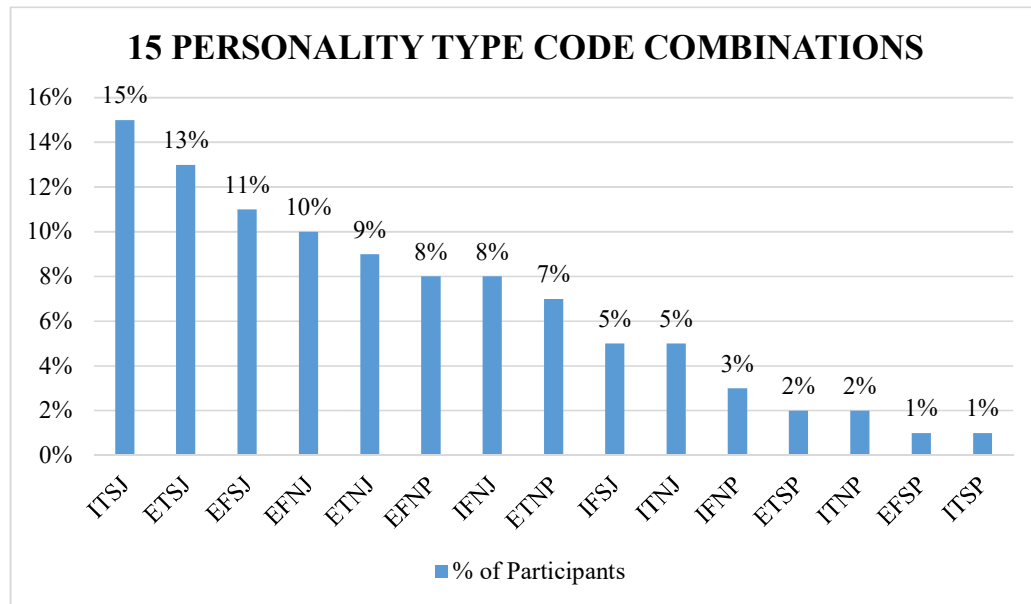
*Summary of Individual Personality Trait Scores*

TRAIT	N	Included cases		Borderline cases		Total % participants
		(f)	%	Borderline (f)	%	
Extravert	160	106	41%	54	21%	62%
Introvert	100	74	28%	26	10%	38%
Total	260	180	69%	80	31%	100%
Thinking	146	114	44%	32	12%	56%
Feeling	114	70	27%	44	17%	44%
Total	260	184	71%	76	29%	100%
Sensing	129	98	38%	31	12%	50%
Intuition	131	79	30%	52	20%	50%
Total	260	171	68%	83	32%	100%
Judgement	197	179	69%	18	7%	76%
Perception	63	42	16%	21	8%	24%
Total	260	221	58%	39	15%	100%

*N=260*

**Figure 6**

*Percentage of Learners per PTC*



*N= 260*

#### **4.4 Individual Personality Traits and Academic Performance**

Levene's test is an inferential statistic used to assess whether the variances of two groups are equal or of the same nature (homogeneous) in order to proceed with the t-test (Gastwirth et al., 2009). Equal variances are assumed if the significance is greater than 0.05. Based on Levene's test all groups were considered as equal and thus the t-test for the equality of means could be conducted. Results for all participants who scored within the desired range for the individual personality traits were included in the study.

##### *4.4.1 T-test results: E/I*

A total of 106 (41%) participants scored within the desired range for E, and 74 (28%) within the desired range for I. A total of 80 (31%) borderline cases were not included

in the comparative study on English and Mathematics. The mean scores for E were higher than that of I in both English (1.3%) and Mathematics (5.1%). However, these differences were not statistically significant ( $p > 0.05$ ) (Table 2). The differences are therefore only true for the sample and cannot be generalised to the population of this study (grade 9 learners in Windhoek).

#### 4.4.2 *T-test results: T/F*

A total of 114 (44%) participants scored within the desired range for T, and 70 (27%) within the desired range for F. A total of 76 (29%) borderline cases were not included in the comparative study on English and Mathematics. The mean score for T were moderately higher than that of F in Mathematics (6.9%), and the difference was also statistically significant ( $p < 0.05$ ) (Table 2). This difference can thus be generalised to the population of this study. The mean score for T was higher than that of F in English (2.5%), but this difference was not statistically significant ( $p > 0.05$ ) (Table 2). This difference is therefore only true for the sample and cannot be generalised to the population of this study (grade 9 learners in Windhoek).

#### 4.4.3 *T-test results: S/N*

A total of 98 (38%) participants scored within the desired range for S, and 79 (30%) within the desired range for N. A total of 83 (31%) borderline cases were not included in the comparative study on English and Mathematics. The mean score for S were moderately higher than that of N in Mathematics (5.8%), and the difference was also statistically significant ( $p < 0.05$ ) (Table 2). This difference can thus be generalised to the population of this study. The mean score for S was higher than that of N in English (1.5%), but this difference was not statistically significant ( $p > 0.05$ ) (Table 2). This

difference is therefore only true for the sample and cannot be generalised to the population of this study (grade 9 learners in Windhoek).

#### 4.4.4 T-test results: J/P

A total of 179 (69%) participants scored within the desired range for J, and 42 (16%) within the desired range for P. The mean score for J achievement in English was 55.77, and 59.29 for P. The mean score for P were higher than that of J in Mathematics (10.1%), showing a big statistically significant difference ( $p < 0.05$ ) (Table 2). This difference can thus be generalised to the population of this study. The mean score for P was higher than that of J in English (3.5%), but this difference was not statistically significant ( $p > 0.05$ ) (Table 2). This difference is therefore only true for the sample and cannot be generalised to the population of this study (grade 9 learners in Windhoek).

**Table 2**

#### *Individual Personality Traits and Academic Performance*

Academic Subject	Personality Trait	Descriptive Statistics			t-test for Equality of Means			
		N	Mean	SD	Mean Diff.	t	df	p
English	Extravert	106	57.23	11.649	1.307	.763	175	.446
	Introvert	74	55.92	10.794				
	Thinking	114	57.11	11.366	2.491	1.424	182	.156
	Feeling	70	54.61	11.762				
	Sensing	98	56.88	10.871	1.460	.819	175	.414
	Intuition	79	55.42	12.830				
	Judgement	179	55.77	10.743	-3.515	-1.914	219	.057
	Perception	42	59.29	10.561				
Mathematics	Extravert	106	49.84	17.386	5.123	1.898	178	.059
	Introvert	74	44.72	18.423				
	Thinking	114	50.56	18.961	6.961	2.355*	182	.020*
	Feeling	70	43.60	20.271				
	Sensing	98	49.62	19.436	5.825	2.106*	175	.037*
	Intuition	79	43.80	16.760				
	Judgement	179	44.64	18.806	-10.101	-3.220*	219	.001*
	Perception	42	54.74	15.904				

#### **4.5 The 15 Personality Type Code and Academic Performance**

Mean scores for academic performance in English and Mathematics were manually calculated for each of the 15 PTCs. Mean scores showed that participants with an EFSP profile scored the highest in both English (66%) and Mathematics (70%). It is important to note that this group was only presented by a small number of learners (3), making up only 1% of the population of the study. ETNJ participants scored the lowest in English (51.13%) (Table 4) with IFSJ participants scoring the lowest in Mathematics (32.5%) (Table 5). The two biggest groups in both English and Mathematics were ITSJ (40 participants making up 15% of the population) and ETSJ (35 participants making up 13% of the population). ITSJ ranked ninth highest achieving in English (56.83%) (Table 4) and seventh highest in Mathematics (51.38%) (Table 5). ETSJ ranked the third highest achieving group in both English (60.03%) (Table 4) and Mathematics (55.23%) (Table 5). The mean difference between the highest and lowest scoring groups in English was 14.87%, with a staggering difference of 37.5% for Mathematics. Mathematics and English mean scores for the 15 PTC combinations were compared using the ANOVA One-way Analysis. This test is used to identify differences between the means of three or more groups. Results showed that there were statistically significant differences among mean scores for Mathematics only ( $p < 0.01$ ) (Table 3), showing that the results can be generalised to the population of the study.

**Table 3***15 PTC Combination ANOVA One-way Analysis*

		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.
English	Between Groups	2333.934	14	166.710	1.320	.196
	Within Groups	30938.262	245	126.279		
	Total	33272.196	259			
Mathematics	Between Groups	16875.604	14	1205.400	3.905*	.000*
	Within Groups	75628.335	245	308.687		
	Total	92503.938	259			

**Table 4***15 PTC Ranked by English Mean Scores*

RANK	PTC	MALE	FEMALE	TOTAL	% PARTIC.	ENG (MEAN%)
1	EFSP	1	2	3	1%	66.00
2	ETSP	4	1	5	2%	61.00
3	ETSJ	23	12	35	13%	60.03
4	ETNP	6	11	17	7%	58.71
5	ITNJ	5	7	12	5%	58.42
6	ITSP	1	1	2	1%	58.00
7	IFNP	1	7	8	3%	57.63
8	EFNP	11	11	22	8%	57.05
9	ITSJ	20	20	40	15%	56.83
10	IFNJ	6	14	20	8%	56.25
11	ITNP	3	3	6	2%	56.17
12	EFNJ	9	18	27	10%	53.89
13	IFSJ	3	9	12	5%	52.83
14	EFSJ	10	18	28	11%	52.79
15	ETNJ	6	17	23	9%	51.13

**Table 5***15 PTC Ranked by Mathematics Mean Scores*

<b>RANK</b>	<b>PTC</b>	<b>MALE</b>	<b>FEMALE</b>	<b>TOTAL</b>	<b>% PARTIC.</b>	<b>MATH (MEAN%)</b>
1	EFSP	1	2	3	1%	70.00
2	ETSP	4	1	5	2%	66.40
3	ETSJ	23	12	35	13%	55.23
4	IFNP	1	7	8	3%	54.88
5	ETNP	6	11	17	7%	53.94
6	EFNP	11	11	22	8%	52.91
7	ITSJ	20	20	40	15%	51.38
8	ITNP	3	3	6	2%	50.17
9	ITSP	1	1	2	1%	44.50
10	ITNJ	5	7	12	5%	42.42
11	EFNJ	9	18	27	10%	40.07
12	EFSJ	10	18	28	11%	40.00
13	IFNJ	6	14	20	8%	39.80
14	ETNJ	6	17	23	9%	38.57
15	IFSJ	3	9	12	5%	32.50

**4.4 Conclusion**

In this chapter a detailed account was given of the results of the study of the assessed personality traits done by Jung's Personality Questionnaire. The 15 PTC were broken up into individual personality traits and then compared to the mean in academic performance in English and Mathematics for the respective groups to identify whether there were any statistically significant differences. Results showed that no statistical significant differences with regard to performance in English was found for all individual scores, whereas statistically significant differences were recorded for participants dominant in the personality traits of T, S and P in Mathematics. The 15 PTC as a unit were also compared to academic performance in English and Mathematics in order to identify whether a specific personality type code performed better in the chosen subjects. The next chapter focuses on an in-depth discussion of the research results.

## **CHAPTER 5: DISCUSSION**

### **5.1 Introduction**

This final chapter discusses the results as presented in Chapter 4. The research objectives of determining the personality types of grade 9 learners in Windhoek based on Jung's Personality Questionnaire [JPQ] and comparing them to the academic performance in the subjects of English and Mathematics guide the discussion. This chapter concludes with a discussion on limitations of the study, as well as recommendations.

### **5.2 Discussion on the Individual Personality Traits and academic performance in English and Mathematics**

Based on the test scores several learners were identified as borderline cases in all eight personality types. However, looking at the pure cases it was found that there were more E (41%) than I learners (28%). The percentage of pure cases for E and I made up 69% of the total population with 31% being borderline cases. More learners were identified as T (44%) in comparison to F learners (27%), which brought the pure cases to 71% and borderline cases being 29% of the total test population. More S (38%) than N (30%) learners were identified in the pure sample, totalling to 68% with 32% borderline cases to complete the test population. And lastly, significantly more J (69%) learners than P learners (16%) were identified, bringing the pure cases to 58% and borderline cases to 15% for this specific personality trait combination group.

As discussed in the literature review, personality traits have a direct influence on academic achievement (Brandt et al., 2019; Hakimi et al., 2011). In comparing the pure cases to academic achievement in Mathematics, no statistically significant

difference was found for the personality types of E and I. Various studies on E and I vary in opinion on the significance of these traits in Mathematical achievement (Al-Dujaily et al., 2013; Bauer & Liang, 2003; Chiang et al., 2017; Husain & Adam, 2018), to which this study contributes as it having no relevance to performance in this specific subject. Statistically significant differences were found for the remaining three personality typologies with regards to academic achievement in Mathematics. Mean scores showed that participants who were dominant in the personality trait of T (50.56%) performed substantially better in Mathematics than participants with the personality trait of F (43.60%). Similarly, participants whose dominant personality trait was S scored higher in Mathematics (49.62%) opposed to N participants (43.80%). Participants dominant in the personality trait of P also showed considerably higher performance in Mathematics (54.74%) in contrast to J participants (44.64%).

The above results on dominant personality traits and academic performance in Mathematics relates to research done by Myers (1998) and Smail (2017). Myers (1998) pointed out that T and S individuals prefer a more practical approach to learning, which could contribute to better performance in mathematics specifically. These individuals have a more positive attitude towards mathematics as they make use of their logical thinking capabilities and senses to make a decision (Smail, 2017). Myers (1998) provided insight into weaker related Mathematics personality types of F and N as learning best by being imaginative, creative with others and through writing. This could also provide some explanation for them performing lower in the subject of Mathematics due to the nature of the subject. The results of this study on dominant personality traits and performance in Mathematics specifically can guide educators to provide additional learning strategies (more practical learning) to those learners who do not possess the dominant personality traits associated with academic performance

in Mathematics in order to promote academic performance. Results can also motivate Educational Psychologists to add a personality assessment to their battery of assessments as results could also aid in providing recommendations to teachers and parents on learning strategies to supplement those possessing the dominant personality traits least associated with high performance in the subject of Mathematics, specifically.

Results from the study showed that there were no statistically significant differences in English performance for any of tested personality traits. This finding supports the findings of Husain and Adam (2018) who also found no difference in performance of English Essay Writing between E and I personality types specifically.

### **5.3 Discussion on 15 Personality Type Codes and academic performance in English and Mathematics**

Jung's Personality Questionnaire [JPQ] provides 15 different PTC combinations which are created using the four dominant personality traits. With reference to academic performance in English, ANOVA One-way Analysis indicated no statistically significant differences between the different personality type codes. Nevertheless, the majority of participants (15% of the total test sample) possessed the PTC of ITSJ. This group scored 9<sup>th</sup> highest (based on the given 15 categories) in English (56.83%). The top scoring PTC group was EFSP, with a mean score of 66% in English. This group only accounted for 1% of the total test sample. Based on the literature, these individuals prefer to learn practically and within a group (Myers, 1998). They are also described as having common sense in social matters and disliking mechanical problems (Du Toit, 2006). These traits to some extent seems in line with what one would need to perform well in English as a subject. The second and third

highest performing groups for English had the combination types of E, T and S. These groups also performed above 60% in English and represented 15% of the total sample. ETS individuals display a wide range of interests and make use of facts and logic in learning (Du Toit, 2006). Those dominant in P within this combination (ETSP) (the 2<sup>nd</sup> highest scoring group) are more flexible whereas those dominant in J within this combination (ETSJ) (the 3<sup>rd</sup> highest scoring group) are more organized (Jones & Wang, 2004). The personality trait of P in the PTC of the 2<sup>nd</sup> highest scoring personality group are linked to the trait of flexibility, which has also been connected with Mathematics learning (Biccard, 2018) and not English learning. Making it inconsistent with the level of placement of this group. Alternatively, although T, S and P combinations have been connected to higher performance in Mathematics, the trait of J, as in the 3<sup>rd</sup> highest scoring group – ETSJ, showed greater relation to English learning (Chen & Hung, 2012).

Results from the ANOVA One-way Analysis between the 15 PTC groups indicated a statistically significant difference in performance in Mathematics ( $p < 0.01$ ). This means that these differences could be generalised to the population of this sample. As was pointed out above, the majority of participants presented with a PTC of ITSJ (15% of test sample), but this group ranked 7<sup>th</sup> highest in Mathematics performance (51.38%). As in English, those participants with the PTC of EFSP were the top performers in Mathematics (70%) accounting for 1% of the total test sample size. As mentioned, such participants prefer to learn practically and in a group. The lowest scoring group with regards to academic performance in Mathematics were IFSJ (32.50%), accounting for 5% of the total test sample size. Such individuals are also described as preferring a practical approach to learning (Myers, 1998), but being slow thorough workers who tend to delay finishing their tasks (Du Toit, 2006), which could

contribute to understanding their level of performance in Mathematics. Teachers and Psychologists could use this information, and that being practical is not the only predictor of academic performance in Mathematics, but that one's ability to fully complete tasks could also affect academic achievement within this subject. This skill could be noted and improved for those participants who scored lower in Mathematics. Literature indicated that personality types with a TSP combination should score higher in Mathematics (Myers, 1998). In comparing this statement to the test results, the top scoring PTC (EFSP) did not fall within this combination group although the 2nd top scoring code (ETSP) (including only 2% of the sample) scored within this combination group (66.40%). However the only other TSP combination including 1% of the sample only had a mean score of 44% in mathematics. Examination of the six lowest scoring PTCs showed dominance in the personality trait of J, while P appears strongly in the top performing PTC groups. This supports the finding of (Biccard, 2018) that the personality trait of P could lead to higher performance in Mathematics.

#### **5.4 Limitations**

The first limitation of the study is that the JPQ is not standardised for the Namibian population which could impact the validity of the results. It was already evident during testing that some of the vocabulary used posed difficulties to some participants. Secondly, due to time and financial constraints, the sample of learners were limited to only grade 9 learners within Windhoek from four government schools. It would be more beneficial to include all learners within Namibia in order to get a more rounded picture of which personality traits correspond with academic performance in English and Mathematics. Other contributing factors to academic success, such as motivation and resilience, was also not considered in this study. Such factors could have a direct

impact on academic performance. Furthermore, only the results from term 1 were considered, not considering fluctuations in performance or generating an average performance per learner. Other external factors such as assessment methods used by different schools was also not considered, which could also have an impact on learners performance.

## **5.5 Recommendations**

Based on the results of the study, the researcher would like to make the following recommendations:

- Future research should also focus on personality traits and academic performance at school level. Various research articles focus on personality traits and how it affects performance either at tertiary level or within the workplace.
- Personality assessment focus mainly on E and I, leading to the recommendation that future research look into the rest of the personality traits as described by Jung (T, F, S, N, J and P).
- More research is needed on different personality traits and PTC relating to preferred learning methods. This may provide better insight into which approaches to learning contribute to better academic performance in different academic subject. This information in turn could inform teachers and psychologists on which personality traits hamper or promote effective learning approaches for specific subjects (Mathematics, for example). Information on this may assist them to provide alternative methods to supplement weaknesses that present naturally via personality traits.

- Future recommendations based on testing material:
  - Research could be done to determine whether the career fields as suggested in the JPQ Manual per PTC generally include individuals who are identified within the corresponding personality types.
  - An update of the career fields as suggested by the JPQ manual could be beneficial as many of these careers seem to be outdated.
  - A simplification of language used in testing material could also be beneficial as many participants had questions regarding the meaning of certain words. This could aid to provide a better understanding to those who are assessed. Testing material could be altered to fit various age groups in order to make it easier to interpret what the testing material presents.

## **5.6 Conclusion**

This study delivered some interesting results based on personality traits and performance in the subjects of Mathematics specifically. These results could provide a valuable contribution to future researchers who wish to study the topic at hand, also adding to the limited body of knowledge on the JPQ and its use in Namibia. Recommendations made on the adjustment of testing material could also spark an interest among future researchers to adjust this assessment tool, to be more suitable not only for various age groups but Namibian and other African populations too.

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# APPENDIX A: Ethical Clearance Certificate of the University of Namibia



**ETHICAL CLEARANCE CERTIFICATE**

**Ethical Clearance Reference Number:** FOE/469/2019      **Date:** 10 July 2019

This Ethical Clearance Certificate is issued by the University of Namibia Research Ethics Committee (UREC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the Faculty/Centre/Campus Research & Publications Committee sitting with the Postgraduate Studies Committee.

**Title of Project:** The relation between personality types and academic performance amongst Grade 9 learners in Windhoek.

**Nature/Level of Project:** Masters

**Researcher:** ELZAAN SWART

**Student Number:** 201601140

**Faculty:** Faculty of Education

**Supervisors:** *Prof M. L. Mostert (Mats) and Prof C. Willers (Cu)*

Take note of the following:

- (a) Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the UREC. An application to make amendments may be necessary.
- (b) Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the UREC.
- (c) The Principal Researcher must report issues of ethical compliance to the UREC (through the Chairperson of the Faculty/Centre/Campus Research & Publications Committee) at the end of the Project or as may be requested by UREC.
- (d) The UREC retains the right to:
  - (i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected.
  - (ii) Request for an ethical compliance report at any point during the course of the research.

REC wishes you the best in your research.

REC Chairperson  
Dr. E. de Villiers: HREC Chairperson

  
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## APPENDIX B: Permission Letter of the Khomas Regional Council



REPUBLIC OF NAMIBIA  
KHOMAS REGIONAL COUNCIL  
DIRECTORATE OF EDUCATION, ARTS AND CULTURE

Tel.: (+264) 61 2934221  
Fax: (+264) 61 219156  
Enquiries: Valerie Tjirimuje

Private Bag 13236  
Windhoek  
Namibia

Ms. Elzaan Swart  
Email: [elzaan.swart@dssw-namibia.org](mailto:elzaan.swart@dssw-namibia.org)  
Cell: 0812293108

Dear Ms. Swart,

**SUBJECT: PERMISSION TO CONDUCT RESEARCH IN KHOMAS REGION**

Reference is made to your email request dated 8<sup>th</sup> August 2019, requesting for permission to conduct a study on *"The relation between personality types and academic performance amongst Grade 9 learners in Windhoek."*

We have reviewed your request and permission is granted under the following conditions:

- 1.1. It is imperative that this letter be taken to the three sampled schools, namely Delta Secondary School, Highline Secondary School and Acacia Secondary School.
- 1.2. Consultation must take place with the respective School Management Committee.
- 1.3. That informed consent is granted from all sampled schools, parents and learners and research ethics is strictly adhered to.
- 1.4. It is also crucial that the research process does not disrupt teaching and learning.

We wish you all the best and kindly request you to please share your research findings with the Directorate, in order for us to utilise the data for the improvement of our schools. Please do not hesitate to contact Valerie Tjirimuje (Regional School Counsellor) should there be any queries or clarifications.

Yours sincerely,

Gerard N. Vries

DIRECTOR OF EDUCATION, ARTS AND CULTURE



**APPENDIX C: Permission Letter of the Ministry of Education, Arts  
and Culture**



REPUBLIC OF NAMIBIA

**MINISTRY OF EDUCATION, ARTS AND CULTURE**

Tel: +264 61-2933202  
Fax: +264 61-2933272  
Enquiries: G. Manene  
Email: [Gibson.manene@gov.na](mailto:Gibson.manene@gov.na)

Luther Street, Cent. Office Park  
Private Bag 13188  
Windhoek  
Namibia

File no: 26/1/26

Ms Elzaan Swart  
Email: [elzaan.swart@dssw-namibia.org](mailto:elzaan.swart@dssw-namibia.org)  
Cell: 081 229 3108

Dear Ms Swart,

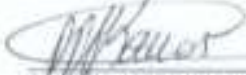
**SUBJECT: PERMISSION TO CONDUCT RESEARCH IN KHOMAS REGION**

Kindly be informed that permission to conduct an academic research for your Master's Degree on "The relation between personality types and academic performance amongst Grade 9 learners in Windhoek," in Khomas Region is here with granted. You are requested to present the letter of approval to the Regional Director to ensure that research ethics are adhered to and disruption of curriculum delivery is avoided.

Furthermore, we humbly request you to share your research findings with the Ministry. You may contact Mr G. Manene at the Directorate: Programmes and Quality Assurance (PQA) for submission of a summary of your research findings.

I wish you the best in conducting your research and I look forward to hearing from you upon completion of your study.

Sincerely yours


  
SANET L. STEENKAMP  
EXECUTIVE DIRECTOR



*All official correspondences must be addressed to the Executive Director.*

## APPENDIX D: Participant Information Leaflet and Consent Form

**PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM  
ANNEX 5**

  
**UNAM**  
UNIVERSITY OF NAMIBIA

**TITLE OF THE RESEARCH PROJECT:** THE RELATION BETWEEN PERSONALITY TYPES AND ACADEMIC PERFORMANCE AMONGST GRADE 9 LEARNERS IN WINDHOEK.

**REFERENCE NUMBER:** FOE/469/2019

**PRINCIPAL INVESTIGATOR:** Elzaan Swart

**ADDRESS:** Kleine Kuppe, Windhoek

**CONTACT NUMBER:** 0812293108

Dear Parent,

With your consent, your child are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the study staff or doctor any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your child's participation is **entirely voluntary** and they are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the Research Ethics Committee at The University of Namibia and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and Namibian National Research Ethics Guidelines.

**1. What is this research study all about?**

This study will serve as a guideline to learners on which personality traits connect to higher achievement in certain subjects at school. Higher success rates could also have a positive effect on learner self-esteem and grade repetition rates within the Namibian schooling system. An estimated total of 300 grade 9 learners will be involved in this study, from three government secondary schools in Windhoek. This study

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UREC Participant Information Leaflet and Consent Form (ICF VERSION) Page 1

is significant as it will contribute to limited research both globally and internationally on personality types and academic success.

**2. Why have you been invited to participate?**

Your school was selected and you are invited to participate in the study to gain a better understanding of your personality traits and how they could possibly relate to your academic performance in certain subjects. The study also aims to provide feedback on which careers could best suite your personality type that could guide you in your subject selections at the end of the year.

**3. What will your child's responsibilities be?**

Your responsibilities are to complete the questionnaire as honestly as possible. Your child is also responsible to provide the researcher with their Term 1 (2019) report card on the day of assessment. He/she is also responsible to communicate your level of comfort at all times. The duration of the study will take approximately 50 minutes.

**4. Will your child benefit from taking part in this research?**

The benefit of partaking in this study is that your child will receive feedback on their Individual Personality Trait Typology containing a set of proposed career fields which could suite their personality profile best. This information could guide your child in their subject selection for grade 10.

**5. Are there in risks involved in your child taking part in this research?**

There are no risks involved in partaking in this study.

**6. If you do not agree to take part, what alternatives do you have?**

There are no consequences for not participating in the research.

**7. Who will have access to your medical records?**

Only the researcher, supervisor and statisticians may have access to the data obtained from this study. No personal information will be made public.

**8. What will happen in the unlikely event of some form injury occurring as a direct result of your taking part in this research study?**

Insurance pertaining to adverse-related research events is covered by the University of Namibia. However, there are no foreseeable risks involved in this study.

**9. Will your child be paid to take part in this study and are there any costs involved?**

There are no costs involved in participating in the study. Participants will also not receive compensation for participating in the study.

**10. Is there anything else that you should know or do?**

You can contact Prof M.L. Mostert at +264 61 206 3346 if you have any further queries or encounter any problems. You can also contact the Centre for Research and Publications at +264 61 206 3061; [pclaassen@unam.na](mailto:pclaassen@unam.na) if you have any concerns or complaints that have not been adequately addressed by the investigator. Your child will receive a generated report with their results in sealed in an envelope once all reports have been generated.

**11. Declaration by participant's parent/legal guardian (CONSENT)**

By signing below, I ....., the parent/legal guardian of ..... (name of child), declare that I understand what the research entails and hereby give consent for my child to take part in a research study entitled "THE RELATION BETWEEN PERSONALITY TYPES AND ACADEMIC PERFORMANCE AMONGST GRADE 9 LEARNERS IN WINDHOEK"

I declare that:

- a) I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- b) I have had a chance to ask questions and all my questions have been adequately answered.
- c) I understand that taking part in this study is **voluntary** and I have not been pressurized to take part.
- d) My child may choose to leave the study at any time and will not be penalized or prejudiced in any way.
- e) My child may be asked to leave the study before it has finished, if the study doctor or researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (place) ..... on (date) ..... 2019.

.....  
Signature of parent/guardian

.....  
Signature of witness

**12. Declaration by investigator**

I Elzaan Swart declare that:

- I explained the information in this document to ..... (name of the participant);
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use an interpreter. (If an interpreter is used then the interpreter must sign the declaration below.

Signed at (place) ..... on (date) ..... 2019.

.....  
Signature of investigator

.....  
Signature of witness

**13. Declaration by interpreter**

I ..... declare that I assisted the investigator Elzaan Swart to explain the information in this document to (name of participant) ..... using the language medium of .....(Oshiwambo, Oshierero, Afrikaans, etc.)

.....  
Signature of investigator

.....  
Signature of witness

**14. Declaration by participant (ASSENT)**

By signing below, I ..... agree to take part in a research study entitled "THE RELATION BETWEEN PERSONALITY TYPES AND ACADEMIC PERFORMANCE AMONGST GRADE 9 LEARNERS IN WINDHOEK".

I declare that:

- a) I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- b) I have had a chance to ask questions and all my questions have been adequately answered.
- c) I understand that taking part in this study is **voluntary** and I have not been pressurized to take part.
- d) I may choose to leave the study at any time and will not be penalized or prejudiced in any way.
- e) I may be asked to leave the study before it has finished, if the study doctor or researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (place) ..... on (date) ..... 2019.

.....  
Signature of participant

.....  
Signature of witness


# APPENDIX E: Example of the Jung Personality Questionnaire

## Scoring Sheet

RAAD VIR GEESTESWETENSKAPLIKE NAVORSING  
DIVISIE: SIELKUNDE IN ONDERWYS  
GROEP: ONDERWYS

**Jung-Persoonlikheidsvraelys (JPV)**

Handantwoordblad



HUMAN SCIENCES RESEARCH COUNCIL  
DIVISION: PSYCHOLOGY IN EDUCATION  
GROUP: EDUCATION

**Jung Personality Questionnaire (JPQ)**

Manual Answer Sheet

1877/1

VAN SUBNAME										VOORLETTERS INITIALS															
INRIGTING/INSTITUTION										PLEK/PLACE					TOETSAFNEMER/TESTER										
GESLAG GENDER		Manlik Male	Vroulik Female	TAAL LANGUAGE		Afrikaans	English	Xhosa	Zulu	N-SiXho	S-Sotho	Tswana	Tsonga	Venda	Ander	VANDAG SE DATUM TODAY'S DATE	JAAR YEAR	MAAND MONTH	DAG DAY						
															2	0									
															GRADE GRAAD				NA SKOOL AFTER SCHOOL						
															7	8	9	10	11	12	13	14	15	16	17

**JPV-PROFIEL / JPQ PROFILE**

Tr	Telling Score	Tp	0	1	2	3	4	5	6	7	8	9	10	Tp
Ei / Ei		I	•	•	•	•	•	•	•	•	•	•	•	E
DG/TF		G/F	•	•	•	•	•	•	•	•	•	•	•	D/T
WN/SN		N	•	•	•	•	•	•	•	•	•	•	•	W/S
BP/JP		B/J	•	•	•	•	•	•	•	•	•	•	•	P

Tipe/Type: \_\_\_\_\_ Opmerkings/Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

© Raad vir Geesteswetenskaplike Navorsing  
Human Sciences Research Council  
Alle regte voorbehou / All rights reserved

→

1 (A) (B) (C)

5 (A) (B) (C)

9 (A) (B) (C)

13 (A) (B) (C)

17 (A) (B) (C)

21 (A) (B) (C)

25 (A) (B) (C)

29 (A) (B) (C)

33 (A) (B) (C)

37 (A) (B) (C)

41 (A) (B) (C)

45 (A) (B) (C)

49 (A) (B) (C)

53 (A) (B) (C)

57 (A) (B) (C)

61 (A) (B) (C)

64 (A) (B) (C)

67 (A) (B) (C)

70 (A) (B) (C)

73 (A) (B) (C)

→

2 (A) (B) (C)

6 (A) (B) (C)

10 (A) (B) (C)

14 (A) (B) (C)

18 (A) (B) (C)

22 (A) (B) (C)

26 (A) (B) (C)

30 (A) (B) (C)

34 (A) (B) (C)

38 (A) (B) (C)

42 (A) (B) (C)

46 (A) (B) (C)

50 (A) (B) (C)

54 (A) (B) (C)

58 (A) (B) (C)

62 (A) (B) (C)

65 (A) (B) (C)

68 (A) (B) (C)

71 (A) (B) (C)

74 (A) (B) (C)

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3 (A) (B) (C)

7 (A) (B) (C)

11 (A) (B) (C)

15 (A) (B) (C)

19 (A) (B) (C)

23 (A) (B) (C)

27 (A) (B) (C)

31 (A) (B) (C)

35 (A) (B) (C)

39 (A) (B) (C)

43 (A) (B) (C)

47 (A) (B) (C)

51 (A) (B) (C)

55 (A) (B) (C)

59 (A) (B) (C)

63 (A) (B) (C)

66 (A) (B) (C)

69 (A) (B) (C)

72 (A) (B) (C)

75 (A) (B) (C)

→

4 (A) (B) (C)

8 (A) (B) (C)

12 (A) (B) (C)

16 (A) (B) (C)

20 (A) (B) (C)

24 (A) (B) (C)

28 (A) (B) (C)

32 (A) (B) (C)

36 (A) (B) (C)

40 (A) (B) (C)

44 (A) (B) (C)

48 (A) (B) (C)

52 (A) (B) (C)

56 (A) (B) (C)

60 (A) (B) (C)

1

2

3

4

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# APPENDIX F: Example of the Jung Personality Questionnaire Test

## Material

### DIRECTIONS

The main aim of this test is to assist you in choosing a career.

A number of questions are asked. You are expected, for each question, to give the answer which suits you best. Two tasks are opposed in each question. THESE TWO TASKS ARE ALWAYS OF EXACTLY THE SAME IMPORTANCE. Choose the task which, in your opinion, you will be able to do better.

Your answers are marked on an answer sheet. Do not make any marks in this booklet. Make sure that you answer each question opposite the corresponding number on the answer sheet.

### EXAMPLE

You have to

- A. address a meeting.
- B. entertain a number of guests.
- C. Uncertain

You must decide between A and B. For example, if you feel that you would rather address a meeting than entertain a number of guests, blacken the A on the answer sheet with a pencil.

If you find it quite impossible to choose between A and B, you are allowed to choose C, but you must please try to limit the C responses to one out of six, or less. The more often you choose the C response, the more difficult it is to determine which occupation best suits you.

Please answer all the questions in this manner.

Remember that there are no "right" or "wrong" answers and that the two tasks in each question are always of exactly the same importance.

Work as quickly as possible and do not waste time by pondering. Choose the task which in your opinion you will be able to do better.

Do not skip questions and erase completely any mark you wish to change. Ask now if there is anything that you do not understand.

**DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.**

1

9. You often have

- A. to talk to other people and mix with them socially.
- B. to listen to what others say about the work.
- C. Uncertain

10. The success of a particular undertaking requires that you

- A. treat people sympathetically.
- B. use convincing arguments.
- C. Uncertain

11. In a particular kind of job

- A. you have to do your duty conscientiously every day.
- B. you sometimes have to make hurried decisions.
- C. Uncertain

12. At work

- A. you have to plan matters carefully beforehand.
- B. it often happens that you have to plan at the last moment.
- C. Uncertain

13. You often have

- A. to investigate methods and make suggestions for making the work proceed more smoothly.
- B. to arrange new social functions and be responsible for their smooth running.
- C. Uncertain

14. You have to undertake a task in which you have to act

- A. calmly and in a reasoned manner.
- B. with love and sympathy.
- C. Uncertain

15. In a certain task, success is often the result of

- A. a brain wave.
- B. thorough preparation.
- C. Uncertain

16. You have to take part in social activities which

- A. are often planned on the spur of the moment.
- B. are carefully planned beforehand.
- C. Uncertain

1. You have to work

- A. in a room in which people often talk.
- B. alone in an office where you can concentrate on the work.
- C. Uncertain

2. You have

- A. to listen to workers with personal problems.
- B. to make an accurate analysis of the work situation.
- C. Uncertain

3. You have to complete a task where success is often the result of

- A. the use of skills which one has acquired.
- B. a sudden inspiration.
- C. Uncertain

4. You have to

- A. work strictly according to a previously planned schedule.
- B. have the ability to change the work schedule where necessary.
- C. Uncertain

5. You have to work under conditions where you

- A. will work with a few well-known people and seldom have to talk to strangers.
- B. will constantly meet new people and have to try to remember their names.
- C. Uncertain

6. Sometimes you have

- A. to be firm in the interests of the cause.
- B. to be sympathetic towards people with personal problems.
- C. Uncertain

7. You have to complete a task where you must

- A. use your imagination.
- B. mainly do practical routine work.
- C. Uncertain

8. You have to tackle a project which suits a person who

- A. does not like routine.
- B. does not like constant change.
- C. Uncertain

17. You have to reply to enquiries

- A. over the telephone.
- B. in writing.
- C. Uncertain

18. Success in a particular task is dependent on

- A. a sympathetic approach.
- B. premeditation.
- C. Uncertain

19. In the work, use is generally made of

- A. facts.
- B. ideas.
- C. Uncertain

20. In a particular job

- A. a comprehensive study will have to be made beforehand.
- B. unexpected conditions may often arise.
- C. Uncertain

21. You have

- A. to associate with only a few well-known people.
- B. constantly to associate with a large variety of people.
- C. Uncertain

22. A particular situation requires that you

- A. proceed in accordance with explicit principles.
- B. act according to personal values.
- C. Uncertain

23. Sometimes you have to go on a journey

- A. on the spur of the moment.
- B. after careful planning.
- C. Uncertain

24. To make a list of all the requirements beforehand, is

- A. not really necessary.
- B. absolutely essential.
- C. Uncertain

25. You have
- A. frequently to attend parties where many people are present.
  - B. only rarely to attend meetings with a few trusted colleagues.
  - C. Uncertain
26. A particular task requires that you
- A. are sensitive to human values.
  - B. are able to think calmly and clearly.
  - C. Uncertain
27. Solutions to a particular problem normally come
- A. after thorough discussion.
  - B. as a sudden inspiration.
  - C. Uncertain
28. The persons with whom you have to work, can be described as
- A. methodical.
  - B. spontaneous.
  - C. I am uncertain.
29. You must carry out a task in which you will
- A. only occasionally discuss the work with people.
  - B. often discuss the work with people.
  - C. Uncertain
30. A particular problem can best be solved if you
- A. are able to understand and reply to other people's arguments.
  - B. approach other people in a warm, friendly manner.
  - C. Uncertain
31. You have to do the work of someone who
- A. easily becomes restless and tired of routine.
  - B. rarely becomes restless and tired of routine.
  - C. Uncertain
32. The task which you have to undertake, is
- A. unplanned.
  - B. carefully planned.
  - C. Uncertain

33. In your work
- A. there is constant variation and change
  - B. you have to carry out only one task at a time and concentrate on it.
  - C. Uncertain
34. In a certain project you have to
- A. be finely attuned to human relationships.
  - B. act strictly logically, without considering the opinions of others.
  - C. Uncertain
35. A certain project requires that you
- A. continue using skills previously acquired.
  - B. frequently tackle new tasks and acquire new skills.
  - C. Uncertain
36. A certain task will proceed
- A. in orderly fashion.
  - B. easily and spontaneously.
  - C. Uncertain
37. You have to work in an office in which the colors of the walls, curtains and carpets are
- A. quiet and restful.
  - B. warm and bright.
  - C. Uncertain
38. After an unfortunate incident you have
- A. to investigate the causes thoroughly.
  - B. to render assistance to the victims.
  - C. Uncertain
39. You have to work with people who
- A. are fond of surprises.
  - B. know exactly what they want every day.
  - C. Uncertain
40. The person with whom you will have to work, makes his decisions
- A. impulsively.
  - B. after careful consideration.
  - C. I am uncertain.

41. You have to complete a task where you are expected
- A. to be cheerful every day.
  - B. to be serious at all times.
  - C. Uncertain
42. There are a considerable number of opposing opinions among employees and you have to try to
- A. soothe their feelings.
  - B. obtain positive suggestions.
  - C. Uncertain
43. You will achieve success in a project in which
- A. you do not need to deviate from the instructions.
  - B. you will often have to devise new plans.
  - C. Uncertain
44. A specific task
- A. must be completed with punctual accuracy.
  - B. is completed easily and spontaneously.
  - C. Uncertain
45. You have to work under conditions where
- A. you rarely will hear bits of news and gossip.
  - B. it is expected that you will always be informed of the latest news and even gossip.
  - C. Uncertain
46. It is a requirement for a task that you should
- A. fully understand all the particulars.
  - B. display a keen interest throughout in all the people with whom you work.
  - C. Uncertain
47. You frequently have to work with people who are very
- A. imaginative.
  - B. realistic.
  - C. Uncertain
48. You have to work with people who
- A. adapt themselves to circumstances daily.
  - B. always prepare themselves thoroughly for the work.
  - C. Uncertain

49. You have to work in an environment where other people
- A. will expect you to tell them what you are interested in.
  - B. will allow you quietly to go your own way.
  - C. Uncertain
50. You have to listen to people who like talking about
- A. their personal taste.
  - B. their work.
  - C. Uncertain
51. A task requires that you
- A. will proceed along well-tried ways.
  - B. often will have to find new alternatives.
  - C. Uncertain
52. You have to do a job in which
- A. everything goes smoothly every day.
  - B. the unexpected can occur every day.
  - C. Uncertain
53. You have
- A. sometimes to attend meetings where you are not required to mix socially with the others.
  - B. to attend a series of social functions where you will always be expected to be sociable.
  - C. Uncertain
54. In the interests of the work, you will have to read books dealing with
- A. scientific and technical progress.
  - B. human values and preferences.
  - C. Uncertain
55. You have to work with people who
- A. constantly say new, original things.
  - B. always say precisely what they mean.
  - C. Uncertain
56. In the work you have to
- A. take every day as it comes.
  - B. make regular provision for the future.
  - C. Uncertain

57. You have to accomplish a task where
- enthusiasm is required.
  - accuracy is required.
  - Uncertain
58. The work on a task
- requires other people's feelings to be constantly considered.
  - must be carried out purposefully and with determination.
  - Uncertain
59. Work on a particular project
- is accompanied by complete certainty.
  - requires a considerable amount of theorizing.
  - Uncertain
60. You have to do work in which
- everything goes according to the rules.
  - one must use one's own discretion.
  - Uncertain
61. You have
- to work for long periods on end with only a few well-known people.
  - to meet and work with new people virtually every day.
  - Uncertain
62. Success in a task requires
- a logical approach.
  - co-operation with other people.
  - Uncertain
63. It is necessary for you
- to be able to work creatively.
  - to be able to carry out the plans accurately.
  - Uncertain
64. A particular work requires that you
- have to talk with many people on a wide variety of topics.
  - consult only a few trusted colleagues.
  - Uncertain
65. You have to investigate a situation and
- determine what is really of lasting value.
  - make a logical analysis of it.
  - Uncertain
66. A task requires a study of
- facts.
  - theories.
  - Uncertain
67. You have
- to attend social functions, but to remain in the background.
  - to take the lead in social functions.
  - Uncertain
68. You
- sometimes have to reprimand others and even discharge them if necessary.
  - have to encourage and praise other people.
  - Uncertain
69. You have
- to work with ideas and abstract concepts.
  - to work with facts and concrete things.
  - Uncertain
70. You have to listen to a speaker and
- give a verbal reply to his arguments.
  - give a considered, written reply to his arguments.
  - Uncertain
71. You have to ensure that
- there is hearty co-operation in the office.
  - the activities are planned logically.
  - Uncertain
72. A particular task requires
- a practical approach.
  - initiative.
  - Uncertain

73. A particular task requires that you
- inform others of your views and feelings only occasionally when it is actually necessary.
  - frequently inform others of your views and feelings.
  - Uncertain
74. A matter is of such a nature that it
- requires scientific analysis.
  - requires your personal judgement.
  - Uncertain
75. It is expected of you
- to plan along new lines.
  - to adhere strictly to the instructions.
  - Uncertain
- END OF TEST