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**AN EXPLORATION OF NEW ZEALAND WORK VALUE ORIENTATIONS, GENDER,  
AND PERSONALITY TRAITS**

A thesis presented in partial fulfillment of the requirements for the degree of Master of Science in  
Psychology at Massey University, Manawatu, New Zealand

Chloe' M. Hamman

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## **Abstract**

The research objectives of this thesis were a) to explore gender differences in New Zealand work value orientations, and b) to explore the relationships between work value orientations and the Big Five personality traits. The purpose of these objectives was to identify if previous international findings on gender differences in work value orientations could be replicated in New Zealand (e.g., Elizur, 1994; Lips & Lawson, 2009; Weisgram et al., 2010) and to further clarify relationships between important behavioural and motivational influences (Parks & Guay, 2009). The thesis employed a correlational research design. The Values and Motives Inventory (VMI) was used as a measure of work values orientations. A respondent group of 1311 individuals had completed this assessment as part of selection and/or assessment purposes. Of these participants, 459 had also completed the Fifteen Factor Questionnaire Plus (15FQ+) as a measure of the Big Five personality traits. Findings suggested that females scored significantly higher than males on work values endorsing benevolence and supportive relationships with others. Conversely, males appeared to be more financially driven. These gender differences in work values orientations are discussed in terms of their implications for gendered roles and work interests in New Zealand. Findings suggested that the strongest work value-trait relationships occur between Affiliation and Extraversion, Affection and Extraversion, and Aesthetics and Openness. These, and other significant value-trait relationships, are discussed in terms of their implications for goal orientated behaviour, motivation, vocational choice, and the practice of assessment testing in New Zealand.

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## Chapter 1: Introduction

“Work satisfactions and life satisfactions depend upon the extent to which the individual finds adequate outlets for his [her] abilities, interests, personality traits and values”

(Super, 1953, p. 190)

To say that a person endorses a value is to say that they have “an enduring belief that a specific mode of conduct or end state of existence is personally and socially preferable to alternative modes of conduct or end states of existence” (Rokeach, 1973, p.5). This is just one conceptualisation of a value orientation. The literature is fraught with varying definitions of the construct. Adding to the confusion is the use of the term *value* in place of *value orientation*. In the correct sense, a person does not “have a value”; they instead have an orientation or endorsement towards a value. Take the value *peace* for example. To have the value *peace* suggests some form of acquisition or ownership of peace. Instead of having peace, an individual has an orientation towards or endorses peace. Despite this distinction, the majority of the literature almost always refers to a value when what is meant is a value orientation. In this way the terms “values” and “work values” have become shorthand for “value orientations” and “work value orientations” respectively. For brevity and consistency with previous literature, where this paper refers to values and work values it is in reference to value orientations and work value orientations respectively.

Schwartz and Bilsky (1997), despite variations in conceptualisations, did identify five common features to most value definitions in the literature. Values are defined as: (a) concepts or beliefs, (b) about desirable end states or behaviours, (c) that transcend specific situations, (d) guide selection or evaluation of behaviour and events, and (e) are ordered by relative importance.

Work values are assumed to derive from these general values (Roe & Ester, 1999). In this way, work values can be characterised as criterion for selecting goals or directing action that are relatively stable over time, and relate to work or the work environment (Berings, De Fruyt, & Bouwen, 2004). One way work values can be categorised is according to the following three criteria: *extrinsic*, or work values that have a direct concrete or practical consequence; *intrinsic*, or

work values that relate to opinions, beliefs, and considerations; and *social*, or work values that refer to interpersonal relationships (Sagie, Elizur, & Koslowsky, 1996). Although there is not always agreement in the literature regarding exactly how to define values and work values, there is general consensus that they are important motivators of behaviour (Hitlin & Piliavin, 2004). Work values in particular are said to play a central role in work-related processes and outcomes, including job satisfaction, motivation, organisational commitment, and vocational choice (Knafo & Sagiv, 2004; Meglino, Ravlin, & Adkins, 1989; Roe & Ester, 1999). Overall, increasing our understanding of work values can allow us to focus on the more enduring aspects of an individual's general orientation towards employment rather than on their reaction to specific jobs or occupations (Cook, Hepworth, Wall, & Warr, 1981).

Work values, like general values, are theorised to be a consequence of both social and culture influences and individual level characteristics (Gahan & Abeysekera, 2009). Much of the research on work values involves identifying patterns of value orientations held by members of different social or demographic groups (e.g., Gursoy, Maier, & Chi, 2008; Li, Liu, & Wan, 2008; Schwartz & Rubel, 2005). Gender in particular appears to be an important demographic in work values research (e.g., Beutel & Marini, 1995; Elizur, 1994; Feather, 1987; Weisgram, Bigler, & Liben, 2010). One possible reason is that understanding gender differences in work value orientations may increase our understanding of differences in other life areas. Consider the antecedents of values. The values people endorse are said to be shaped by socialisation, unique life experiences, and surrounding culture (Rokeach, 1973). Gender differences in work values may reflect gender differences in the experience of these factors. Work values are also likely to have a significant impact on vocational choice (Huntley & Davis, 1983; Knafo & Sagiv, 2004; Weisgram et al., 2010). As such, gender differences in experiences associated with work values could provide some basis to understanding any gendered roles that may exist in the work place. But despite extensive research, psychologists stay divided as to whether or not males and females invariably differ in their work value orientations (Gahan & Abeysekera, 2009). Some research has found significant gender differences (e.g., Daehlen, 2007; Elizur, 1994; Lips & Lawson, 2009; Rottinghaus & Zytowski, 2006; Weisgram et al., 2010); whereas others have shown that

men and women endorse similar values (e.g., Frieze, Olson, Murrell, & Selvan, 2006; Robinson & Betz, 2008; Sverko & Super, 1995). The current study attempts to clarify any such gender differences and similarities in a New Zealand respondent group.

There appears to be a substantial body of research exploring social, cultural, and demographic influences as factors shaping an individual's work values. However, much less attention has been given to individual differences that may influence work values (Gahan & Abeysekera, 2009). Personality traits fall into this category. Personality is commonly defined as enduring dispositions that cause characteristic patterns of interaction with one's environment (Goldberg, 1993; Olver & Mooradian, 2003). The "Big Five" is currently the dominant approach for representing the human personality trait structure (Goldberg et al., 2006; Roccas, Sagiv, Schwartz, & Knafo, 2002). This model asserts that five basic factors can describe most personality traits: *Neuroticism*, *Openness*, *Extraversion*, *Agreeableness*, and *Conscientiousness*. Like work values, researchers have shown that the Big Five personality traits relate to a range of job outcomes, including job performance, counterproductive behaviour, and turnover (Barrick & Mount, 1991; Barrick, Mount, & Judge, 2001; Jenkins, 1993; Ones, Dilchert, Viswesvaran, & Judge, 2007).

Despite both work value orientations and personality traits appearing to be strongly related to a range of important work outcomes, they have rarely been investigated together (Berings et al., 2004). The direct links between work values and personality traits are even less frequently explored (Zhang, Wang, Yang, & Teng, 2007). There are a number of reasons why it is important to identify the relationships between work values and personality traits. Firstly, these relationships can provide some insight into the individual differences that may contribute to the development of work value orientations. This insight could further our understanding of work place motivators and particular vocational choices. Secondly, personality traits and work values are both said to impact goal orientated behaviour. Parks and Guay's (2009) theory of *goal content* and *goal striving* behaviour suggests that values may in part determine the goals individuals choose to pursue (goal content); whereas personality traits may be more closely related to the amount of effort and persistence that individuals exert in their goals pursuits (goal

striving). In this way, any predictable relationships between values and traits may indicate something about the manner in which an individual demonstrates their values. An additional outcome of exploring these relationships may be to provide further construct clarity for both work values and personality traits. In practice, values and traits are often either explored independently, or used in substitution (Ackerman & Beier, 2003). A greater awareness of how they are related, as well how they are unique, could promote a more holistic understanding of individual dispositions, vocational behaviour, and how best to use values and personality measures in psychometric assessment practice. The current study attempts to clarify which personality traits are related to work values and how or why they are related. Super (1953) suggested that “work satisfaction and life satisfaction depend upon the extent to which the individual finds adequate outlets for his abilities, interests, personality traits, and values” (p.190). The interplay among these constructs is therefore crucial to explain these important work outcomes.

The current study has two key objectives: 1) to explore gender differences and similarities in the endorsement of work value orientations amongst a New Zealand respondent group, and 2) to explore relationships between work value orientations and the Big Five personality traits within a New Zealand respondent group. There are a number of ways in which this study is unique and addresses some limitations identified in previous research. Firstly, much of the research on values and work values has relied on student respondent groups. Research has shown that different results can arise in different respondent groups (Schwartz & Rubel, 2005). In particular, gender differences in value orientations may be less pronounced in homogenous samples than in heterogeneous samples (Feather, 1987). For this reason, previous studies using students may not be accurately indicative of phenomenon for a general working population. Secondly, the majority of research in the area of work values has been conducted overseas. The question here is the extent to which such findings can be generalised to the New Zealand workforce. Gibson and Schwartz (1998) warned that it is hazardous to generalise from country to country. After investigating a large portion of cross-cultural research on value orientations, Gibson and Schwartz revealed that the magnitude of differences found varied greatly across

countries. Suggesting that particular cultural conditions may predicate which values are given priority over others. Furthermore, Sagie and Elizur (2001) concluded through cross-cultural research that work values, like general values, are culturally bound.

The current study seeks to overcome these limitations by exploring work value orientations in a heterogeneous respondent group obtained from the population for which the results are intended: the New Zealand workforce. The study reported here uses archival data obtained from a professional consultancy practice in New Zealand. Respondents in this group had completed the work values and personality trait questionnaires for selection and/or assessment purposes. The composition of this group, the data and measures used, and the statistical procedures employed are described in the method chapter. The results chapter summarises the outcomes of analyses undertaken to explore gender differences in work values and the relationships between work values and personality traits. Finally, the discussion addresses the findings identified in the results chapter in more detail. Gender differences and similarities are first discussed in terms of their implications for gendered roles and work interests in New Zealand. Secondly, the findings on work value-trait links are discussed in terms of their implications for goal orientated behaviour, motivation, vocational choice, and the practice of assessment testing in New Zealand. To my knowledge the current study is the first exploration of work value orientations, personality traits, and gender using a New Zealand workforce respondent group.



## Chapter 2: Literature Review

This chapter provides an overview of the literature on the concept of value and work value orientations. The purpose is to provide a clear understanding of what value orientations are and how they can be differentiated from other related concepts, such as attitudes, norms, and needs. This review also explores the antecedents of work values and the research addressing gender differences in work values. Finally, this review provides an outline on the concept of personality traits and addresses some of the research exploring the relationships between work values and personality traits.

### Value Orientations

The explicit consideration of values can be traced back to ancient Greek philosophers, in particular Socrates, Plato, and Aristotle (C. Kluckhohn, 1951). These philosophers tended to conceptualise values according to universal ideals of behaviour known as virtues. For Aristotle, virtues reflected the “golden mean” between a behavioural deficiency or excess (Aristotle, trans. 1986). For example, the virtue of courage is the mean between cowardice and carelessness. For Plato the acquisition of “correct beliefs” formed the cornerstone of virtuous behaviour (Plato, trans. 1999). Further philosophical inquiry into values, or *Wertphilosophie*, is evident in the work of German axiological philosophers such as Heinrich Rickert (1899; as cited in Klüver, 1925) and Wilhelm Windelband (1919; as cited in Klüver, 1925). An heir to these schools of thought was Eduard Spranger, another German philosopher. Spranger (1928) suggested that six basic types of individuality were present in everyone in different proportions, with one dominating. Spranger’s depictions of the six value types focus on ideals, and correspond to a prescriptive ethical system. More specifically, Spranger’s six ideal types of individuality are: the theoretical, economic, aesthetic, social, power, and religious [man]. It was from such philosophical origins that modern theories of value orientations can trace their roots. Here it is important to draw a distinction between theories addressing the abstract philosophical notion of value and those addressing an individual’s value orientation. The move from conscious prescription (a value) to diagnostic and descriptive exploration (a value orientation) appears to be the biggest difference between these

origins and more modern theories of value orientations. The next section will explore the construct of value orientations. Recall that the term values will be used as shorthand for value orientations.

### **Value orientation theory.**

In *The Foundations of Character* psychologist Alexander Shand (1914) proposed a theory of human character where differences in people's organisation of sentiments (a concept very similar to values) resulted in differences in attitudes and behaviour. Empirical research into values, however, began with the Allport, Vernon, and Lindzey study (1931). Inspired by Eduard Spranger's work, Gordon Allport (1931) began a conversion of previous philosophical and axiological models into descriptive, fact-seeking psychological research. Believing you can understand an individual's motives by understating their value systems, Allport and his colleagues developed a values measure using classifications borrowed from Spranger's *Types of Men* (1928). The *Study of Values* placed Allport as a pioneer in the field of value orientation research (Rohan, 2000). Another prominent value theory was proposed by Clyde Kluckhohn. C. Kluckhohn (1958) maintained that "each way of life is a pattern – not a mere haphazard collection of customs" (p. 469). This pattern primarily depends on the underlying system of values. We all have habitual ways of thinking, yet, what we choose to do, and refrain from doing, is influenced by what we think is the proper way to behave or end way to be. C. Kluckhohn is renowned for his work on value orientations. A value orientation reflects a person's basic approach to life and forms the foundation that motivates behaviour across many areas (Chapman, 1981). C. Kluckhohn saw understanding differences in these value orientations as the key to understanding different cultures and societies (1962). He proposed a methodological approach to studying value orientations, called the *Values Orientation Method* (C. Kluckhohn, 1958). In later years, this method was further developed by his wife, Florence Kluckhohn, and her colleagues and students (F. Kluckhohn & Strodtbeck, 1961).

C. Kluckhohn's theory of value orientation was a very different approach to values than that taken by the ancient Greeks. However, Rokeach (1973) still criticised its broad philosophical orientation and inclusion of beliefs about the way the world *should* operate. Rokeach instead

proposed that values are more specific. He defined a value as “an enduring belief that a specific mode of conduct or end state of existence is personally and socially preferable to alternative modes of conduct or end states of existence” (p. 3). Within this definition Rokeach emphasises that a useful conception of human values needs to account for their enduring quality, as well as for the possibility of long term change. The changing nature of values is addressed in more detail further on.

Rokeach’s (1973) definition refers to values as beliefs. In particular, prescriptive beliefs that are linked to preferences. Herein, values are stated to contain *cognitive*, *affective*, and *behavioural* components. The cognitive part of values is where an individual intellectually knows the correct way they want to behave or the end state to reach. Here a parallel can be drawn with C. Kluckhohn’s (1962) definition of values, which refers to this cognitive part as a “conception of the desirable” (p.125). A value is affective in the sense that an individual can feel emotional about their values. They can feel positively towards those who act in line with their values and they can also feel negatively towards those who act against them. Rokeach suggests that values have a behavioural component in that, when activated, values can be an intervening variable leading to action.

Perhaps the most noteworthy component of Rokeach’s (1973) definition of values is his reference to a *specific mode of conduct or end state of existence*. Here he distinguishes between two types of values: *instrumental* and *terminal*. Rokeach theorized that 36 distinct values can be held by human beings. He divided these into instrumental values and terminal values. Instrumental values relate to desired modes of conduct or ways of behaving. Examples of instrumental values include: being polite, loving, and clean. Terminal values relate to desired end-states. Examples of terminal values include: peace, happiness, wisdom, and true friendship. Such values were thought to be observable across most situations. Rokeach’s model of instrumental and terminal values is perhaps the most influential and well-known conceptual model of values (Allen, 1994). On this basis, it is not surprising that Rokeach remains one of the most widely referenced value theorists in the literature today (e.g., Hitlin & Piliavin, 2004; Parks

& Guay, 2009; Rohan, 2000). Another important figure in modern value theories is Shalom Schwartz.

The early work of Schwartz and his colleagues (1987) appears inspired by Rokeach's (1973) theory of values. However, after finding little support for Rokeach's instrumental and terminal dichotomy Schwartz (1992; 1994) developed his own theory of values. Schwartz (1992) distinguished values according to the motivational-goal they represent. He also provided a more detailed definition of values, referring to them as "desirable states, objects, goals, or behaviours, transcending specific situations and applied as normative standards to judge and to choose among alternative modes of behaviour" (p.2). Schwartz proposed that there are compatibilities and conflicts between values. For this reason he saw a ratings-based approach to measurement as more appropriate than the ranking system developed by Rokeach (1973). Other prominent value theories have included those of Super (1980) and Hofstede (1980). Super (1980) defined a value as "an objective, either a psychological state, a relationship, or material condition, that one seeks to attain" (p.130). Hofstede (1984) in his cross-cultural research approached values more as broad tendencies to prefer certain states of affairs over others.

The preceding conceptualisations of values appear to share some commonality. However, the variety of theorists presenting their own definition of values makes the delineation of this construct problematic. According to Rohan (2000) the literature is inundated with varying definitions, signifying elemental confusion over the concept of values. Values are often mistaken for a multitude of other orientations, including attitudes, traits, pleasures, duties, desires, moral obligations, and aversions (Hitlin & Piliavin, 2004). In order to accurately define what values *are*, I will first define what they *are not*.

Values are not *attitudes*. Attitudes are people's beliefs about specific objects or situations (Roe & Ester, 1999). They take the form of unfavourable or favourable evaluations of objects or situations, which are based on the organisation of a collection of beliefs (Rokeach, 1973). A value, on the other hand, is "a single belief of a very specific kind" that sets a standard (Rokeach, 1973, p.18). Values are abstract and based on ideals, whereas attitudes are particular and applied to more concrete situations (Rohan, 2000). Values and attitudes also show different flexibility

over an individual's life course. Attitudes tend to change easily from one situation to the next; values are more durable. The number of values a person has depends on the number of learned beliefs they have about desirable ways of behaving and end-states (Rokeach, 1973). Conversely, the number of attitudes a person has is related to the number of encounters they have with specific objects or situations. As such, it is expected that while values exist only in the dozens, attitudes could be in the thousands.

Values are also not *norms*. Both norms and values are evaluative, general, and durable (Hitlin & Piliavin, 2004). Yet norms refer only to behaviour, whereas values refer to modes of behaviour as well as end-states of existence. Norms provide a social prescription for behaviour that is appropriate in specific situations. For example, do not wear your pyjamas out in public. Values are not only more general, but a large component of values is also the desire to do or to achieve something that is in line with a personal, not necessarily social, ideal.

*Needs* are often regarded as more or less equivalent to values. For example, Maslow (1943) contests that self-actualisation is both a need and a higher-order value. Rokeach (1973) proposed that in some cases values are cognitive representations of an individual's needs. In line with this, values may serve as a socially acceptable way of verbalising biological needs. For example, a need to procreate may be socially reconstituted as a value for love. The structure of values is also similar to the structure of needs. Values are not held equally. Certain values are said to be more important than others and will play a more significant role in a person's behaviour than those of less priority. Maslow's (1943) hierarchy of needs presents a similar concept. According to Maslow, needs at the bottom of the hierarchy (e.g., safety and shelter) are addressed first. Only once these lower-order needs are met do higher needs (e.g., self-actualisation) become the focus. However, one difference between values and needs is that values reflect the desires of society, culture, and institutions. Furthermore, people have greater freedom to choose one value over another based on their own preferences, as well as their conceptions of what is a desired end-state or mode of behaviour (Rokeach, 1973). According to Rokeach (1973) these conceptions are in part determined by social influences. For example, asking a person to select between two

mutually exclusive modes of behaviour, such as responsible and irresponsible behaviour. It is evident that one of the two is distinctly more preferable from a personal and social perspective.

*Traits* are also frequently confused with values. This uncertainty occurs more in the sense of behaviour, where value-based behaviour is mistaken for trait-based behaviour. However, the two are not considered interchangeable. Rokeach (1973) emphasised that value-based behaviour implicates more cognitive control than trait-based. For example, a person may be aggressive (a trait), however, this does not mean that they will necessarily value aggression. This interesting relationship between values and traits is one of the main focuses of the current investigation. As it is covered in more detail further on, for now it is important just to highlight that it is the evaluative component of values that sets them apart from traits. Values, less so than traits, serve as standards for judging others' (and one's own) behaviour (Bilsky & Schwartz, 1994). For example, if an individual values altruism they may evaluate the act of donating to charity as admirable. In this way values serve as references for judging behaviour as legitimate (Hitlin & Piliavin, 2004).

The complex nature of the value construct is illustrated through the preceding comparisons with the related orientations, including attitudes, norms, needs, and traits. While it appears difficult to provide one shared definition of values, it may be recalled that Schwartz (1994) summarised five features common to most definitions. To reiterate, values are: (a) concepts or beliefs, (b) about desirable end states or behaviours, (c) that transcend specific situations, (d) guide selection or evaluation of behaviour and events, and (e) are ordered by relative importance. The present thesis conceptualises values in line with these five features. The next section will explore the origin of values.

### **The origin of value orientations.**

The origin of an individual's value orientation has caused much debate amongst theorists, with each presenting a varying perspective on the source of values (Hetcher, Nadel, & Michod, 1993). A review of the literature indicates that three prominent views exist: biological, cognitive, and social. Each of these perspectives will be briefly explored in subsequent paragraphs.

The biological perspective on values focuses upon their role in evolutionary adaptation. Michod (1993) suggests that values came about due to their fitness enhancing properties and positive effect on survival. According to this view the adaptive significance of values may be that due to their general, rather than specific nature, they allowed for flexibility in coping with changing circumstances and variable environments. Take for example the value “to act in such a way as to benefit your kin”. This value may have increased survival in group living situations by ensuring that family groups on the move supported each other in each new environment. This generality of values has close parallels with other evolutionary explanations for a number of other human characteristics. One example is Kanazawa’s (2004, 2008) conceptualisation of general intelligence as a disposition towards thought and reasoning that evolved to solve the novel problems encountered across a variety of situations.

Michod (1993) also explains how the tendency towards values may have initially come about. According to Michod, values developed due to what he calls a *decoupling* of sensory information from behaviour. This decoupling prevented an instinctual reaction to situations; allowing instead for the capacity to evaluate outcomes. Evidence for a neurological circuit where action is separate from circumstance provides an explanation for how some values (e.g., aesthetics) appear to have little, if any, fitness increasing properties; “like the sensory capacity that causes the moth to fly into the light, the capacity to modify behaviour according to values may not always serve our biological fitness” (Michod, 1993, p. 270). Michod’s biological perspective on the origin of values suggests that values are the result of survival tactics, and values which appear to offer little in the way of biological fitness are merely the result of a malfunction in the neurological circuit. An alternative to this “malfunction” view would be to consider values as *exaptations*. Exaptations are behaviours, or characteristics, with origins not directly ascribable to natural selection that are co-opted for their current or new use (Gould, 1991).

A number of cognitive explanations for the origins of values have also been offered. According to Schwartz (1996), values are cognitive representations of three universal requirements: biological needs, social interactional requirements for interpersonal coordination, and social institutional demands for group welfare and survival. Through cognitive development

people learn to present these needs as values. Schwartz's theory does well to explain why certain values might exist and also takes into account biological perspectives. However, this theory does not provide an explanation for how or why values might change or differ across individuals within groups. Learning theory has also been used to explain the development of values (Hill, 1960). Herein, values are assumed to develop exclusively from objective rewards, or reinforcements (the internal mechanism of reward). This process is comparable to *operant conditioning*; whereby rewards or punishment lead respectively to the persistence or discontinuation of behaviours (Skinner, 1974). In the context of values, the environment serves as the key source of rewarding resources (Hetcher, 1993). The theory of reinforcement/reward for the genesis of values can be applied across a multitude of situations and it does account for how values may differ across groups. However, social learning theory does not take into account that environmentally determined values may be inconsistent and that some values may be maintained even in opposition to strong environmental rewards or punishments (Mandler, 1993).

According to social theorists, purely biological or cognitive explanations for the origin of values are insufficient, as values are, for the most part, the product of social conditions (Joas, 2000). People are driven "not just to live, but to live well" (Edel, 1978, p. 95). C. Kluckhohn (1958) wrote that human beings, like other animals, try to survive in the struggle for existence. Human beings, however, complicate matters by having ideas and preferences that are not necessarily deemed beneficial to survival. According to C. Kluckhohn (1958), people are not pushed by only biological and cognitive drivers, but are also pulled by conceptions of the right, the good, and the desirable. These conceptions are strongly influenced by social and cultural experiences, leaving biological pressure as only indirectly significant to values. Triandis (1979) further suggests that values are primarily formed through socialisation; both directly and indirectly. The research of Roberts and Bengston (1999) suggests that families are an important context for value socialisation. In particular, Gecas and Seff (1990) showed that childrearing practices are an important mechanism for the transmission of values. Parents' values may also strongly influence those of their children (Taris & Semin, 1997).



Each of the preceding perspectives makes a unique contribution to explaining the genesis of values. Nonetheless an exclusively biological, cognitive, or social perspective is insufficient to explain the complex, dynamic nature of this construct. Values are instead likely to develop from a combination of biological and social influences, as well as individual differences and cognitive experiences (Hetcher, 1993). Mandler (1993) provides a theory that encompasses all of these factors. Mandler argues that values have three separate sources: biological determined sources, and two different experiential sources; social and structural. Biological sources, such as innate approach and avoidance tendencies (e.g., clinging to supportive objects, sex drive, liking sweet tastes), may form the base of many human values. However, these innate tendencies, similar to what Schwartz (1992) refers to as *biological drivers*, in themselves do not account for a large proportion of our values. What may be more accountable for the wide array of values people possess are social and structural influences (Mandler, 1993). Firstly, social influences determine the content of values. Living in a particular place and time determines what can be known and, therefore, what can be valued. In this way, the social context determines how objects and situations are represented and perceived. These social influences present a possible explanation for the “oughtness” of values. According to Mandler (1993) “oughtness” is not necessarily a component of all values. Nevertheless, “oughtness” does seem to be an attribute of values that concern morality. Rokeach (1973) further suggested that the “oughtness” of values originates within society. Secondly, structural influences determine the dynamics of values. These are the cognitive processes that verify the generation and persistence of values. Mandler (1993) explains how these cognitive processes operate according to *schemas*. Schemas are abstract representations of things we have experienced with some level of regularity. They develop through experience and change as new experiences are either congruent or incongruent with previous schemas laid down. Tomkins (1979) script theory is consistent with the notion of schemas. Tomkins suggests that from the early weeks of life people store “scenes” containing an affect and at least one object of that affect. These “scenes” are grouped into scripts, or schemas, which are then used to link together and make sense of future scenes encountered. People are motivated to engage in situations that are similar to other situations that have resulted in positive

affect, or minimised negative affect (Rohan, 2000). In adulthood schemas become powerful organisers of our expectations, beliefs, opinions, and behaviour (Mandler, 1993). In this way, schemas can account for whether values will either persist or change on the basis of patterning, consistency, and discrepancy. The next section will examine the malleability and influence of values.

### **The malleability and influence of value orientations.**

Mandler's (1993) theory on the origin of values makes it possible to explain how individual differences may bring about different values and how values may change over time.

Unfortunately, only a few studies have directly explored values change. The work of Rokeach and Ball-Rokeach (1989) is one exception. These researches offer compelling evidence for value change in their research carried out in the United States of America. In one of their studies, a method of self-confrontation was employed to examine value change. Individuals were made aware of their particular values and were also advised on how their value systems compared to different reference groups. When individuals were given information on how their value system places them with respect to negative and positive reference groups, those who found their values divergent from a positive group, or closer to a negative group, were more likely to change their values accordingly. Rokeach (1975) also showed that computer feedback to participants caused significant changes in value ranking two months on. More specifically, significant changes were evident in the ranking of *Achievement*, *Peace*, and *Egalitarian* values. Rokeach suggested that any feedback mechanism that successfully arouses an "identifiable state of self-dissatisfaction" (p.475) can lead to lasting value change; be it face-to-face, computer, or television broadcasting. A similar study by Bernard, Maio, and Olsen (2003) looked at the influence of introspection on value stability and change. These authors further confirmed the importance of making values salient in order to induce changes in their dynamics.

The research on values appears to predominantly focus on how values may influence behaviour rather than on value change. General values have been shown to significantly relate to a range of orientations, including political views (Feather, 1979; Rokeach, 1973), religiosity (Maio, Olsen, Bernard, & Luke, 2003; Rokeach, 1973), and social attitudes towards issues such as

privacy (Tetlock, 1986). Sagiv and Schwartz (1995) also found that values systematically related cooperative behaviour with readiness for contact with out-group members. Furthermore, values have been shown to link to occupational choice (Huntley & Davis, 1983), to consumer purchasing behaviour (Kahle, 1996), and even to drug use and addiction (Liu & Kaplan, 2001; Toler, 1975). Barth (1993) went so far as to say that values are crucial and fundamental components in shaping all determined human behaviour.

Hitlin and Piliavin (2004) warn not to consider values in an “overdetermined” way as causing observed behaviour. In reality, values are not the sole motivators behind behaviour. Instead values may act in concert with other motives, including attitudes, social pressures, and consumerism. Bardi and Schwartz (2003) further noted that the relationship between values and behaviour is often qualified by situational influences. Normative pressures, for instance, can lead people to contradict their own values in their behaviour. However, the general consensus among researchers appears to be that values do not directly impact behaviour, but indirectly through factors such as attitudes and goals (Roe & Ester, 1999). The next section will explore value orientations within a workplace context.

### **Work Value Orientations**

C. Kluckhohn’s (1958) early work on value orientations proposed that knowledge of individual value orientations could be useful for research in career counselling, job placement, and vocational success. This idea that particular value orientation patterns may impact on vocational life is one of the first references to what have come to be known as work values (Chapman, 1981).

The relationship between general values and work values has been proposed in the literature in a number of different ways. Elizur, Sagie, and Koslowsky (1996) summarise two key approaches that have emerged. The first approach suggests that work and general values are separate orientations; but that all values have a particular cognitive structure which produces structural similarities between the two. Another approach suggests that work values emerge from the projection of general values onto specific life domains. One of the pioneers of work values

research is Donald Super. Super (1973) wrote that for many people work is seen as a way of finding a life role and as a means to implement one's self-concept. Work values are the part of an individual's values that work can satisfy. In support of Super's (1973) theory, Ros, Schwartz, and Surkiss (1999b) refer to work values as specific expressions of general values in the work setting. Work values, like general values, can pertain to desirable end-states (e.g., high pay) or behaviour (e.g., working closely with people). Work values also have a level of "oughtness" that reflects their sensitivity to social influences (Super, 1973). In line with this description, Meglino and Ravlin (1998) depict work values as being various socially desirable modes of work behaviour, which ought to be displayed. Recognising this "oughtness" aspect of work values allows for the inclusion of morally focused work values, such as altruism and traditional values. This inclusion is important as Meglino and Ravlin (1998) identify moral obligations as a necessary component of work values.

Ros et al. (1999b) also grounded their theory of work values in the broader theory of general values. Their research suggests that work values are specifications of general values and that people believe that work is compatible with the pursuit of all types of values. Many researchers now accept this view and assume that work values derive from general values (Roe & Ester, 1999). In line with this assumption, the current investigation selected the definition of work values proposed by Berings, De Fruyt, and Bouwen (2004). These authors define work values as "standards or criteria for choosing goals or guiding action relating to work or the work environment" (p. 351).

#### **Work value orientation classifications.**

Numerous approaches to classifying work values exist. As previously mentioned, one of most widely used classifications distinguishes between *intrinsic* and *extrinsic* work values (Elizur & Sagie, 1999). Yet, researchers working within different paradigms have used differing definitions of these two dimensions. For instance, according to Gahan and Abeysekera (2009) intrinsic values are rewards that derive from the job itself (e.g., competence, achievement) and extrinsic work values refer to the outcomes of job that purely yield material benefits (e.g., pay, promotion, comfortable conditions). This is a definition consistent with the vernacular usage of these terms

within the context of workplace motivation (Pink, 2009). The viewpoint of Vansteenkiste et al. (2007), however, classifies an intrinsic work values orientation as reflecting an employee's natural desire to "actualise" and develop through work, to build meaningful relationships, and to help people in need. An extrinsic work value orientation concerns an employee's pursuit of traditional success by advancing up the organisational hierarchy in order to achieve prestige, status, and high income. Gahan and Abeysekera's (2009) definition links intrinsic and extrinsic work values to relatively tangible outcomes (e.g., pay, promotion, achievement). On the other hand, Vansteenkiste et al.'s (2007) definition presents a more conceptual, or abstract, approach to identifying intrinsic and extrinsic work values (e.g., self-actualisation, pursuing prestige). These differences in classifications have led to disagreement over what intrinsic and extrinsic work values really are. Furthermore, the adequacy of the extrinsic-intrinsic dichotomy has also been criticised (Elizur, 1984). This has led to other models for classification (see Dose, 1997; Elizur & Sagie, 1999) and to further distinctions being added, including altruistic values (Borg, 1999) and status-related values (Ros, Schwartz, & Surkiss, 1999a).

Ros et al. (1999a) suggest that despite a plethora of labels and categories, most work value researchers do appear to identify three types of work values representing a common theme: 1) intrinsic or self-actualisation values, 2) extrinsic or security or material values, and 3) social or relational values. Elizur and colleagues (1984; 1991) proposed a similar trichotomous categorisation of work values based on the modality of their outcomes: Instrumental outcomes, such as benefits; cognitive outcomes, such as work interest and independence; and affective outcomes, such as helping others and relations with associates. The current study uses three categories of work values conceptually consistent with these three themes. The first category is *extrinsic* values, or work values that have a direct concrete or practical consequence (e.g., *Financial, Security*). The second category is *intrinsic* values, or work values that relate to opinions, beliefs, and considerations (e.g., *Moral, Ethical*). *Social* values are the third category and refer to interpersonal relationships (e.g., *Affection, Affiliation*). The following section explores the genesis of work values.

### **The origins of work value orientations.**

Work values, like general values, are theorised to be a consequence of social and cultural influences and individual level characteristics (Gahan & Abeysekera, 2009). A study exploring the work values of reared-apart twins supports this theory (Keller, Bouchard, Arvey, & Segal, 1992). Keller et al. showed that on average 40% of the variance measured in work values was related to genetic factors, and approximately 60% to environmental factors. These findings support the premise that work values are the result of multiple influences.

The role of social learning in the development, maintenance, and change of work values has been investigated. Work values are thought, to some extent, to be learnt from parents, teachers, peers, and significant others (Krau, 1989). They are thought to then be modified on the basis of experience. While work values may be relatively stable when compared to constructs such as interests and attitudes, work values are likely to change over time to be consistent with social norms, standards, and pressures (Huang & Healy, 1997). The relative importance of work values may also change over time and across situations due to external stimuli and day-to-day events (Sagie et al., 1996). Cultural factors may also be key determinants of individuals' work values. A recent study showed that national culture could significantly predict intrinsic work values in a group of Australian students (Gahan & Abeysekera, 2009).

Studies exploring generational differences in work values have provided further evidence for the idea that values change over time in response to social influences. When exploring work values in China since its political and social reform, Li, Liu, and Wan (2008) found a significant correlation between employees' work values and age. They also concluded that societal change plays an important role in the reform of work values. Another study by Gursoy, Maier, and Chi (2008) found significant generational differences in world views and perspectives on work amongst a group of hospitality employees and managers. Using a series of in-depth focus groups, these authors found that *Baby Boomers* valued authority and hierarchy, whereas *Generation X-ers* rebelled against authority. Going against their expectations, Gursoy, Maier, and Chi also found that *Millennial* generation participants held collectively focused values and a trust in authority. Smola and Sutton (2002) carried out a study comparing the work values of a 2002 sample with a

sample from a similar study in 1974. Significant generational differences were found. In particular these authors noticed a decrease in loyalty values and an increase in valuing self-worth in relation to one's job. As a result of finding these generational differences in work values, Smola and Sutton concluded that work values change over time in response to life events and social norms. An alternative viewpoint suggests that generational differences in values can be explained in terms of a standard life cycle (Elizur et al., 1991). According to this view, work values may change in a predictable manner purely as a function of age. This theory deserves further exploration in work value research. For now, there is general agreement that work values can change over time in response to broad social movements and historical events (Hitlin & Piliavin, 2004).

Other demographics, such as gender, education, and socio-economic status have been explored in relation to variation and change in work values. For example, Cherrington, Conde, and Lynn (1989) found that age, education, and seniority correlated with a number of work values including moral values and pride in craftsmanship. Li, Lui, and Wan (2008) also showed that age, education, job position, and gender were important antecedents of work values.

#### **Gender and work value orientations.**

Gender may be the most commonly studied demographic variable in work values research (Sagie et al., 1996). Yet, despite its popularity, psychologists remain divided regarding the influence of gender on work value orientations (Gahan & Abeysekera, 2009). In terms of the structure of values, the research suggests that males and females conceptualise values in the same way. In two separate studies, males and females were shown to have comparable values structures (Elizur, 1994; Schwartz & Rubel, 2005). These findings indicate that males and females are likely to assign similar meanings to values. As such, any gender differences or similarities found in work values are unlikely to be a manifestation of differences in understanding.

Research supporting the existence of stable gender differences in general values indicates that females are for the most part more "communal" and likely to hold expressive and people-orientated values (Schwartz & Rubel, 2005). Males on the other hand appear more "agentic" and likely to hold instrumental and individualistic values. Schwartz and Rubel (2005) referred to

these differences as *self-transcendence* values (e.g., universalism, benevolence) versus *self-enhancement* values (e.g., power, achievement). Beutel and Marini (1995) also concluded that females are more likely than males to express concern and responsibility for others, whereas males are more likely to endorse materialism and competition. Similar results have been found in studies addressing gender differences in work values. In four separate studies, females rated co-workers, helping others, interaction and contact with people, and security and family work values as more important than males did. Males, on the other hand, rated independence, influence, status, income, and power work values as more important than their female counterparts (Daehlen, 2007; R. Duffy & Sedlacek, 2007; Elizur, 1994; Lips & Lawson, 2009; Weisgram et al., 2010).

Theories of stable gender differences have been criticised heavily, however (Hyde & Plant, 1995). At a conceptual level, they have been faulted for showing insufficient regard to “socio-political inequalities between men and women and promoting a false and an ahistorical notion of women” (Gibson & Schwartz, 1998, p. 52). Other research has failed to replicate significant gender differences in values. Robinson and Betz (2008) found similar gender patterns across values. Sverko and Super (1995) conducted research exploring what values are ranked as most important across 11 national samples. They found that value rankings for men and women were virtually identical. Frieze, Olson, Murrell, and Selvan (2006) suggested that gender differences may also be apparent only in early years. Their research showed that men and women already working in their careers are actually quite similar in work values relating to working with people, opportunity to help others, and earning potential. Gibson and Schwartz (1998) tested several hypotheses regarding unstable and stable differences in gender work value priorities among 480 males and 519 females in Israel. The results revealed significant differences in values according to age, education, and ethnicity; however, no significant differences were found for gender. As an interesting explanation, Gibson and Schwartz suggested that their lack of findings supporting stable gender differences may be due to female participants expressing vicarious values, or the values of others whom they identify with. They urged value researchers to use



more subtle instruments; ones that tap only into personal values, as opposed to values based on what others may endorse.

The use of student participants is often a limitation of much of the research failing to replicate significant gender differences in work values (Schwartz & Rubel, 2005). This is an important consideration bearing in mind that research has suggested that results can be sample dependent. For example, Feather (1987) found that gender differences were less pronounced in homogenous samples than in heterogeneous samples. Schwartz and Rubel (2005) also found that gender differences in values were significantly larger in a heterogeneous group than among students. These findings, and the overall contradictory outcomes of previous research into gender differences in work values, suggest there may be value in exploring this area further. As such, the current thesis investigates gender differences and similarities in work value orientations. The next section explores the relationships between work value orientations and various outcomes.

#### **Consequences of work value orientations.**

In addition to exploring social and demographic antecedents of work values, the predictive significance of work values has also been investigated. Work values appear to have little correlation with job success and performance (Roe & Ester, 1999). However, work values do appear to have an important relationship with a number of other work domain activities; including, vocational interests (Berings et al., 2004; Knafo & Sagiv, 2004), professional education (Feather, 1970; Huntley & Davis, 1983), job satisfaction and turn over (Locke, 1976; Vansteenkiste et al., 2007), organisational commitment (Sagie et al., 1996), and stress (Bouckennooghe, Bulens, Fontaine, & Vanderheyden, 2005). The following paragraphs briefly address a number of these relationships.

A number of investigations have explored the relationship between work values and vocational choice. In a study using the Work Value Inventory (WVI) (Super, 1973), L. Neumann and Y. Neumann (1983) identified that work values related to vocational education. These authors showed that values relating to humanism, self-expression, and work conditions could discriminate between liberal arts and engineering students. L. Neumann and Y. Neumann concluded that work values play an important role in career choice and the selection of academic

programs. They also suggested that organisational and educational systems use work values as a screening mechanism for various jobs, as well as for career education programs. In another study, Berings et al. (2004) found that social and enterprising vocational interests could be predicted by work values. In particular, enterprising vocational interests had a negative relationship with work values relating to teamwork and a positive relationship with work values relating to influence. On the other hand, social vocational interests were negatively predicted by financial earning work values. In a similar study, Leong, Hardin, and Gaylor (2005) explored the overlap between work values and specialty interests in male and female medical students. These authors assessed intrinsic and extrinsic work values and compared these against 10 medical specialties. They found that work values were significant predictors of specialty choices. However, these relationships were different across gender. For example, valuing advancement predicted gynaecology as a specialty only for females, whereas valuing autonomy and social interaction was a negative predictor for family medicine specialisation only for males. A further study by Knafo and Sagiv (2004) mapped work values across 32 occupations, divided into six occupational types (conventional, enterprising, social, artistic, investigative, and realistic). The results revealed a positive relationship between achievement values and artistic environments, as well as a negative relationship between hedonism values and investigative environments. Like many researchers in the field, Knafo and Sagiv's work supports the importance of work values in relation to vocational choice.

Particular work value orientations have also been linked to health and job satisfaction levels. In a study looking at the relationship between work value orientations and a range of job outcomes, Vansteenkiste et al. (2007) linked an extrinsic work value orientation (e.g., status, power, wealth) to less positive emotional experiences and an increase in unhappiness. Extrinsically orientated individuals also had more negative outcomes, including exhaustion and feeling "empty", in comparison to those with more intrinsic or socially orientated work values. Furthermore, individuals who focused on wealth and power as work values found that the positive feelings accompanying goal attainment were short-lived and unstable. These effects remained significant even after the researchers controlled for a range of background variables, such as age,

education, and income. Vansteenkiste et al. explained their results in terms of *basic needs* theory. They suggested that value orientations that place importance on following personal beliefs and developing social relationships can help fulfil basic needs of growth. In line with their theory, they recommend promoting a socially orientated mind-set in organisations. Stress levels have also been related to work values. Bouckenooghe et al. (2005) found that individuals who endorse values of *Independence* (independent thought and action) and *Creativity* reported lower levels of stress compared to individuals who emphasise *Traditional* and *Security* values.

Work values research has also identified the importance of complementary values among employees and their supervisors, and employees and the rest of the organisation. Meglino, Ravlin, and Adkins (1989) found that workers in an industrial plant were more satisfied and committed to an organisation when their values were congruent with those of their managers. In a summary of work value theories, Roe and Ester (1999) proposed that value congruence may reduce conflict and improve cooperation at work. Bouckenooghe et al. (2005) also found that individuals who experience congruence between their own values and that of the job or organisation they are in reported lower levels of stress. Furthermore, Locke (1976) suggested that job satisfaction is in part determined by the extent to which the work environment supports value attainment. In this way, the attractiveness of an organisation may depend on the values it emphasises. A study by Judge and Bretz (1992) also suggested that value congruence predicted job choice. Individuals in their study selected jobs where the organisation's values were perceived to be congruent with their own. However, these authors noted that such value aligned job choices may depend on how much information is known about an organisation's value system.

As previously stated, a review of the literature suggests that values do not influence behaviour directly, but indirectly through attitudes and goals. Since goal-orientated behaviour is said to be driven by motivation, it is not surprising that work values researchers have paid close attention to this later construct. In fact, one of the key reasons for studying work values is that they are theorised to have an indirect connection to motivation (Parks & Guay, 2009). Motivation is described as goal orientated psychological processes that are connected to the persistence of voluntary actions (Mitchell, 1997). Motivation refers to how we decide when, and to what

extent, to allocate effort to a task or activity. Many authors have emphasised the motivational aspect of work values (e.g., Browne, 1976; Mankoff, 1974; Super, 1962). According to Pinder (1998), motivation initiates work-related behaviour and determines its form, directions, intensity, and duration. Brown (1976) also argued that work values are the most useful concept in determining job motivated behaviour.

Roccas and Schwartz (2002) differentiate values according to the motivational goal they represent. According to Schwartz, values are not simply concepts of the desirable but also express different motivational goals (Schwartz, 1994). Sagie et al. (1996) describe values as having the ability to motivate goal-directed behaviour by inducing valence on objects, behaviour, or personal states. In specific reference to a work environment, Vansteenkiste et al. (2007) conceptualise goals as expressions or manifestations of higher order work values. These theories appear to suggest that work values shape attitudes and goals, which in turn influence motivated behaviour. For this reason, further classifying the construct of work value orientations could lead to a greater depth of knowledge regarding attitudes, motivation, and goal setting behaviour in a vocational context. The next section explores the assessment of work value orientations.

### **Assessment of Value Orientations**

In principle, an individual's values can be measured in three ways (Solano & Nader, 2006). The first method is to assign people values on the basis of observed behaviours. The second method is to ask people to explicitly share their values, using open-ended questions. The third way is to give people a set of stimuli, such as a survey or questionnaire, which they can answer. Hetcher (1993) objects to the first method, a behavioural evaluation of values, as the information obtained is difficult to categorise and quantify. Furthermore, he states that behavioural evaluations are often heavily influenced by the observer's own values and opinions. The second method of directly asking people to share their values is also problematic. The reason being is that individuals who have never reflected on their values may not always know immediately what their values are (Hetcher et al., 1993). The third method, assessment and often a psychometric approach, proposes an intermediary position. This method suggests that people have a series of

stable values of moderate complexity that they put into practice when facing different daily situations (Solano & Nader, 2006). Survey and questionnaire methods of measuring values are also generally relatively inexpensive and easy to administer to large numbers people. On this basis, it is not surprising that the assessment approach is by far the most common method of value measurement employed in research (Hetcher et al., 1993). This thesis will also focus on the assessment approach to measuring values.

Bilsky and Koch (2000) identify three different assessment approaches to measuring values: prototype, semi or scaled projective, and questionnaire methods. Morris' (1956) "Ways to Live" is one example of a prototype assessment. This measure presents participants with 13 different conceptions of life, each described by a relatively detailed scenario. Participants are required to rank these scenarios according to "the kind of life you personally would like to live" (Morris, 1956, p. 15). This technique can be a demanding and time consuming process due to the complexity and elaborate descriptions of the different scenarios (Bilsky & Koch, 2000). Bilsky and Koch (2000) suggest that this complexity contributed to the measure's low uptake by value researchers. Semi or scaled-projective assessments are another approach to measuring values. Kilmann's Insight Test (KIT) (Kilmann, 1975) is one such example. In order to assess what Kilmann referred to as *interpersonal value constructs*, he created an assessment requiring participants to rate pictures. The KIT presents participants with six moderately ambiguous pictures related to managerial activities and asks them to judge each picture in respect to 18 different value items. These items are taken from Rokeach's (1973) work on instrumental values. Judgments are made on seven-point scales ranging from "not-relevant" to "extremely relevant". Questionnaires are the third approach identified by Bilsky and Koch (2000). This non-projective method is most commonly associated with psychometric assessments and is currently the most common method of value assessment in value orientation research (Hitlin & Piliavin, 2004). Psychometric assessments are also a common method of assessing other individual characteristics, including cognitive ability (Kline, 1995) and personality (Goldberg et al., 2006).

One of the first well-known general value questionnaires is the Study of Values (SOV) measure. First developed by Vernon and Allport over 75 years ago (1931), the SOV yields

ipsitive measures of six value priorities by asking participants to select among pairs and quartets of choices cast in specific behavioural scenarios. An example question is: if you were a university professor and had the necessary ability, would you prefer to teach a) poetry; or b) chemistry and physics? (Kopelman, Rovenpor, & Guan, 2003). This measure proved to be one of the most popular measures of human value priorities for years to follow (Rohan, 2000). However, the SOV fell largely into disuse in the late 1970's. One possible explanation is that it gradually became dated in content and wording (Kopelman et al., 2003). Since the SOV, many value researchers have developed their own value questionnaires. The Rokeach Value Survey (RVS) (Rokeach, 1973) and the Schwartz Value Survey (SVS) (Schwartz, 1992) are among the better known general value questionnaires.

As with general values, the most common method for assessing work values is through psychometric techniques, or self-report inventories (Roe & Ester, 1999). Perhaps the earliest work values inventory was developed by Super and his associates over 50 years ago (1953, 1957). The 1970's version of Super's Work Value Inventory (WVI) (Super, 1973) presents 15 value scales of three items each. These scales cover the work values of *Altruism, Aesthetics, Creativity, Intellectual Stimulation, Independence, Achievement, Prestige, Management, Economic Returns, Security, Surroundings, Supervisory Relations, Associates, Variety, and Way of Life*. This version is still in use today and is arguably the best-known instrument for assessing values in terms of vocational behaviour (Duarte, 2005). Other well-known work value measures include the Minnesota Importance Questionnaire (MIQ) (Gay, Weiss, Hendel, Dawis, & Lofquist, 1971) and the Work Aspect Preference Scale (WAPS) (Pryor, 1982).

A number of commercial work values measures are commonly used within New Zealand. Three of these are: the Values and Motives Inventory (VMI) (Psytech International, 1999), the Motives, Values, and Preferences Indicator (MVPI) (R. Hogan & J. Hogan, 1996), and the Motivational Questionnaire (MQ) (Saville & Holdsworth, 1992). The VMI is employed within this investigation and includes the scales: *Altruism, Affection, Affiliation, Achievement, Financial, Aesthetics, Security, Moral, Independence, Traditional, and Ethical*. The VMI is comprehensively reported on in the measures section of Chapter 3.

The construct of *personality* is another important consideration within the current thesis. The following section explores this construct and its measurement within the workplace.

### **Personality**

The word “personality” is derived from the Latin term “persona” which means (1) a mask worn by theatre actors to represent their role and personality in the play; (2) the authentic self, which includes one’s intrinsic motivations, emotions, habits, and ideas (Chan, 1996). Personality has been defined as enduring dispositions that characterise patterns of interaction with one’s environment (Goldberg, 1993; Olver & Mooradian, 2003). The role of personality in work-related behaviours has received renewed interest over the past two decades (Barrick & Mount, 1991; Furnham, Petrides, Tsaousis, Pappas, & Garrod, 2005; Goldberg et al., 2006). Unlike values, personality as a construct appears relatively well understood and there is a general consensus in the literature regarding the conceptualisation of personality (Parks & Guay, 2009).

#### **Theoretical approaches to personality.**

There are many different conceptual approaches to studying personality. Many reviews differentiate between key theoretical perspectives, including: psychoanalytic, humanistic, biological and evolutionary, cognitive, and trait or dispositional (Engler, 2008; Ewen, 2003). Each theory is grounded in the philosophical assumptions of its founder. To Sigmund Freud (1962), the father of psychoanalytic theory, personality is largely unconscious, hidden, and unknown. To Carl Rogers (1977), a humanist, personality is instead an organised, consistent pattern of perception of the “I” or “me” that lies at the heart of an individual’s experiences (Engler, 2008). The trait approach is the most widely recognised approach to personality conceptualisation in workplace psychology (Ewen, 2003; Murphy & Davidshofer, 2001). The trait approach is also well researched empirically and, relevant to this investigation, provides operational indicators for traits useful for relating to values (Bilsky & Schwartz, 1994).

The origins of the trait model of personality can be traced back to Gordon Allport (1937). Allport saw personality as something real within an individual that leads to characteristic behaviour and thought. The trait approach, sometimes referred to as a dispositional approach,

focuses on empirical rather than clinical observations and describes traits as concrete aspects of personality in descriptive terms (e.g., “impulsive”, “assertive”). Trait theorists tend to avoid using abstract and unconscious explanations of human behaviour; unlike psychoanalysts who look to dreams and parapraxis (i.e., slips of the tongue) as evidence for unconscious urges (Carducci, 2009). According to Guilford (1959) a trait is any distinguishable, relatively lasting way in which an individual differs from others. Personality traits are enduring characteristics of an individual that summarise trans-situational consistencies in characteristic styles of responding to the environment (Allport, 1937; Goldberg, 1993; McCrae & Costa, 1996). According to Allport (1937), there are nearly an unlimited number of potential traits that could be used to describe an individual’s personality. Subsequent trait theorists considered personality differences sufficiently consistent to facilitate an identification of a relatively small number of broadly applicable descriptive traits (Cattell, 1943). This eventually led to the development of trait models such as the “Big Five”.

The Big Five model of personality is currently one of the most widely used frameworks for studying the human personality construct (Goldberg, 1993; Parks & Guay, 2009). This framework describes personality as comprising of five global trait domains: *Extraversion*, *Agreeableness*, *Conscientiousness*, *Neuroticism*, and *Openness* (McCrae & John, 1992). Extraversion describes the extent to which individuals are outgoing, socially confident, and energetic. Agreeableness relates to one’s levels of passivity, empathy, and consideration for others. Conscientiousness includes traits such as responsibility, self-discipline, and orderliness. Neuroticism covers the extent to which an individual is vulnerable, suspicious, and emotionally unstable. Finally, Openness describes one’s levels of abstract thinking, creativity, and openness to ideas. These five trait domains appear to be cross-culturally valid (McCrae, Costa, & Del Pilar, 1998) and relatively stable across adulthood (Costa & McCrae, 1997; McCrae et al., 2000).

Despite its widespread use, there are several criticisms of the Big Five. A number of researchers have argued that assessment at a global level does not provide the same level of precision or detail as lower order trait level examination (Boyle, Stankov, & Cattell, 1995; Kline, 1995; Warr, Bartram, & Martin, 2005). Cattell (1946) has always argued for a lower level trait



approach to studying personality. Using extant research data obtained from three sources (objective tests, observer ratings, self-report questionnaires), Cattell distinguished between surface traits, or observed syndromes of behaviour, and source traits. Surface traits are comprised of a number of source traits, which according to Cattell, are the basic elements of personality. Cattell was able to identify sixteen source, or primary level, personality traits. These sixteen traits are presented in the sixteen-personality factor questionnaire (16PF) (Cattell, Eber, & Tatsuoka, 1970). The Big Five factors are said to sit above primary level traits, making them secondary level traits that can be broken down. For example, Extraversion (global trait) is said to comprise of four primary level traits: warmth, liveliness, social boldness, and group orientation. Some research has suggested that the Big Five sub-facets (or primary traits) are in fact better predictors of behaviour than the global traits from which they are derived (e.g., Ashton, Jackson, Paunonen, Helmes, & Rothstein, 1995). Some researchers also defend alternative global models of personality with fewer or more dimensions than the Big Five. For example, Eysenck (1991) suggested that personality is reducible to three major global traits Extraversion, Neuroticism, and *Psychoticism*. Super (1980) proposed a dichotomy of *Type A* and *Type B* personalities. And, more recently, the HEXACO Personality Inventory (K. Lee & Ashton, 2004, 2006) model of personality was proposed. This model emphasises six dimensions of personality: *Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience*.

In spite of contesting taxonomies for personality, McCrae and Costa (1997) note that the Big Five model is now accepted by many psychologists as providing the best representation of the human personality trait structure. Further, Mount and Barrick (1995) propose that the Big Five are necessary and sufficient to describe the basic dimensions of normal personality. Due to the popular use of the Big Five model of personality, sorting personality traits into these broad five categories also has its advantages in allowing for results to be easily compared across different studies. For these reasons the current investigation explores personality at the Big Five level. The following two sections briefly explore some of the research using personality traits and methods for assessing personality.

### **Application of personality trait research.**

Personality assessments are commonly used in employment selection practices alongside other measures, such as cognitive ability tests (Schmidt, Ones, & Hunter, 1992). The main purpose of these assessments is to predict job suitability and performance. However, personality has also been explored in relation to a range of other work place related behaviours, including counterproductive behaviour (Cullen & Sackett, 2003), turnover (Jenkins, 1993), and job satisfaction (Arvey, Carter, & Buerkley, 1991; Furnham, Crump, & Whelan, 1997). Barrick and Mount (1991) carried out a meta-analytic investigation of the relationship between the Big Five personality dimensions and job performance. They examined 117 studies in total that reported correlations between personality tests and measures of job performance, training aptitude, and other characteristics (including turnover, tenure, absenteeism, and salary). Barrick and Mount's analyses indicated that Conscientiousness consistently correlated with job performance measures. In other studies, Extraversion has been shown to be a valid predictor of both sales performance (Vinchur, Schippmann, Switzer, & Roth, 1998) and managerial performance (Furnham et al., 1997). Although correlations in these studies are typically small, falling below .20. Neuroticism has also been shown to be a potentially important predictor of job performance (Barrick et al., 2001; Ones et al., 2007). Neuroticism has further been shown to account for as much as 10 to 25% of variance in job satisfaction (Connolly & Viswesvaran, 2000). In a defence for personality testing, R. Hogan (2005) concluded that personality predicts occupational performance almost as well as measures of cognitive ability.

### **Assessment of personality traits.**

A fair number of approaches to assessing personality have evolved in the last 25 years (Goldberg, 1993). Aside from obscure methods, such as the interpretation of dreams, there are two general approaches to assessing personality in psychology: psychometric tests and projective tests (Engler, 2008). Projective tests are used mainly in clinical settings. They often involve presenting the participant with a deliberately ambiguous stimulus to which the participant responds with their personal attitudes, values, needs, and feelings. While these tests allow for the

participant to respond freely, the trouble is that projective tests are very difficult to score in an objective manner. This thesis will focus on psychometric assessment of personality.

As with values, psychometric tests measure personality characteristics by means of carefully designed questionnaires developed with theoretical and statistical techniques (Engler, 2008). There are a number of questionnaires developed specifically to measure the Big Five. The NEO Personality Inventory (NEO-PI, 1985; as cited in Costa & McCrae, 1991) is one of the best known assessments in this area. The original NEO-PI measure comprised of only Neuroticism, Extroversion, and Openness-to-experience, but subsequent versions incorporated the dimensions of Conscientiousness and Agreeableness. Costa and McCrae (1992) also published the NEO-Five-Factor Inventory (NEO-FFI) soon after developing the NEO-PI. This 60-item inventory consists of 12 items for each of the Big Five factors and was intended to provide a more concise measure of the Big Five personality factors. Another well-known Big Five measure is the International Personality Item Pool (IPIP) (Goldberg, 1999). Goldberg developed this 50-item measure to allow for free public access to a valid measure of personality traits (Goldberg et al., 2006). According to Goldberg et al. (2006), the popularity and wide spread international use of the IPIP is due to the fact that it is freely available, that items can be obtained instantly via the internet, and that the scoring keys for the scales are provided.

As is the case with work value measures, a number of personality tools have been designed specifically for commercial use in organisational settings. Measures such as the Hogan Personality Inventory (HPI) (J. Hogan & R. Hogan, 1995), the Occupational Personality Questionnaire (OPQ) (Saville, Holdsworth, Nyfield, Cramp, & Mabey, 1984), and the Fifteen Factor Questionnaire Plus (15FQ+) (Psychometrics Ltd, 2002) are among the better known personality tools currently used in New Zealand workplaces. The current study employs the 15FQ+, which was developed as a workplace version of the 16PF. As with the 16PF, the 15FQ+ measures 16 bipolar scales that can be combined to calculate scores for five global personality factors. These global factors reflect the Big Five personality traits (Psychometrics Ltd, 2002). Further information on the psychometric properties and general characteristics of the 15FQ+ are provided in the following chapter.

### **Value Orientations and Personality Traits**

The relative stability of both values and personality traits across context and time makes them useful psychological constructs to study (Roccas et al., 2002). However, at times it can be difficult to draw a distinction between values and traits. One possible reason for this confusion is that the same term may be used to describe both, but will have a different meaning depending on the reference (Roccas et al., 2002). Take for example the term “competence”. As a trait this refers to the frequency and intensity an individual displays competent behaviours. As a value this refers to the importance that an individual places on demonstrating competence as a guide to action. Not all individuals who display competence attribute importance to it as a guiding principle in their life. In the same way, not all individuals who value competence (as a guiding principle) have the ability to behave competently. While values and personality traits both fit under the broader category of individual differences (McCrae & Costa, 1996), there are several significant distinctions between them worth elaborating on. Values contain an evaluative component lacking from traits. Values describe what we believe we ought to do, while personality relates to what we naturally tend to do (Parks & Guay, 2009). In this way, personality traits are assumed to flow from what a person is simply *like* regardless of their intentions; values on the other hand refer to intentional goals (Parks, 2007). Bilsky and Schwartz (1994) suggest personality traits are typically seen as descriptors of observed patterns of behaviour, whereas values are criteria individuals use to judge the desirability of behaviour, people, and events. Personality traits do not appear to be as mutually exclusive as values. For example, a person can be both extraverted and conscientious. Values, on the other hand, often conflict with each other in that some values are pursued at the expense of others. For example, an individual may pursue the value of financial prospect at the expense of Altruism. Personality traits also vary in terms of how much of a characteristic an individual exhibits; whereas values vary in terms of the relative importance individuals ascribe to particular value aligned goals (Bilsky & Schwartz, 1994).

Another key difference between personality traits and values lies in their origin.

Personality traits are said to be relatively innate dispositions (Olver & Mooradian, 2003). There is considerable evidence that personality traits are substantially influenced by genetics

(Bouchard, 2004; Caspi, Roberts, & Shiner, 2005). Values, on the other hand, are more commonly accepted to be learned, socially endorsed beliefs that reflect an adaptation of one's needs to what is considered acceptable in society (Rokeach, 1973, 1975).

In line with these distinctions, personality traits are thought to reflect fairly stable individual differences (McCrae et al., 2000). Work values, by contrast, are said to develop and change as a person moves through life in response to environmental influences and changes in social conditions (Berings et al., 2004; Huang & Healy, 1997; Rokeach & Ball-Rokeach, 1989). These differential characteristics have led to the proposition that personality traits develop earlier in life than do work values (Zhang, 2007, p.1284). The next section examines the theoretical and empirical links between value orientations and personality traits.

#### **Value orientation-trait links.**

It is unlikely that values and personality traits manifest completely independent of each other (Parks & Guay, 2009). In line with this proposition, there are a number of theories regarding the relationship between values and traits. Roccas et al. (2002) summarises three possible mechanisms through which values and traits may relate. Firstly, inherited temperaments may give rise to parallel traits and values. For example, consider a person who is born with a high need for arousal. This individual is likely to develop the trait of excitement seeking and to also develop values for stimulation (and not for security). A second theory is that values affect traits because, all things being equal, an individual will try to behave in a manner consistent with their values (Kluger & DeNisi, 1996). According to Kluger and DeNisi (1996), people may change their behaviour to try to reduce discrepancies they sense exist between their values and behaviour. The third theory is that traits affect values. People who constantly exhibit particular behavioural traits are likely to increase the degree to which they value the goals those traits support. This pathway also allows individuals to justify their behaviour through their values (Kristiansen & Zanna, 1994). This process is supported by *self-perception* theory (Bem, 1967). According to self-perception theory, people infer what is important to them from their consistent behaviour.

Staw, Bell, and Clausen (1986) propose further explanations for why personality traits may affect work values. Firstly, these authors suggest that affective disposition has a persistent

influence over how people view the world, including work. Secondly, they suggest that people with certain personality traits may prefer different elements in their work environment. For example, a person who is high on Openness may prefer, and be satisfied in, a work environment which allows variety, excitement, and opportunity to express their opinions. Such preferences are likely to encourage congruent work values, such as stimulation and independence.

The idea that personality traits influence the development of values, rather than vice versa, is supported by other researchers in the field. Olver and Mooradian (2003) proposed that while a person's values are influenced by social experiences, personality is likely to play an important role. Moreover, their theory specifies that, in some instances, personality may even override environmental influences. For example, a neurotic person may decide that the value of security is more important than that of stimulation; in spite of what they have may have learnt from their peers or role models. Olver and Mooradian (2003) suggest that we are likely to maintain values that play to our inherent personalities. On the basis of this assumption, the relationship between values and traits can be used to explore how certain values may have arisen (Keller et al., 1992). The following paragraphs explore a number of key theories on how personality traits may relate to values. Motivation is often at the centre of these theories.

Roccas et al. (2002) proposed one explanation for how values and traits may relate. These authors identified what they called *compatible* and *incompatible* relationships between values and personality traits. According to these authors, a relationship between a trait and a value is expected when the behavioural tendencies that characterise the trait facilitate attainment of the motivational goals the value represents. Take for example the value of *Security*. The underlying motivational goal of this work value may be to establish a job role with a stable career path. The trait behaviours associated with a conscientious person (e.g., careful, thorough, responsible, and scrupulous) appear to support, or are compatible with, the attainment of this underlying goal. As such, it is likely there will be a positive relationship between Security and Conscientiousness. On the other hand, a negative relationship is expected where the behaviours associated with a trait are incompatible with the underlying goals of a value.

In a similar vein, Bilsky and Schwartz (1994) propose that traits and values theoretically relate according to *covariant* and *compensatory* relationships. Values can be differentiated according to the type of motivational content or goal they represent (Schwartz, 1994). They can also be thought of in terms of deficiency needs (e.g., health, safety) and growth needs (e.g., self-actualisation, understanding). According to Bilsky and Schwartz (1994), a covariant relationship will exist between a value and trait when the behaviour associated with the trait is aimed at satisfying values based on growth needs. For example, a person characterised by the trait of curiosity is likely to value excitement and to disvalue boredom. On the other hand, a compensatory relationship will exist between a value and a trait when the trait behaviour is aimed at satisfying values based on deficiency needs. For example, a person characterised by the trait of anxiety is likely to value security and place less importance (if any) on excitement. This study now turns to empirical studies that have investigated the relationships between values and personality traits.

#### **Research exploring value orientation-trait links.**

Research exploring the connection between values and personality traits appears limited. Since Allport recommended the exclusion of evaluative traits when studying personality in 1937, values and personality as constructs have seldom been studied together (Parks & Guay, 2009). However, in recent years there has been some increase in interest regarding the relationship between values and personality traits. The outcomes of a number of these studies are reported in the following paragraphs.

Parks (2007) carried out a meta-analysis based on 11 studies to clarify the relationship between personality and general values. While this was only a relatively small number of studies, the results do provide a broad overview of how the Big Five personality traits may relate to general values. Agreeableness and Openness had the strongest relationship with values. In particular Agreeableness was strongly related to the value *Benevolence* ( $r = .48$ ) and Openness with the value *Self-direction* ( $r = .49$ ). Conscientiousness and Extraversion also demonstrated moderate relationships with values. Conscientiousness showed the strongest relationships with *Conformity* ( $r = .29$ ) and *Achievement* ( $r = .26$ ), for Extraversion the strongest relationship was

with *Stimulation* ( $r = .26$ ). *Emotional Stability* (the polar opposite of Neuroticism) was not as significantly related to any values (the highest relationship was  $r = .11$  with *Stimulation* values). Parks also concluded that while there are theoretically predictable relationships between personality traits and values, they are certainly distinct constructs.

Studies have explored personality traits mainly at the Big Five level. One of the few studies to explore the relationship between values and personality traits at the global and sub-facet level is a study by Roccas, Sagiv, and Schwartz (2002). Based on a strong theoretical background these authors provided a set of hypotheses relating each of the Big Five factors, and their sub-facets, to general values. Using their theory of compatible and incompatible relationships, Roccas et al. proposed that strong significant relationships will exist between traits and values if the behavioural tendencies associated with the trait either facilitates or interferes with the attainment of the motivational goals the value represents. These hypotheses were tested in a sample of 216 Israeli students who completed the NEO-PI (Costa & McCrae, 1985) and the 62 item SVS (Schwartz, 1992). The results of this study showed moderate correlations between traits and values. As Roccas et al. predicted, Conscientiousness correlated with *Achievement* ( $r = .22$ ), *Conformity* ( $r = .16$ ), *Security* ( $r = .22$ ), and *Stimulation* ( $r = -.24$ ); Extraversion correlated with *Achievement* ( $r = .31$ ), *Stimulation* ( $r = .20$ ), and *Tradition* ( $r = -.29$ ), and Openness correlated with *Universalism* ( $r = .47$ ), *Self-direction* ( $r = .48$ ), *Security* ( $r = -.29$ ), and *Tradition* ( $r = -.29$ ). Agreeableness showed significant correlations with the majority of values. This trait was positively related to *Benevolence* ( $r = .45$ ), *Tradition* ( $r = .36$ ), and *Conformity* ( $r = .20$ ). Agreeableness was also negatively related to *Achievement* ( $r = .41$ ), *Power* ( $r = -.45$ ), *Stimulation* ( $r = -.26$ ), and *Self-direction* ( $r = -.25$ ). As the authors predicted, Neuroticism showed a poor relationship to values; only significantly correlating with *Achievement* ( $r = -.21$ ).

Roccas et al.'s (2002) study also found that values and traits have dissimilar relationships with other variables; more specifically, religion and positive affect. Values correlated strongly with religion, but not with positive affect. The reverse was true for personality traits. The authors concluded that values may strongly influence attitudes and behaviours under cognitive control (e.g., religion), whereas personality traits may affect tendencies and behaviours subject to little



cognitive control (e.g., positive affect). These findings support the idea that values may play a significant part in goal setting: a more deliberate act; whereas personality traits may influence the particular behaviours that accompany pursuing a goal. In the context of motivational behaviour, values may determine what is important to a person, whereas personality traits may determine how they go about achieving this. Like many studies, the generalisability of Roccas et al.'s findings are somewhat limited by the reliance on a student respondent group. It should also be noted that these researchers found support for their findings only via comparison with other studies using student respondent groups; not by comparing their results with studies using more diverse respondent groups.

Much of the research specifically in the work values arena has not directly addressed the relationship between work values and personality traits per se, but has instead explored these constructs in relation to other outcomes; most commonly vocational choice. For example, Bering's (2004) was interested in exploring which work values could predict vocational interests above and beyond personality traits. To this end, the Twelve Work Values Instrument (TWVI) (Berings, 2002), the NEO-PI-R (Costa & McCrae, 1992), and a vocational interest assessment based on Holland's RIASEC framework (Holland, 1985) was completed by 178 university students. Moderate correlations between work values and traits were found; with the highest being between Conscientiousness and *Structure* ( $r = .44$ ). Regressions showed that, on average, 20% of the variance in work values was explained by the Big Five traits. Of particular interest, Neuroticism related to stress avoidance (*Security*) and *Earnings*; Conscientiousness related to *Structure*, *Achievement*, and *Earnings*; and Extraversion related to people-orientated work values, such as *Teamwork* and *Community*, and to *Innovation*. Agreeableness related positively to social interaction values and negatively to *Earnings*. While all five traits in the study significantly related to work values, Openness played a relatively small role. Berings et al. also highlighted that individuals endorsing conscientious behaviours appear to exhibit work values that are advantageous in most organisations. These values include a preference for structure, rationality, competition, and financial rewards. Similarly, extraverted individuals appear to endorse people oriented values, such as *Teamwork* and *Community* and enterprising values, such as *Innovation*

and *Creativity*. Once again, however, the reliance on a student respondent group limits the generalisability of the results. Furthermore, the authors selected to study work values from a purely preference or interests perspective, omitting the “oughtness” component of values. The implication here is that the assessment used may not have captured work values as guiding principles in ones behaviour (Schwartz, 1994); but instead as simply “nice to haves” in a job. Caution should be exercised in comparing the results of the study by Berings et al. (2004) to those adopting an alternative conceptualisation of work values.

Duffy, Nicole, and Hartung (2009) also explored the relationship between work values, personality traits, and vocational interests. These authors surveyed 282 medical students using the NEO-PI-R (Costa & McCrae, 1992) and a values scale specifically designed for the work of physicians. Although a number of significant correlations were found between work values and personality traits, these tended to be small in size. The correlation between Agreeableness and Prestige ( $r = -.23$ ) was the only correlation to exceed .20. However, the results of hierarchical regressions indicated that variance in a number of work values could be significantly accounted for by personality traits. For example, Agreeableness and Extraversion related to prestige and management values. Openness related to service values (similar to *Altruism*), and Neuroticism related to lifestyle values (similar to *Security*). While these were significant relationships, on average only 6% of variance in work values was accounted for by personality traits. Given that the relationships between variables were small, it was difficult for the authors to draw any substantial inferences from the data. Furthermore, despite the moderate respondent group size, a high risk of Type II error was still present due to the large number of variables studied. These authors recommended that future research avoid this limitation by using a larger and more diverse participant group.

Furnham et al. (2005) set out to explore how the Big Five personality factors relate to work values using two groups of respondents: one British and one Greek. These groups, both consisting of MBA students, IT professionals, and a range of semi-skilled and skilled workers, completed the NEO-Five Factor Inventory (NEO-FFI) (Costa & McCrae, 1992) and the Work Values Questionnaire (WVQ) (Mantech, 1983). Across both groups, multiple regressions

revealed that Agreeableness was positively related to placing value on work relations, Openness was negatively related to placing value on pay and work conditions, and Extraversion was positively related to *Influence* and *Advancement* work values. These authors did not identify age or gender as reliable predictors of work values. Overall, Furnham et al. concluded that some personality traits, in particular Agreeableness, Openness, and Extraversion, may affect an individual's judgment about what makes them satisfied at work. However, the predictor variables investigated here could only account for a modest amount of variance in work values, on average 12%. This suggests that other factors unrelated to personality traits may relate to work values.

Zhang and colleagues (2007) also directly explored the relationship between personality traits and work values. In line with the current paper's conceptualisation of work values, Zhang et al. defined work values as socially desirable modes or work behaviours which ought to be displayed. During face to face interviews, 661 participants answered a Chinese work values questionnaire and a 57 item measure assessing seven factors of Chinese personality. Regression analysis revealed significant models for *Personal Worth* and *Social Status* work values. Of particular interest, Personal Worth, comprising of social relations and achievement related values, was related to the traits *Kindness* and *Ways of Life*. Social Status, comprising of prestige and job security related values, was linked to *Ways of Life*. The trait *Kindness*, which represents people who are considerate, affectionate, and trusting, is closest to Agreeableness. The trait *Ways of Life*, with elements of goal-orientation, persistence and excellence, is closest to Conscientiousness. The results provide some indication that agreeable people may seek to maintain harmonious relationships with colleagues and that conscientiousness may go hand-in-hand with an achievement value orientation.

In summary, these studies suggest that the Big Five personality traits may be able to account for a significant amount of variance in work values. The findings are varied, but a number of consistent value-trait relationships can be identified across studies. Across two studies (R. Duffy et al., 2009; Roccas et al., 2002), Openness positively related to the value Independence and values which place importance on the needs of others. Across three studies reviewed and in Parks' (2007) meta-analysis, Conscientiousness consistently showed a positive relationship with

achievement type values (Berings et al., 2004; Roccas et al., 2002; Zhang et al., 2007). Conscientiousness also positively related to values supporting material wealth, structure, and conforming (Berings et al., 2004; Roccas et al., 2002). The results for Extraversion are more mixed. Berings et al. (2004) only identified Extraversion as strongly relating to people-orientated and creative work values. Two different studies, however, found Extraversion to relate positively to values supporting personal advancement and stimulation (Roccas, 2002; Furnham, 2005). It may be the case that Extraversion both positively relates to social and achievement values, and negatively relates to security values. Agreeableness has been shown to significantly relate to many work values. Although, among the studies reviewed, this trait does appear to consistently relate to values supporting harmonious relationships with colleagues, social interaction, and benevolence (Berings et al., 2004; R. Duffy et al., 2009; Parks, 2007; Roccas et al., 2002; Zhang et al., 2007). Two of these studies also found that Agreeableness negatively relates to values supporting personal gain (e.g., pay and achievement) (Berings et al., 2004; Duffy et al., 2009). Neuroticism was generally shown to relate poorly to work values. There is, however, some evidence across three studies that Neuroticism positively relates to safety and stress avoidance values (Berings et al., 2004; R. Duffy et al., 2009; Roccas et al., 2002). Thus, while Neuroticism may relate poorly to work values overall, it may be closely linked to values endorsing security.

These value-trait studies have all been conducted overseas. To date, there appears to no study in New Zealand that has explored the relationship between work values and personality traits. One study which comes close is that of Lawton and Chernyshenko (2008). These authors explored the joint effect of personality, work values, and demographics on employee benefit preferences in a large New Zealand retail organisation. Multiple regressions revealed that Status and Independence work values, Extraversion and Conscientiousness personality traits, and various demographics could significantly predict education benefit preferences. While Lawton and Chernyshenko added to the research on personality, values, and reward preferences in New Zealand, they did not contribute to our knowledge of how personality traits may directly relate to work values in New Zealand. The present study attempts to address this gap in the research. It

also attempts to address the common limitation associated with the exclusive use of student participants.

### **Summary of Objectives**

The inconsistent findings in the literature regarding gender and work values, as well as the lack of New Zealand research exploring work values and personality traits prompted two broad objectives for the current study. The first objective was to explore gender differences and similarities in New Zealand work values. The second objective was to explore relationships between work values and personality traits in New Zealand. Exploring value-trait relationships is also likely to increase construct clarity for both work values and personality traits. This insight may be beneficial to practitioners wishing to use personality and work value assessments in professional practice; for example, in selection or career guidance activities.

As previously mentioned, this study addresses a number of limitations identified in previous research. Firstly, previous studies exploring work values have, for the majority, used student respondents groups. This is an issue as different results can arise in different respondents groups. Feather (1987) found that gender differences were less pronounced in homogenous samples than in heterogeneous samples. Schwartz and Rubel (2005) also found that gender differences in values were significantly larger in a general population than among students. The same can be said for studies looking at the relationship between personality traits and work values. For the most part, these studies rely on student participants. Using a homogenous respondent group, for example only MBA students, may provide results that are poorly representative of the general population. These results may not be accurately indicative of phenomenon in a general working population. In light of these factors, the current investigation uses a heterogeneous respondent group comprised of workforce adults.

Secondly, the majority of research in the area of work values has been conducted overseas. The question here is the extent to which such findings can be generalised to the New Zealand workforce. As previously stated, Gibson and Schwartz (1998) warned that it can be dangerous to generalise from country to country. After investigating a large portion of cross

cultural research on values, Gibson and Schwartz revealed that the magnitude of value differences found varied greatly across countries. Suggesting that particular cultural conditions may predicate which values are given priority over others. Furthermore, Elizur (2001) concluded through cross-cultural research that work values, like general values, are culturally bound. For these reasons the current investigation uses a respondent group obtained from the population for which the findings are intended: the New Zealand workforce. To my knowledge the current study is the first exploration of the relationships between work values, personality traits, and gender using a New Zealand workforce respondent group.

A summary of the key research objectives can be stated as follows:

- 1) To explore gender differences and similarities in New Zealand work value orientations and to compare these to those reported in previous research.
- 2) To explore the relationships between work value orientations and personality traits in New Zealand and to compare these to those identified in previous research.

## Chapter 3: Method

### Design and Participants

This investigation employed a correlational research design. Respondent information in this study was obtained via archival data. The data were drawn from a large database of psychometric test scores provided by OPRA Consulting Group. The database consisted of 1311 participants who had completed the VMI assessment as part of selection and/or assessment purposes between July 2000 and September 2010. Of these participants, 459 had also completed the 15FQ+ personality assessment.

The database contained raw scores for each assessment completed and self-reported demographic information for each participant's gender and age. Ethnicity, occupation, and industry information were also available for some participants. This demographic information is detailed in Table 1. The overall respondent group of 1311 participants comprised 764 males and 547 females. Their ages ranged from 17 to 62 years. The mean age was 36 years. Of those whose education status was recorded (560 respondents); most had an undergraduate degree (259 respondents). The second most common education level was a postgraduate degree (121 respondents), followed by a trade qualification (117 respondents). The remaining respondents had no formal education or had completed secondary school (63 respondents). Of those who provided information on their ethnicity (464 respondents); the largest number identified as "NZ European" (331), while 30 identified as "Maori", 30 identified as "Asian", and 18 identified as "Pacific Islander". The sub-group of 459 participants having completed both the VMI and the 15FQ+ comprised 282 males and 177 females. The mean age was 37 years. The composition of education levels, ages, and ethnicities were similar to the large respondent of 1311. In both respondent groups participants were from a range of industries and occupations in New Zealand; including sales, finance, management, human resources, hospitality, and trade work. A number of tertiary students were also included.

Table 1

*Demographic Statistics of Respondent Groups*

Demographics	Overall respondent group	Sub-respondent group
	N = 1311	N = 459
	Frequency	Frequency
<b>Gender</b>		
Male	764	282
Female	547	177
<b>Age</b>		
17 – 30	472	116
31 – 48	665	280
49 – 64+	174	63
<b>Ethnicity</b>		
NZ European	331	203
Maori	30	23
Asian	30	13
Pacific Islander	18	11
African	19	17
Other	36	27
Unknown	847	165
<b>Education</b>		
No Formal Educ.	8	5
Secondary School	55	31
Trade/Technical	117	83
Undergraduate	259	95
Postgraduate	121	79
Unknown	751	166

Note. Overall respondent group completed the VMI assessment. Sub-respondent group completed both the VMI and 15FQ+ assessments



## **Psychometric Instruments**

### **Values and Motives Inventory (VMI)**

Designed for use within the workplace, the VMI is a 122-item measure intended to differentiate people according to their work values. The VMI can be administered via paper and pencil or computer format, and does not have a time limit for completion. However, most people complete it in approximately 20 minutes. The VMI is made up of 11 scales, divided into three broad categories: Interpersonal, Extrinsic, and Intrinsic values. Table 2 details the descriptions of the VMI's 11 work value scales. These scales were based on an extensive review of the literature and research in the work values arena (PsyTech International Ltd, 1999). Table 3 details a comparison of the VMI with five other values assessments. Inspection of Table 3 shows that the majority of the VMI scales appear conceptually similar to those included in the Work Values Inventory (WVI) (Super, 1973), the Work Importance Study Values Scale (VS) (Nevill & Super, 1986), and the Schwartz Value Survey (SVS) (Schwartz, 1992). Of particular interest is the VMI's strong similarity to the MVPI (J. Hogan & R. Hogan, 1996) and Saville and Holdsworth's MQ (Baron, Henley, McGibbon, & McCarthy, 1992). These are work value assessments also currently used commercially in New Zealand.

The VMI also contains a number of administration scales. These provide information about a respondent's approach to answering the questionnaire and include scales of social desirability and infrequency. The social desirability scale assesses a tendency to present oneself in an unrealistically positive manner (Kline, 1995). This scale is independent of the 11 work values and has dedicated questions, such as "I have never told a lie, even for a good cause". The infrequency scale measures the extent to which someone has attended diligently to the questionnaire and responded in a consistent way (PsyTech International Ltd, 1999). A high score on this scale suggests a respondent may have rushed through the assessment or failed to fully understand questions. This scale is also independent of the 11 work values. Items dedicated to this scale include questions such as "The snail is the fastest living creature".

Table 2

*VMI Scale Descriptions*

Value Scale	High Score Description
Altruism	Sympathetic. Generous and helpful. Concerned about the plight of those less fortunate. Belief in alleviating suffering in others.
Affection	Values warmth and affection and closeness with people. Shares feelings and emotions.
Affiliation	Value contact with people and meeting others. Socially orientated. Values companionship. Friends and associates play an important role in life.
Achievement	Success focused. High need to excel and to be the best. Values hard work. Sets high goals.
Financial	Values economic status and wealth. Desire for wealth. Materialistic.
Aesthetics	Appreciates cultural activities/events (art, music, literature). Values abstract discussions. Believe artistic pursuits are worth following for own sake.
Security	Values safety, stability, and routine. Avoids risk taking. Low need for excitement or stimulation.
Moral	Values truth and personal integrity. Trust in basic principles of right and wrong. Fundamental doctrine should guide one's life.
Independence	Independent thought. Stands up for own rights. Belief in own viewpoint. Action choosing.
Traditional	Belief in obeying rules and laws. Respect customs/tradition. Conforming. Accepts Status quo. Places value on national pride, patriotism, and loyalty.
Ethical	Belief in higher order explanation for the world. Reluctant to accept scientific explanations. Faith bound. Religion has its place (a value close to spirituality).

*Note.* Adapted from information within the VMI technical manual (PsyTech International, 1999).

Table 3

*A Comparison of the VMI with Alternative Value Questionnaires*

VMI	WVI	VS/WIS	MVPI	SVS	MQ
PsyTech (1999)	Super (1973)	Neville and Super (1986)	Hogan and Hogan (1996)	Schwartz (1992)	Saville and Holdsworth (1992)
Altruism	Altruism	Altruism	Altruistic	Universalism  Benevolence	
Affection		Social  Interaction			
Affiliation	Associates	Social  Relations	Affiliation		Affiliation
Achievement	Achievement	Achievement	Power	Achievement	Achievement/ Competition
Financial	Economic returns	Economics	Commerce		Material reward/ Commercial focus
Aesthetics	Aesthetics	Aesthetics	Aesthetics		
Security	Security	Risk**	Security	Security	Ease and Security
Moral					Personal Principles
Independence	Independence	Self-  actualizing		Self-Direction	
Traditional			Tradition	Tradition/  Conformity	
Ethical			Science**	Spirituality*	

*Note.* \* represents scale not included in all versions of measure. \*\* represents scale for opposing value.

***VMI items.***

Each VMI item is presented as a statement. Participants are asked to rate themselves on a Five-Point Likert scale. The scale ranges from strongly agree (1) to strongly disagree (5). Below are two examples of the type of statements and the response scale presented in the VMI.

Financial help should be given only to the most deserving cases

1. Strongly Agree      2. Agree      3. In-between      4. Disagree      5. Strongly disagree

I appreciate what is best in Art, Music and Literature

1. Strongly Agree      2. Agree      3. In-between      4. Disagree      5. Strongly disagree

***VMI psychometric properties.***

The reliability of an instrument assesses the extent to which variation in measurement is due to true differences in people or to measurement error (Kline, 1992). This property refers to consistency of measurement. Tabachnick and Fidell (2001) recommend that internal consistency reliability estimates (Cronbach  $\alpha$ ) of 0.65 or above ( $\alpha \geq 0.65$ ) reflect good reliability. With the exception of the Achievement scale ( $\alpha = 0.53$ ), the VMI shows good internal consistencies across its scales. The remaining alpha coefficients range from 0.66 to 0.83.

A valid test will measure what it claims to measure (Kline, 1992). Three important aspects of validity include content, criterion, and construct related validity. Convergent and discriminant validity are two options used to estimate construct-related validity for a test. The VMI's convergent validity appears supported by correlations ( $r = .5$  to  $r = .83$ ) between the VMI and appropriate value scales on a career interest measure, the Motivational Appraisal of Personal Potential (MAPP) (PsyTech International Ltd, 1999). The VMI's discriminant validity appears supported via the generally modest magnitude of correlations between the VMI and the Sixteen Factor Personality Questionnaire (16PF) (Cattell et al., 1970). The intercorrelations between the VMI scales are fairly modest, with a range from 0 to .57, and a low median value of .10. This indicates that the VMI scales appear independent of each other and are likely to be measuring distinct aspects of an individual's work value system (Kline, 1992).

The information available on the VMI factor structure is limited. In light of this limitation, an examination of the VMI factor structure was undertaken as a function of this thesis. The limitations of available data and scope of this thesis meant a full-scale validation check was not carried out. A more modest examination of the factor structure of New Zealand work values as measured by the VMI was instead undertaken via exploratory factor analysis (EFA), which is one way to identify the factors a test is measuring (Kline, 1994). Had it been possible to access specific item factor loadings, a confirmatory factor analysis (CFA) would have been carried out as an additional validity check.

The EFA revealed that the structure of work values located in the New Zealand respondent group is comparable to the expected structure of the VMI. The results of the EFA revealed that 13 factors can be identified in the current respondent group. An examination of these factors verified that the EFA had located the 11 work values and 2 responses styles specified by the VMI measure. These findings suggest the VMI measure performed as expected in a New Zealand respondent group. These findings provide some confidence that the VMI measure is suitable to be used to assess work values as described by the VMI technical manual in the current New Zealand respondent group. Please see Appendix A for more detailed information on the EFA analysis and output.

#### **Fifteen Factor Questionnaire Plus (15FQ+)**

The 15FQ+ is a personality measure intended for use within the workplace (Psychometrics Ltd, 2002). As with the VMI, the 15FQ+ assessment can be administered via paper and pencil or computer format, and does not have a time limit for completion. However, most people complete it in approximately 30 minutes. As previously mentioned, the 15FQ+ assessment was developed through factor analytic procedures and was designed to be an alternative workplace version of the 16PF (Cattell et al., 1970). The 15FQ+ is comprised of 16 bipolar first-order (primary) personality scales reducible to five second-order (global) personality scales. The five global personality scales correspond well with the widely accepted Big Five factor model of personality (e.g., Kline, 1995; Warr et al., 2005). The 15FQ+ uses the following labels for the

five global traits: Extraversion, Anxiety, Openness, Agreeableness, and Self-Control. These terms parallel the Big Five trait labels of Extraversion, Neuroticism, Openness, Agreeableness, and Conscientiousness respectively. Table 4 details the descriptions of the 15FQ+'s global personality traits. Table 5 details the primary traits that each global trait comprises. Please see Appendix B for the descriptions of the 15FQ+'s primary personality traits.

The 15FQ+ also contains a number of administration scales that provide information regarding the way a respondent has approached answering the assessment. These include scales of Social Desirability, Infrequency, and Central Tendency (Psychometric Ltd, 2000). As with the VMI, the Social Desirability scale has its own questions, such as "I never prejudge another person". The infrequency scale was constructed by selecting the 26 least frequently endorsed item responses. A high score on this scale suggests a respondent may have rushed through the assessment or failed to fully understand questions. Central tendency measures the degree to which respondents have been prepared to answer decisively by avoiding middle, or non-committal, responses.

***15FQ+ items.***

The 15FQ+ comprises 200 items. Participants are asked to respond to each item by selecting one of three potential responses. Below are two examples of the type of questions asked and response options available.

I prefer to do things on my own

A. True      B. ?      C. False

At the cinema I would rather watch:

A. An Action Movie      B. ?      C. A Romantic Comedy

Table 4

*15FQ+ Global (Big Five) Personality Scale Descriptions*

Lower Extreme of Dimension	Higher Extreme of Dimension
<i>Extraversion:</i> Orientated to an outer world of people, events, and activities. External focus. Favours social contact and stimulation.	<i>Introversion:</i> Oriented to their own world of thoughts, perceptions, and experiences. Internal focus. Low need for social contact and stimulation.
<i>Low anxiety:</i> Steady, resilient, and well adjusted. Able to cope in emotionally charged situations. Calm nature.	<i>High anxiety:</i> Sensitive, prone to mood swings, touchy, and vulnerable. Unable to cope with emotionally charged situations.
<i>Pragmatism:</i> Influenced by hard facts and concrete evidence rather than subjective experiences. May dismiss new ideas. May be tactless when interacting with people.	<i>Openness (to experience):</i> Influenced by ideas, feelings, and sensations rather than hard facts and concrete evidence. Remains open to new possibilities and subjective experiences.
<i>Independence:</i> Keenly self-determined in own actions and thoughts. Independent minded. May present as strong-willed, stubborn, and confrontational.	<i>Agreeableness:</i> Tolerant, agreeable, and obliging. Unlikely to present as disagreeable, stubborn, or opinionated. Willing to compromise.
<i>Low self-control:</i> May illustrate low levels of self-control and restraint. Social norms and internalised parental expectations have little influence. May be disorganised and unsystematic. Able to see the bigger picture.	<i>High self-control (Conscientiousness):</i> May illustrate high degree of self-control and restraint. Influenced by social norms and internalised parental expectations. May be detail focussed, systematic, and orderly.

*Note.* Derived from information in the 15FQ+ technical manual (Psychometrics Ltd, 2002).

Table 5

*15FQ+ Global (Big Five) and Primary Personality Trait Dimensions*

Global Traits	Primary Traits
Extraversion	Group-orientated, Empathic, Enthusiastic, Socially-bold
Anxiety	Affected by Feelings, Self-doubting, Suspicious, Tense-driven
Openness	Abstract, Empathic, Radical, Tender-minded
Agreeableness	Accommodating, Conventional, Low Intellectance, Trusting
Self-control (Conscientiousness)	Conscientious, Restrained, Self-disciplined

*Note.* Derived from information within the 15FQ+ technical manual (Psychometrics Ltd, 2002).

***15FQ+ psychometric properties.***

The 15FQ+'s reliability and validity appears reasonably well supported. The 15FQ+ technical manual indicates that the primary traits have Cronbach's Alpha coefficients ranging from .74 to .85 (Psychometrics Ltd, 2002). The traits also have good test-retest reliability, with reliability coefficients reported between 0.77 and 0.89.

The 15FQ+ has also been found to have acceptable construct validity. Support for the 15FQ+'s validity was examined via comparison with a variety of other personality measures, including: the original 15FQ, the 16PF-4 (Form A), and 16PF-5. Reported relationships between 15FQ+ global factors and 16PF-5 global factors support the validity of the 15FQ+ global dimensions. Substantial correlations between the 15FQ+ global traits of Extraversion ( $r = 0.88$ ), Anxiety ( $r = 0.87$ ), Openness ( $r = .65$ ), Agreeableness ( $r = 0.81$ ), and Self-control ( $r = 0.79$ ) indicate that these broad personality constructs are measuring comparable constructs across these tests. Further support for the validity of using the 15FQ+ global factor scores is evident in comparisons with the NEO PI- R factors ( $N = 60$ ). The 15FQ+ technical manual provides correlations for Extraversion ( $r = 0.74$ ), Anxiety ( $r = 0.77$ ), Openness ( $r = 0.66$ ), Agreeableness ( $r = 0.61$ ), and Self-control ( $r = 0.67$ ) supporting the broad equivalence of the 15FQ+ global



factors and the Big Five personality factors as defined by Costa and McCrae (1988). The next section summarises the procedure followed within the current investigation.

### **Procedure**

Low risk ethical approval to conduct this study was granted by the Massey University Human Ethics Committee (approval 22/06/2010). A copy of the Ethics Committee Low Risk notification letter can be found in Appendix C.

OPRA Consulting Group provided access to archival cross-sectional data sets acquired within the context of its commercial practice. Data were gathered from OPRA Consulting Group's Wellington, Auckland, and Christchurch offices within New Zealand. The data were obtained from individuals who had completed the relevant assessments between July 2000 and September 2010 for selection and/or assessment purposes. At the time of completing assessments respondents provided written consent for their demographic and assessment scores to be added to the database for research and statistical purposes. Only those who provided written consent have been included in this study.

All individuals involved in the gathering of assessment data were trained in psychometric test administration in line with the British Psychological Societies standardised procedural guidelines. These guidelines require that all testing takes place in a quiet, well lit area with sufficient working space and free from distractions and/or disruptions. The guidelines also require that participants are provided with all the necessary material for test completion and are given clear, standardised instructions prior to beginning the assessments. Respondents are instructed to move through the questionnaires fairly quickly and to not spend too much time pondering over each question. They are also instructed to answer all questions as honestly as possible and to avoiding middle (uncertain) answers. Qualified test administrators were responsible for following the test administration guidelines to ensure that assessments were completed in a standardised manner. Test administration guidelines are available on request.

Once assessments were complete, respondent data were scored via a standardised computer scoring program and stored in a central database. Both the VMI and 15FQ+ results

were scored using the GeneSys Integrated Assessment Software system. The relevant data-sets were subsequently exported to use for analysis.

After numerical coding for the purpose of analysis, participant information on age and gender took the form of a nominal scale (Stevens, 1946). The data-sets were also edited to ensure only viable and full records were included. Data editing involved screening the results for missing values and univariate outliers. The initial VMI data set comprised 1157 respondents. The original VMI and 15FQ+ dataset comprised 466 respondents. In total, 12 respondents with missing data were removed. Respondents who scored more than three standard deviations above the mean on the response styles of Social Desirability, Infrequency, and Central Tendency were removed (Leong & Austin, 1996). In total, 14 outliers were removed. This left 1131 cases for the VMI data set and 459 cases for the VMI and 15FQ+ data set.

### **Analysis**

The analyses in this investigation are divided into two main sections consistent with the two key objectives of the study. The first objective is to explore gender differences and similarities in New Zealand work values. The second objective is to explore relationships between work values and personality traits in New Zealand. The analyses in this thesis were all carried out utilising the StatSoft® statistical software package *Statistica 7*. The data used in the results sections presented as suitable for the analyses undertaken. Following examination, data were normally distributed, displayed linearity, and appeared measurement reliable (Cohen, Cohen, West, & Aiken, 2003; Leong & Austin, 1996).

#### **Work value orientations and gender.**

Gender differences in mean scores for each value type were assessed via separate two-way ANOVAs. Two-way ANOVAs were the appropriate choice of analysis because they allow for additional variables, which may have an interaction effect, to be included in the analyses (Tabachnick & Fidell, 2001). Given the research suggesting that a person's age may affect their values (e.g., Cennamo & Gardner, 2008; Li et al., 2008; Smola & Sutton, 2002), age was included

as an additional factor in the ANOVAs. This step allowed for the possible interaction effect of age and gender.

Main effects of the ANOVAs for gender were followed up with standardised effect size calculations (Cohen's  $d$ ). Cohen's  $d$  statistics were used to provide an estimation of effect size for the mean gender differences. Effect sizes are supplementary to the  $f$  statistic and generally used for retrospective consideration of the importance of an effect (Ferguson, 2009). While effect size can be seen by checking mean and standard deviation scores, Cohen's  $d$  calculations have the advantage of considering sample size (Tabachnick & Fidell, 2001). The use of standardised effect sizes also allows for easy comparison of results across value studies (Ferguson, 2009). A positive  $d$  statistic is indicative of a higher mean score for the smaller of the two groups being compared (in this case females); while a negative  $d$  statistic is indicative of a higher mean score for the group with the larger sample size (in this case males).

#### **Work value orientations and personality traits.**

Pearson-Product Moment correlation coefficients (Person's  $r$ ) were calculated to assess the strength of association amongst work values and personality traits in the respondent group of 459 respondents. Person's  $r$  was selected as it is the most appropriate index of shared variance with continuous and normally distributed data (Ferguson, 2009).

Past research on personality and values predominantly cites findings at a Big Five level (e.g., Berings et al., 2004; Furnham et al., 2005; Lawton & Chernyshenko, 2008). To allow for straightforward comparison across a range of past empirical studies, this investigation focused on reporting and interpreting the 15FQ+ at the global trait (Big Five) level. Correlational analyses were, however, undertaken at both primary and global personality trait levels. Results are presented for primary level analyses in Appendix E and Appendix F to allow for a broader range of future comparisons.

To further investigate work value-personality trait interactions, *stepwise multiple regressions* were carried out. Multiple regressions allow a calculation of the percentage of variance in a factor explainable by a single predictor or a collection of predictors (Brace, Kemp, & Snelgar, 2006). Stepwise regressions help to ensure that the final model contains the smallest

possible set of predictor variables, that is, it should always result in the most parsimonious model (Brace et al., 2006). Therefore, stepwise regression models were used to identify unique variance in work values (criterion variable) explainable via the Big Five personality traits (predictor variables). Gender was also included as a predictor variable. For comparative purposes, regressions were also run using forward and backward methods.

#### **Effect size interpretation and statistical significance considerations.**

Determining the magnitude of an effect size is not a straightforward process given the differences in standards employed across research (Ferguson, 2009). Ferguson (2009) does, however, provide recommendations to help ensure more practically useful results. Across a large range of effect size types, Ferguson provides guidelines for what should be considered small, moderate, and strong effects. In all cases, his “small” classification set the recommended minimum effect size representing a “practically” significant effect for the social sciences. In line with Ferguson’s (2009) recommendations, when interpreting effect sizes for Cohen’s  $d$  in the current study approximately .41 was considered small, 1.15 was considered moderate, and over 2.70 was considered strong. When interpreting product-moment correlation coefficient ( $r$ ) approximately .20 was considered small, .50 was considered moderate, and over .8 was considered strong. When interpreting the squared association indices ( $r^2$ ) a score of .04 was considered small, .25 was considered moderate, and .65 or above was considered strong.

Selecting the acceptable or desirable level of significance for an empirical result (associated with the customary level of probability  $p$ ) was another consideration within this study. Murphy, Myers, and Wolach (2009) recommend that when working with large respondent groups, as is the case with this study, more stringent criteria for statistical significance should be used. Furthermore, a number of the statistical calculations performed in this investigation (i.e.,  $t$  tests, ANOVAs, correlations) could be considered “serialised” (Shaffer, 1995). When making serialised procedures, or conducting multiple comparisons on the same set of two groups, the risk of obtaining statistically significant results by chance is present. This risk is more prominent when the tests are non-independent (Miller, 1991; Shaffer, 1995). A procedure commonly used to counteract this tendency is a Bonferroni correction. The Bonferroni correction is a calculation

applied to make it more “difficult” for any one test to be statistically significant when performing multiple statistical significance tests on the same data (Maxwell & Delaney, 2004). This correction provides a statistical adjustment for the multiple comparisons (or other statistical tests) by raising the standard of proof required. If we are testing  $n$  outcomes instead of a single outcome, we are requested to adjust our alpha level beyond the customary  $p < 0.05$ . This correction will increase the "minimum criterion", and renders the tests more "conservative" (Miller, 1991). A Bonferroni- adjusted significance level is calculated by dividing the desired alpha level by the number of significance tests to be made (Benjamin & Hochberg, 1995). This correction was applied to the  $t$  tests, ANOVAs, and correlations performed in this investigation. For non-serialised statistical calculations in this investigation (i.e., regressions) the threshold for statistical significance was set at the conservative level of  $p < 0.001$ . Setting the level of significance here can help to ensure that only results of practical significance remain the focus (Ferguson, 2009). As such, this study avoided the use of the heavily criticised standard .05 level regularly used by researchers in social science (Ferguson, 2009). The next chapter addresses the results of the statistical analyses undertaken in this study.

## **Chapter 4: Results**

This chapter outlines the results of the analyses undertaken to explore the key research objectives of the current study. As previously mentioned, the first objective was to investigate gender differences in New Zealand work value orientations. The second objective was to investigate the relationship between work value orientations and certain personality traits. In addition to addressing these key objectives, a relative profile of New Zealand work values was established by comparing VMI scores of the current respondent group against VMI scores of two international respondent groups: one Australian and one British. The first section of the results details descriptive statistics and the relative profile of New Zealand work values. The second section details the results of the analyses used to explore gender differences in work values. The third, and final, section details the results of the analyses used to explore work value-trait relationships.

### **New Zealand Work Value Orientations**

This section details information on the basic descriptive statistics for the VMI scores of the current respondent group. It also contains a relative profile of New Zealand work values.

#### **Descriptive statistics**

Table 6 provides the descriptive statistics for scores on the VMI of the 1311 respondents. These statistics include information on mean, standard deviation, and range of the frequency distribution of the score variable in case of each value orientation scale (or score). For correlations amongst work value scores please see the VMI factor correlation matrix in Appendix D. Table 6 indicates that the mean scores for the VMI scales range from 16.37 to 44.62, with standard deviations of between 2.90 and 6.64.

Table 6

*New Zealand Mean VMI Scores*

Factors	Items	Valid N	Min	Max	Mean	SD
Traditional	9	1311	13	41	29.36	4.44
Moral	7	1311	10	35	25.44	3.31
Independence	6	1311	7	27	16.37	2.90
Ethical	7	1311	6	34	20.42	3.83
Altruism	12	1311	19	59	44.62	5.61
Affiliation	11	1311	19	51	36.42	5.08
Affection	10	1311	18	48	35.14	4.76
Achievement	7	1311	9	35	26.66	3.18
Financial	12	1311	16	57	40.03	6.41
Safety	6	1311	5	28	16.47	4.69
Aesthetics	11	1311	16	55	37.92	6.64

### **Comparing New Zealand work value orientations to international respondents**

A relative profile of New Zealand work values was established by comparing VMI scale scores from the current respondent group to those of a British and an Australian respondent group.

Individual *t* tests were calculated to assess differences in mean VMI scores across these groups.

Two-tailed *t* tests were performed as the groups explored here are independent, with mutually exclusive sets of cases (Tabachnick & Fidell, 2001). When interpreting the findings in Table 7 and Table 8, criterion levels for statistical significance were adjusted according to a standard Bonferroni correction. This adjusted *p* level was calculated by dividing the desired probability value (0.05) by the number of significance tests to be made (11). As such, the limit for significance is set at  $p < 0.005$  in this set of empirical findings. Cohen's *d* statistics were

calculated for all significant differences to provide an estimation of effect size. Table 7 and Table 8 contain the mean VMI score differences between the current New Zealand respondent group and the British and the Australian comparison groups respectively.

Table 7 indicates that four significant differences in VMI scores emerged between the British and the New Zealand respondent groups. However, these were all very small, with Cohen's *d* effects sizes well below .41. Table 8 indicates that five significant differences in values emerged between the Australian and the New Zealand respondent groups. Similarly, these differences are also all very small. Cohen's *d* effects sizes are all well below .41.

Table 7

*New Zealand and British VMI Mean Differences*

Trait Name	New Zealand (N=1311)		UK (N=1045)		<i>t</i> test	Effect Size
	M	SD	M	SD	<i>t</i>	Statistics <i>d</i>
Traditional	29.36	4.44	28.47	4.89	4.60*	.19
Moral	25.44	3.31	24.65	3.90	5.13**	.22
Independence	16.37	2.89	17.31	3.25	-7.41**	-.31
Ethical	20.42	3.89	20.73	4.10	1.88	
Altruism	44.62	5.60	43.97	5.89	-2.73*	.11
Affiliation	36.42	5.08	36.52	5.66	0.45	
Affection	35.14	4.76	35.28	5.19	0.68	
Achievement	26.66	3.18	26.75	3.47	.66	
Financial	40.03	6.41	41.26	7.05	4.42**	-.18
Safety	16.47	4.69	15.64	4.82	-4.22**	.17
Aesthetics	37.92	6.64	38.31	7.21	1.36	

*Note.* *t* statistics marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), (Casewise deletion of missing data).



Table 8

*New Zealand and Australian VMI Mean differences*

Trait Name	New Zealand (1311)		Australia (N=2717)		<i>t</i> test	Effect Size
	M	SD	M	SD	<i>t</i>	Statistics <i>d</i>
Traditional	29.36	4.44	29.84	4.36	3.25*	
Moral	25.44	3.31	25.65	3.43	1.84	
Independence	16.37	2.90	16.19	2.84	-1.87	
Ethical	20.42	3.89	21.15	3.96	5.51**	.19
Altruism	44.62	5.61	46.05	5.38	7.80**	.26
Affiliation	36.42	5.08	37.51	5.10	6.36**	.21
Affection	35.14	4.76	35.73	4.60	3.77**	.13
Achievement	26.66	3.18	26.89	3.14	2.17	.16
Financial	40.03	6.41	38.98	6.50	-4.83**	.29
Safety	16.47	4.69	16.83	4.79	2.25	
Aesthetics	37.92	6.64	37.65	6.87	-1.18	

*Note.* *t* statistics marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), (Casewise deletion of missing data).

The next two sections report the results of the analyses relating to the key objectives of the study. As identified previously, the key objectives were: 1) to investigate gender differences in work values, and 2) to investigate the relationships between personality traits and work values.

### **Gender Differences in Work Value Orientations**

This section details the results of the analyses used to explore gender differences in work values. Mean gender differences in work values were assessed via two-way analysis of variance (ANOVA). Age was included in the two-way ANOVAs to allow for the possible interaction effect for age and gender as independent variables. A Bonferroni correction (i.e., dividing the desired probability value [.05] by the number of tests to be conducted [11]) was applied for the

serialised ANOVAs contained within this section. In accordance with this adjustment, any test resulting in a  $p$ -value of less than .005 is considered statistically significant in this section. Tables 9 to Table 19 display the interaction effect results of the 11 work value scales by sex and age. These tables indicate that no significant interactions were found between age and gender for work values. This finding suggests that identified gender differences in value scores are not dependent on age.

Table 9

*Analysis of Variance for the VMI Tradition Scale*

Source	SS	df	MS	F
(A) Sex	63.66	1	63.66	3.23
(B) Age	15.84	2	7.92	.40
A x B (interaction)	53.47	2	26.74	1.36
Error (within groups)	25737.54	1305	19.72	

*Note.*  $f$  scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 10

*Analysis of Variance for the VMI Moral Scale*

Source	SS	df	MS	F
(A) Sex	93.04	1	93.04	8.63*
(B) Age	159.13	2	79.56	7.38*
A x B (interaction)	9.44	2	4.72	.44
Error (within groups)	14072.38	1305	10.78	

*Note.*  $f$  scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 11

*Analysis of Variance for the VMI Independence Scale*

Source	SS	df	MS	F
(A) Sex	30.34	1	30.34	3.64
(B) Age	26.62	2	13.31	1.60
A x B (interaction)	7.32	2	3.66	.44
Error (within groups)	10887.90	1305	8.34	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 12

*Analysis of Variance for the VMI Ethical Scale*

Source	SS	df	MS	F
(A) Sex	293.76	1	293.76	19.70**
(B) Age	24.31	2	12.16	.82
A x B (interaction)	33.23	2	16.62	1.11
Error (within groups)	19462.21	1305	14.91	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 13

*Analysis of Variance for the VMI Altruism Scale*

Source	SS	df	MS	F
(A) Sex	958.35	1	958.34	31.54**
(B) Age	112.53	2	56.26	1.85
A x B (interaction)	38.77	2	19.38	.64
Error (within groups)	39656.24	1305	30.39	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 14

*Analysis of Variance for the VMI Affiliation Scale*

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
(A) Sex	57.26	1	57.26	2.24
(B) Age	281.02	2	140.51	5.49*
A x B (interaction)	163.15	2	81.58	3.18
Error (within groups)	33384.21	1305	25.58	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 15

*Analysis of Variance for the VMI Affection Scale*

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
(A) Sex	577.49	1	577.49	27.47**
(B) Age	956.00	2	4778.00	22.74**
A x B (interaction)	171.09	2	85.54	4.07
Error (within groups)	27433.61	1305	21.02	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 16

*Analysis of Variance for the VMI Achievement Scale*

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
(A) Sex	.145	1	.15	.01
(B) Age	13.70	2	6.85	.68
A x B (interaction)	28.71	2	14.36	1.42
Error (within groups)	13187.63	1305	10.10	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 17

*Analysis of Variance for the VMI Financial Scale*

Source	SS	df	MS	F
(A) Sex	531.21	1	531.21	13.07**
(B) Age	191.59	2	95.80	2.36
A x B (interaction)	220.76	2	110.38	2.72
Error (within groups)	53028.76	1305	40.64	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 18

*Analysis of Variance for the VMI Safety Scale*

Source	SS	df	MS	F
(A) Sex	1134.72	1	1134.72	54.79**
(B) Age	291.94	2	145.97	7.05**
A x B (interaction)	48.56	2	24.28	1.17
Error (within groups)	27027.22	1305	20.71	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 19

*Analysis of Variance for the VMI Aesthetics Scale*

Source	SS	df	MS	F
(A) Sex	1366.11	1	1366.11	31.88**
(B) Age	239.27	2	119.63	2.71
A x B (interaction)	62.23	2	31.11	.73
Error (within groups)	55930.52	1305	42.86	

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

Table 20 displays the results for the 11 work value scales, showing the statistical main effect of the variable gender as calculated in the ANOVAs. Cohen's  $d$  statistics were calculated for all significant main effects to provide an estimation of effect size on the differences. Six out of the 11 values scales showed significant main effects for gender at the restrictive alpha level of  $p < .005$ . These were Ethical ( $F_{2, 1305} = 19.70$ ); Altruism ( $F_{2, 1305} = 31.54$ ); Affection ( $F_{2, 1305} = 27.47$ ); Financial ( $F_{2, 1305} = 13.07$ ); Safety ( $F_{2, 1305} = 54.79$ ); and Aesthetics ( $F_{2, 1305} = 31.88$ ). One value, Moral, showed a significant main effect for gender with a less restrictive alpha level of  $p < 0.01$  ( $F_{2, 1305} = 8.63$ ). The strongest differences were observed for Affection and Security scales. Females had significantly higher scores on Affection than males ( $d = -.42$ ). Females also had significantly higher scores on Security than males ( $d = -.47$ ). These were both small to moderate differences. The remaining four significant main effects showed small differences. Males had significantly higher scores on Moral than females ( $d = .21$ ). Females had significantly higher scores on Ethical than males ( $d = -.27$ ). Females also had significantly higher scores on Altruism than males ( $d = -.37$ ). Males had significantly higher scores on the Financial value scale than ( $d = .18$ ) and, finally, females had significantly higher Aesthetics scores than males ( $d = -.33$ ).

Table 20

*Gender Differences in Work Value Orientations*

Values	Males (N= 764)		Females (N=547)		Univariate <i>F</i> (df = 1,1305)	Effect Size Statistics
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>f</i>	Cohen's <i>d</i>
Traditional	29.50	4.55	29.16	4.28	3.23	
Moral	25.73	3.31	25.05	3.26	8.63*	.21
Independence	16.55	2.93	16.12	2.84	3.64	
Ethical	19.99	4.03	21.02	3.60	19.70**	-.27
Altruism	43.76	5.86	45.82	4.99	31.54**	-.37
Affiliation	36.51	5.08	36.30	5.08	2.24	
Affection	34.32	4.57	36.28	4.81	27.47**	-.42
Achievement	26.71	3.15	26.59	3.22	.01	
Financial	40.50	6.38	39.36	6.33	13.07**	.18
Security	15.57	4.45	17.71	4.74	54.79**	-.47
Aesthetics	37.01	6.92	39.19	5.94	31.88**	-.33

*Note.* *f* scores marked \* are significant at  $p < .01$  (2-tailed), those marked \*\* are significant at  $p < .005$  (2-tailed), Total N = 1311, (Casewise deletion of missing data).

### **Relationships Between Work Value Orientations and Personality Traits**

This section details the correlation and regression analyses undertaken to explore work value-trait relationships in the current respondent group. Pearson's *r* calculations and stepwise multiple regression were carried out to assess these relationships. The sub-group of 459 respondents was used in this section. The reason this subgroup was used in these calculations is because not everyone in the larger participant group had completed both the required psychometric assessments. Table 21 provides the descriptive statistics for scores on the VMI and the 15FQ+ of the sub-group, consisting of 459 respondents. These statistics include information on mean, standard deviation, and range of the frequency distribution of the score variable in case of each

value orientation and personality trait scale (or score). The statistical indicators characterising univariate frequency distributions for VMI scale variables (e.g., mean, SD), reported previously in Table 6 (N = 1311), are reasonably consistent with those of the sub-group reported in Table 21 (N = 459). Table 21 indicates that the mean scores for the 15FQ+ global level (Big Five) scales range from -4.46 to 22.26, with standard deviations of between 4.14 and 4.87. Please note that the 15FQ+ scale “Self-Control” is referred to as “Conscientiousness” in the remainder of this study in order to be consistent with the Big Five labels. Appendix E details descriptive statistics for the 15FQ+ primary level scales.

Table 21

*Descriptive Statistics for the VMI and 15FQ+ Global Dimensions*

Factors	Valid N	Min	Max	Mean	SD
<b>VMI</b>					
Traditional	459	13	41	29.62	4.48
Moral	459	10	35	25.66	3.20
Independence	459	7	27	16.43	3.05
Ethical	459	6	34	20.42	4.17
Altruism	459	19	59	44.00	5.40
Affiliation	459	19	51	36.13	4.99
Affection	459	18	48	34.67	4.85
Achievement	459	9	35	26.77	3.13
Financial	459	16	57	39.95	6.49
Safety	459	5	28	16.22	4.67
Aesthetics	459	16	55	37.90	6.74
<b>15FQ+ Global Traits</b>					
Extraversion	459	-1.08	24.48	14.80	4.84



Neuroticism*	459	-4.86	18.52	4.19	4.87
Openness	459	3.29	29.63	15.20	4.62
Agreeableness	459	-16.29	10.25	-4.46	4.14
Conscientiousness*	459	6.62	29.79	22.26	4.60

*Note.* As with all tables contained within this investigation, only the “high-scoring” label of the bipolar personality dimension is reported. \* The 15FQ+ global traits are labelled to be consistent with the Big Five labels.

### **Correlational findings.**

The strength of associations between VMI scores and the 15FQ+ global (Big Five) personality trait scores were calculated via Pearson product-moment correlation coefficients (Pearson’s  $r$ ). The results of the 15FQ+ global trait correlations with VMI scales are presented in Table 22. A Bonferroni correction was applied to the calculations in Table 22 (0.05 divided by 16). This correction means that a probability value of  $p < .003$  meets the requirements for statistical significance in the following section. As with previous sections, only those calculations meeting this level of significance will be discussed. Appendix F reports the 15FQ+ primary trait correlations with VMI scales.

The correlation matrix for the VMI and 15FQ+ global (Big Five) traits presented a number of noteworthy and significant relationships amongst the factors examined. Table 22 indicates that 16 significant correlations emerged at the restrictive significance level of  $p < .003$ . Of particular interest, Pearson’s  $r$  calculations indicate that the strongest correlations are positive correlations between Affiliation and Extraversion ( $r = .57, p < .003$ ), Aesthetics and Openness ( $r = .62, p < .003$ ), and Affection and Extraversion ( $r = .4, p < .003$ ). Altruism also correlated positively with Openness ( $r = .3, p < .003$ ), Affection correlated positively with Openness ( $r = .30, p < .003$ ), and Achievement correlated negatively with Agreeableness ( $r = -.30, p < .003$ ).

All remaining significant work value-trait correlations fell below .30 in magnitude. In regards to these small, yet significant correlations, the following relationships were evident. Traditional correlated positively with Agreeableness ( $r = .21, p < .003$ ) and negatively with

Openness ( $r = -.21, p < .003$ ). Independence correlated positively with Neuroticism ( $r = .26, p < .003$ ) and Openness ( $r = .23, p < .003$ ); and correlated negatively with Agreeableness ( $r = .29, p < .003$ ). Financial showed a significant negative correlation with Agreeableness ( $r = -.23, p < .003$ ), whereas Safety correlated positively with Agreeableness ( $r = .25, p < .003$ ). Safety also correlated negatively with Extraversion ( $r = -.20, p < .003$ ). Finally, Aesthetics showed a positive correlation with Extraversion ( $r = .23, p < .003$ ). The correlation matrix also highlighted that Conscientiousness was the only Big Five personality trait that did not correlate significantly with any of the work values. Agreeableness, on the other hand, appeared to correlate with the majority of work values. Aesthetics, Affection, and Affiliation were the only three work values to not correlate significantly with Agreeableness.

Table 22

*Correlations of VMI Work Values and 15FQ+ Global Personality Traits*

Dimensions	Extraversion	Neuroticism	Openness	Agreeableness	Conscientiousness
Traditional	.07	-.01	-.21**	.21**	.033
Moral	-.05	-.14*	-.15*	.12*	.05
Independence	-.06	.26**	.23**	-.29**	-.05
Ethical	-.00	.14*	.10	.12*	-.01
Altruism	.17**	-.05	.31**	.16*	.05
Affiliation	.57**	-.16*	.16*	-.03	.01
Affection	.41**	.07	.30**	.05	.01
Achievement	.13*	-.09	.11	-.30**	.03
Financial	.11	.07	-.04	-.23**	.00
Safety	-.20**	.13*	-.10	.25**	-.00
Aesthetics	.23**	-.07	.62**	-.11	-.02

*Note.* Correlations marked \* are significant at  $p < .01$ , those marked \*\* are significant at  $p < .003$ ,  $N = 459$ , (Casewise deletion of missing data).

### Multiple regressions.

To further explore the relationships between values and personality traits, stepwise multiple regressions were carried out using VMI scales as criterion variables and 15FQ+ global (Big Five) personality traits and gender as predictor variables. All predictor variables were included in each regression in order to investigate the relative contributions of gender and personality traits in accounting for variance in VMI scales when calculated simultaneously. Stepwise regressions produce a final model containing the least number of significant predictor variables, ordered with the highest predictors first (Cohen et al., 2003). The final models for each stepwise regression analysis are shown in Table 23.

Forward and backward regression methods revealed similar results in the final models. Only two regression models showed inconsistent results across these methods; the model for Ethical and the model for Financial. These findings suggest evidence for suppressor and/or redundant variables (Cohen et al., 2003). These are explained in further detail below. The 11 regressions all produced significant final models. However, there were noticeable differences in the amount of variance explained by the predictor variables. Inspection of the adjusted  $r^2$  values shows that for five of the 11 work values, 15% or more variance is explainable by personality traits and gender. On average, near to 18% of the variance in work values is explained by the predictor variables.

Inspection of the standardised *Beta coefficients* demonstrate that gender and all of the Big Five personality traits, apart from Conscientiousness, contribute to the explanation of work values. There were, however, large differences in the relative contributions made by each predictor variable.

Work values that showed the most amount of variance accounted for by the predictor variables were Affiliation (34%), Affection (26%), and Aesthetics (42%). Over one third of the variance in Affiliation can be accounted for by Extraversion; Agreeableness made only a minor contribution in the final model (>1%). Five predictor variables accounted the 26% of the variance in Affection. This work value can be explained by Extraversion ( $\beta = .45$ ), Anxiety ( $\beta =$

.15), Agreeableness ( $\beta = .18$ ) and Openness ( $\beta = .14$ ). Affection also had a small amount of variance accounted for by gender ( $\beta = -.13$ ). It is important to note that the Extraversion scale alone could account for 16% of the total variance in Affection. Openness was strongly related to Aesthetics, which alone could account for 39% of the variance in Aesthetics. Collectively, Openness ( $\beta = .67$ ), Anxiety, ( $\beta = -.14$ ), and Agreeableness ( $\beta = .09$ ) accounted for 42% of the variance in Aesthetics.

Independence and Altruism had 18% of their variance accounted for by the predictor variables. The final model for Independence shows that this work value can be significantly explained by Agreeableness ( $\beta = -.26$ ), Anxiety ( $\beta = .20$ ), Openness ( $\beta = .21$ ), Extraversion ( $\beta = -.15$ ) and gender ( $\beta = .14$ ). Extraversion, while significant in this model, shows a very low correlation ( $r = -.06$ ) with the criterion variable (Independence); suggesting that Extraversion is not a reliable variable in the regression, but rather acts as suppressor variable (Cohen et al., 2003). The final model for Altruism reveals that 18% of variance is significantly accounted for by Openness ( $\beta = .36$ ), Agreeableness ( $\beta = .30$ ), and Extraversion ( $\beta = .15$ ).

The remaining work values have 15%, or less, variance accounted for by the predictor variables. Safety has 15% variance explained by Agreeableness ( $\beta = .21$ ), gender ( $\beta = -.17$ ) and Extraversion ( $\beta = -.15$ ). Traditional has 9% variance explained by three traits: Agreeableness ( $\beta = .21$ ), Openness ( $\beta = -.19$ ) and Extraversion ( $\beta = .18$ ). Extraversion also appears to act as a suppressor variable in this model, as it shows a very low correlation with Traditional work values ( $r = .07$ ). Financial has 8% of variance explained by Agreeableness ( $\beta = -.26$ ), Openness ( $\beta = -.18$ ), Extraversion ( $\beta = .14$ ), and Anxiety ( $\beta = .12$ ). Moral has a very small amount of variance (adj.  $r^2 = .05$ ) explained by Anxiety ( $\beta = -.13$ ), Agreeableness ( $\beta = .15$ ), and gender ( $\beta = .13$ ). Finally, Ethical also has only a very small amount of variance (adj.  $r^2 = .04$ ) explained by Agreeableness ( $\beta = .17$ ), Openness ( $\beta = .15$ ), and Anxiety ( $\beta = .12$ ).

Agreeableness is the only trait to significantly explain variance in every work value. Agreeableness was also the highest contributing variable for Traditional ( $\beta = .21$ ), Independence ( $\beta = -.26$ ), Ethical ( $\beta = .17$ ), Achievement ( $\beta = -.30$ ), Financial ( $\beta = -.26$ ), and Safety ( $\beta = .25$ )

work values. Conscientiousness was the only Big Five trait that did not emerge as a significant variable in the regression models. Gender only emerged as a significant predictor in four out of the 11 final models, and in all cases was only a modest contributor ( $\beta$  values of .13, .14, -.13, and -.17) with significance levels all falling short of  $p < .001$ . It is also important to note that gender was only significant in model for Ethical when entered alone. Gender became less significant as other predictors were added. Furthermore, Openness was only significant in the model for Ethical when gender was excluded from the model, suggesting variable redundancy. As there was little value in adding both to the model, gender was excluded from the final model for Ethical and Openness was retained.

The final models for Ethical and Financial both included Anxiety, even though Anxiety was not a significant predictor. These two models also produced inconsistent results across forward and backward entry methods. These findings suggest the presence of suppressor and/or redundant variables (Cohen et al., 2003). Examination of each regression step for Financial revealed that Extraversion was only a significant predictor when Anxiety was included in the model. This finding suggests evidence of a suppressor variable, meaning that the relationship between Extraversion and Financial may be modulated by anxiety (Cohen et al., 2003). The same pattern was seen in the regression steps for Ethical. Anxiety was retained in the final model as it appeared to modulate the relationship between Agreeableness and Ethical. Agreeableness was not significant unless Anxiety was included. In other words, the importance of a variable (in this case Extraversion and Agreeableness) only became important when another variable (in this case Anxiety) was added to the model.

Table 23

*Final Stepwise Multiple Regression Analysis: Variance in VMI Work Values Scores Accounted for by the Big Five Personality Traits and Gender*

	Traditional	Moral	Independence	Ethical	Altruism	Affiliation	Affection	Achievement	Financial	Safety	Aesthetics
Extraversion	.18**		-.15*		.15*	.60**	.45**		.14*	-.15*	
Anxiety		-.13*	.20**	(.12)			.15*		(.12)		-.14**
Openness	-.19**		.21**	.15*	.36**		.14*		-.18**		.67**
Conscientiousness											
Agreeableness	.21**	.15*	-.26**	.17*	.30**	.12*	.18**	-.30**	-.26**	.21**	.09*
Gender		.13*	.14*				-.13*			-.17*	
<i>F</i>	15.84	8.47	20.66	7.91	34.39	115.66	31.86	43.84	11.61	20.31	106.90
<i>df</i>	3,455	3,455	5,453	3,455	3,455	2,456	5,453	1,457	4,454	3,455	3,455
Adj. <i>r</i> <sup>2</sup>	.09	.05	.18	.04	.18	.34	.26	.09	.08	.15	.42

*Note.* \*  $p < .01$ . \*\*  $p < .001$ . Minimal N = 459

## **Chapter 5: Discussion**

The key objectives of this study were to explore gender differences in New Zealand work values and to examine the relationships between work values and personality traits. The work value orientation constructs that were examined in this study included: Altruism, Affection, Affiliation, Achievement, Financial, Aesthetics, Security, Moral, Independence, Traditional, and Ethical. These work value orientations were measured by the VMI. The personality trait constructs examined included: Extraversion, Anxiety, Openness, Agreeableness, and Self-Control (Conscientiousness). These personality traits were measured by the 15FQ+. The discussion section that follows addresses the many points where the current findings show tendencies coherent with previously published research, as well as points where the current findings diverge from earlier results. Theoretical explanations for these findings are then addressed. Finally, the implications of these findings, the limitations of this study, and directions for future research are discussed. As in preceding sections, some of the key terms will be used in shortened form for convenience of presentation. When “values” and “work values” are invoked in the current chapter, they are used as shorthand for the terms intended, i.e., “value orientations” and “work-related value orientations”, respectively.

### **Gender and Work Value Orientations**

The first objective of this study was to investigate potential gender differences in New Zealand work values. The results revealed a number of significant findings. The largest gender differences were evident in females’ greater endorsement of Altruism, Affection, and Security work values than males. The work value Altruism relates to valuing generosity, helpfulness, and being concerned about the needs of others. A work value orientation towards Affection tends to relate to a preference for showing, and wanting others to show, warmth and affection. High scorers on Security tend to endorse being risk-averse, cautious, and routine driven. Small, yet significant, differences were evident in males scoring higher than females on the work value of Financial. This work value assesses materialistic drive and interest in wealth and status. Females also scored significantly higher than males on Ethical and Aesthetics work values. An Ethical

work value orientation relates to the belief in a “higher-order” explanation for the world and an acceptance of things spiritual and/or religious. The work value Aesthetics concerns an appreciation for cultural activities, including art, music, and literature. The analyses further suggest that these identified gender differences in work values are likely to be seen regardless of age.

These gender differences are broadly consistent with the findings of Sagie and Elizur (1996). These authors identified males as being more concerned with values relating to economic rewards, and females as being more concerned with values relating to social approval, affection, and security. The current finding that females score higher on Altruism is further supported by the research of Beutel and Marini (1995). These authors concluded that females are more likely than males to express concern and responsibility for others. An interesting finding in the current study is that no gender differences were evident for Achievement and Independence work values. These work values respectively relate to an individual’s drive to be the best at what they do and an individual’s belief and commitment to their own viewpoint. The current results, indicating no gender differences on Achievement and Independence, are contrary to much previous research supporting gender differences in work values (Daehlen, 2007; Elizur, 1994; Weisgram et al., 2010). Such research has generally suggested that males, in addition to being financially driven, are also more focused towards independence, status, mastery, and competitiveness.

#### **Theoretical explanations for gender differences.**

Theoretical perspectives in the field might explain these observed gender differences. Values are said to be influenced by social experiences, as well as individual differences (Gahan & Abeysekera, 2009). Gender differences in values are therefore likely to reflect differences in these experiences. Just as generational differences in work values have been said to be a result of differences in social experiences over time (Gursoy et al., 2008; Smola & Sutton, 2002), gender differences in work values may reflect different social experiences across males and females. Social role theory may help us understand these differences in experience. Feather (1987) suggested that males and females are socialised to occupy different social roles and to affirm different life goals. In a similar view, it has been suggested that demographic variables (including



gender) do not directly impact work values but are instead “surrogates” for social roles, socialisation, and social expectations (Sagie et al., 1996, p. 506). Thus, it may be the case that in New Zealand females are socialised (e.g., through parenting, schooling and peers) to prioritise values that focus on altruism and mutual support as important. New Zealand males, on the other hand, may be socialised to value economic rewards as being important.

The observed gender differences in Security work values may be due to both physiological and social factors. According to Schwartz and Rubel (2005), in most societies, female’s smaller size, lower status and greater dependence on others for support makes them more vulnerable than males. The combination of these experiences may explain why females in this study attributed greater importance to being cautious and safety-conscious than males.

Inclusive of gender role related experiences, the priorities that individuals attribute to different values may also reflect different life opportunities made available. Kohn and Schooler (1983) suggest that individuals may adjust their value priorities’ according to their life circumstances. An individual may downgrade values made unattainable by their role opportunities and upgrade those which are attainable. Gender differences in work values may be a manifestation of different behavioural opportunities and constraints imposed on males and females in New Zealand. Women tend to play a more significant role than men in reproduction and in caring for others (e.g., young children, the elderly, and the sick. It has been shown that these activities give women more direct experience in nurturing activities in almost all societies (Valian, 1998). These direct experiences may promote valuing benevolence and support. In a work context, these values may manifest as a preference for altruistic work and for developing supportive and empathic relationships with colleagues. Similarly, men more frequently than women occupy higher earning, provider roles that may encourage values relevant for such work (e.g., a focus on financial rewards) (Valian, 1998). As a result, males already working may receive more opportunity for employment endorsing material rewards; whereas females may receive more opportunities for caring and support type roles.

The current study found no significant gender differences on the Achievement work value scale, which assesses the importance an individual places on excelling in their job and receiving

respect and admiration from others. This finding suggests that despite previous research indicating that males are socialised to be more “agentic” (e.g., Diekmann & Eagly, 2000; Gibson & Schwartz, 1998) this may not be the case in New Zealand. In New Zealand, males and females may be socialised equally and receive equal reinforcement opportunities in terms of being the best in their chosen field and receiving the respect and admiration of others. The current findings may also reflect what is known as *tall poppy* syndrome (Feather, 1989). This phenomenon has long been associated with both Australian and New Zealand culture (Kirkwood, 2007). Tall poppy syndrome, whereby high achievers are “cut down” or disapproved of by social peers, has been shown to reinforce a cultural humbleness, or modesty (Feather, 1989). As a result individuals tend to avoid standing out from the group based on personal excellence. These complex social factors may have contributed to the gender similarities observed in Achievement work value orientations. As both males and females may be equally likely to be socialised into New Zealand’s so called “tall poppy culture” (Kirkwood, 2007).

The current findings contradict some previous research that has suggested that men and women place similar priorities on their values (e.g., Frieze, Olson, Murrell, & Selvan, 2006; Robinson & Betz, 2008; Sverko & Super, 1995). It may be recalled that gender differences in work values have been shown to be less prominent in student respondent groups than amongst general respondent groups (Schwartz & Rubel, 2005). Social role theory suggests that males and females may experience similar experiences and opportunities and similar role expectations in their student life (Schwartz & Rubel, 2005). It may not be until they enter the work-force that they are exposed to certain gender disparities in opportunities and expectations. The current study used a general population respondent group. Herein is one possible reason the current study found significant gender difference in work values; whereas previous research using student respondent groups have not.

It is important to note that the significant gender differences in work values identified in the current study are all small in magnitude. Therefore, they may represent, in reality, only minor differences in work values orientations endorsed by males and females. Nonetheless, the possible

implications of these significant, be they small, gender differences are still worth exploring. The following section addresses these implications.

### **Implications of observed gender differences in work value orientations**

The results suggest that gender is not irrelevant when explaining individual work values. Overall males appear to be slightly more financially driven than females; whereas females appear to be more socially and security orientated. Both males and females appear to value achievement equally. These results may have a number of practical implications for motivation, job satisfaction, and vocational choice.

Firstly, gender differences in work values may also lead to sex-typed occupational interests (Weisgram et al., 2010). The reason being, is that work values have been shown to influence the type of work a person is motivated by and, therefore, pursues (Knafo & Sagiv, 2004). Weisgram et al. (2010) found similar gender differences in work values to the current study. Males in their study endorsed money and power; whereas females held higher altruism values. These authors also found that males are more interested in working in occupations depicted as paying well financially; as opposed to those involving helping others, which were more attractive to females. New Zealand statistics show that there is a significantly higher percentage of females in service related roles and that males commonly move into managerial roles at a higher ratio than females (Dixon, 2000). It is possible that the gender role segregation in the New Zealand workforce can in part be accounted for by the observed gender differences in work values. Lips and Lawson (2009) also linked similar gender differences in work values to pay expectations. Males have higher financial work values; therefore, they may also have higher pay expectations than females, even when in the same role. Lips and Lawson suggested that such value differences may sustain the gender wage gap. It is interesting to note that, while statistically significant, the gender differences in Financial work values identified in this study were relatively small and may, in reality, represent only minor variation in work values. The implication here is that the pursuit of financial rewards may in fact not be that different for men and women in New Zealand. A recent survey in New Zealand confirmed that while males currently occupy higher paying jobs overall, the gender pay gap is decreasing (Dixon, 2004).

More research is needed in New Zealand to clarify the link between work values, pay expectations, and actual salary.

Of particular interest, the results suggest that males and females do not differ in their values relating to achievement. This is in contrast to previous research that has found that males put a high priority on excelling in their career, whereas females tend to value putting family and personal life first over career ambitions (Lips & Lawson, 2009; Weisgram et al., 2010). The implication here is that New Zealand men and women may be equally as likely to value being the best in their chosen field, and may be equally motivated by receiving respect and admiration from others. Furthermore, both may be equally as committed to making personal sacrifices in order to succeed in their chosen field. These findings may reflect an emerging trend in New Zealand indicating that females are putting off starting a family, often into their 30s (Bascand, 2010). This discussion now addresses the second objective of the study: to explore the relationships between work value orientations and personality traits.

### **The Relationships between Work Value Orientations and Personality Traits**

Correlations coefficients and multiple regressions were calculated for the given variables in order to investigate the relative contribution of the Big Five personality traits in accounting for variance in work value orientations. An additional outcome of exploring these relationships is to provide further construct clarity for work values. Gender was included in these analyses. However, gender did not emerge as a strong factor when alongside personality traits. Gender was a significant predictor in only four out of the 11 final regression models; and in these contributed to only a small amount of variance in work values. These findings suggest that an individual's personality is likely to be of more importance in explaining their work values than whether they are male or female.

The regressions suggested that all work values have some unique variance explainable by personality traits. On average, near to 18% of the variance in work values was explained by the Big Five personality traits. The results also revealed that all of the Big Five traits, apart from Conscientiousness, contribute to the explanation of work values. The strongest relationships were

observed between Extraversion and the social work values of Affiliation and Affection. These social work value scales respectively assess an individual's preferences for being part of a social group and for having the opportunity to provide sympathy and comfort to others. Strong relationships were also observed between Openness and the work value Aesthetics, which is associated with an appreciation for cultural and artistic activities. The work values that showed the weakest relationships with the Big Five traits were Ethical and Moral values. Less than 5% of the variance in these work values could be explained by the Big Five personality traits. Traditional, Achievement, and Financial work values also had less than 10% of their variance accounted for by traits.

The work value Aesthetics presented as having the most amount of variance accounted for by the Big Five traits overall. More than 40% of the variance in Aesthetics could be explained by Openness, Anxiety, and Agreeableness. However, Openness was by far the most important trait relating to Aesthetics. This result suggests that creative individuals who are original, daring, and liberal are also likely to perceive cultural and artistic activities as important motivators at work. The strong positive relationship between Openness and Aesthetics does not appear to be a prevalent finding in the literature, however. One exception is the research of Berings (2004). Berings found that valuing creativity was positively related to Openness. In contrast, other previous studies have only found being open to new experiences as significantly relating to Altruism and Independence. One possible reason for the relatively unique relationship between Openness and Aesthetics identified in this study could be due to differences in the value measures employed. The VMI measure includes an Aesthetics scale. This scale assesses an individual's appreciation for cultural and artistic activities. The VMI's Aesthetics scale does not appear to have an equivalent in value measures employed in previous research (e.g., Furnham, 1987; Roccas et al., 2002). One exception is Berings et al.'s (2004) use of a creative value scale. Future studies may wish to include a scale equivalent to Aesthetics in order to investigate if the strong relationship between Openness and Aesthetics identified in this study can be replicated.

Variance in social work values were also strongly accounted for by the Big Five traits. Extraversion emerged as the single highest contributor to variance in Affection and Affiliation

work values. These findings suggest that those who are outgoing and gregarious are more likely to value being part of the group and having close supportive relationships than those who are less extraverted. Berings et al. (2004) also found that extraverts tend to have more people-orientated work values. Extraverts in Berings et al.'s study endorsed values of Teamwork and Community, and to a lesser extent Innovation. The current study also found Extraversion to relate to Altruism. Nonetheless, the strongest relationship for Altruism was with Openness. This suggests that people who are likely to consider their feelings and to follow their intuition are also likely to value generosity and helping others. Duffy et al. (2009) found similar results in their study in that the value Service was positively related to those scoring high on the Big Five trait Openness.

Another work value that showed a moderate amount of variance accounted for by traits was Independence. Once again Openness and Agreeableness emerged as the strongest contributors to variance in Independence. This result suggests that people who are radical and liberal and low on Agreeableness (e.g., likely to be self-determined, dominating, and confrontational) may value standing up for their own views. Roccas et al. (2002) revealed similar findings. Their study indicated that both high Openness and low Agreeableness were related closely to Independence and Self-direction values.

Overall, the Big Five personality trait Neuroticism appears to have a weak relationship with work values. It showed just one significant correlation with Independence. Neuroticism also accounted for only a small amount of variance in work values overall. These findings are generally consistent with previous research (Parks, 2007). In three studies reviewed (R. Duffy et al., 2009; Furnham et al., 2005; Roccas et al., 2002), neuroticism type personality traits related poorly to work values overall. In contrast, the Big Five trait Agreeableness was the only trait to explain a significant amount of variance in each work value. People who endorsed behaviours associated with Agreeableness were also likely to endorse socially-orientated values (i.e., Altruism, Affiliation, and Affection). This finding is consistent with Furnham et al. (2005) who found Agreeableness to be positively related to all values endorsing positive work relationships. The findings obtained by Organ and Lingl (1995) further indicate that agreeable individuals are more likely to value good relationships with colleagues than those low on Agreeableness. People

who endorsed behaviours associated with being agreeable were also less likely to be orientated towards Independence, Achievement, and Financial work values in the current study. Schwartz (1992) referred to these as *self-serving* values and also found that they positively related to those low on Agreeableness. Furthermore, Roccas et al. (2002) found comparable negative relationships between Agreeableness and similar self-serving values. These findings all suggest that Agreeableness may be an important Big Five trait to consider when examining an individual's work values. In particular, individuals high on Agreeableness appear likely to value socially-orientated values; whereas those low on Agreeableness appear likely to pursue values entailing some level of self-interest. The following section explores a number of possible explanations for the observed value-trait relationships.

#### **Theoretical explanations for work value orientation-trait links.**

Many of the observed relationships between traits and work values can be explained in terms of Parks and Guay's (2005) theory of compatible and incompatible relationships. According to this theory, a relationship between a trait and a value is likely to exist when the behaviours associated with the trait support the attainment of the underlying goals of the value. This theory also supports Mandler's (1993) notion of schemas; whereby patterns of behaviours are likely to lead to congruent values. The implication here is that values may in part be grounded in our behavioural tendencies.

The current study showed that valuing Affiliation and Affection were strongly related to Extraversion. In line with Parks and Guay's (2005) theory, these values may be grounded in the behavioural tendencies to be outgoing, gregarious, and socially confident. These tendencies are likely to make it relatively easy for an individual to establish close relationships with others, engage in social interaction, and become a part of a number of social networks. Accordingly, extraverted individuals may develop socially-oriented values that are in line with these outcomes. The same can be said for the relationship between Openness and Aesthetics. Individuals who value Aesthetics may do so because they are creative, innovative, and abstract thinkers. These behavioural tendencies are likely to be compatible with an appreciation of art and cultural events.

As such, individuals high on Openness may develop Aesthetic work values as important principles in life.

In regards to Altruism, the results suggest two different behavioural bases for this work value. Both Agreeableness and Openness appear to be strongly related to Altruism, suggesting that people who value Altruism may do so because they are moved by feelings and are empathic towards others' needs. However, Altruism may also be grounded in tendencies to be trusting and accommodating to people's needs. In this way, Openness may relate to Altruism because being moved by feelings and empathic towards others is likely to support the goal of being concerned for the wellbeing of others. Whereas, Agreeableness may relate to Altruism because, being accommodating and trusting is likely to support the goal of fulfilling social obligations.

Finally, three traits were strongly related to Independence: Openness, Agreeableness, and Neuroticism. At first this seems to suggest a fairly complex behavioural basis for Independence. However, these traits do have some behaviours in common, which may account for why they all appear to link to Independence. Firstly, low Agreeableness and Neuroticism both entail the likely tendency to be suspicious. Suspicious tendencies may support one key goal of Independence: to question people in authority. Secondly, low Agreeableness and Openness both entail the likely tendency to be radical and unconventional. Radical behaviour and going against the status quo is likely to support another key goal of independence: standing up for one's own views, regardless of what others may think. In this way, both suspicious and radical tendencies appear to be compatible with different goals of Independence. The significant value-trait relationships identified in this study also appear to be overall consistent with Olver and Mooradian's (2003) statement that we lean toward those values that are supported by our inherent personalities. The next three sections of the discussion address a number of additional, to some extent unexpected, findings: 1) the relationship (or lack thereof) between Conscientiousness and the work values examined; 2) differences in the amount of variance in each work value orientation accounted for by the Big Five traits; and 3) additional support for the construct validity of work values.



### **Conscientiousness and work value orientations.**

Conscientiousness was the only predictor variable that did not show a significant relationship with a single work value. This finding appears to be contrary to those in the literature. Previous findings suggest that Conscientiousness strongly relates to work values; in particular Achievement (e.g., Parks, 2007; Roccas et al., 2002; Zhang et al., 2007).

There are a number of possible reasons why the current study did not find similar results. One possibility is that the sub-facets of Conscientiousness, as identified by the 15FQ+, may have contradictory relationships with work values. In an exploration of value-trait links at a sub-facet level, Roccas et al. (2002) found that Conscientiousness combines components compatible with different values. For example, within the 15FQ+, Conscientiousness is comprised of *Restrained*, *Conscientious*, and *Self-disciplined* sub-traits (Psychometrics Ltd, 2002). It may be the case that one sub-facet of Conscientiousness (e.g., Self-disciplined) positively relates to Achievement, whereas another (e.g., Restrained) negatively relates to this value. Such opposing sub-facet relationships may cancel each other out when the scores are combined at a global level.

Another possible reason why Conscientiousness did not strongly relate to Achievement in the current study could be due to differences in the conceptualisation of Conscientiousness. Most previous studies that have found Conscientiousness to positively relate to Achievement used the NEO-PI (Costa & McCrae, 1985) as a measure of the Big Five personality traits (e.g., Berings et al., 2004; E. Duffy, 1940; Roccas et al., 2002). There are a few differences between the NEO-PI's conceptualisation of Conscientiousness compared to the 15FQ+'s. For example, the NEO-PI describes Conscientiousness as containing *Achievement-striving* and *Competence* sub-facets (Costa & McCrae, 1985). These sub-facets are absent from the 15FQ+'s description of the trait (Psychometrics Ltd, 2002). The sub-facets of Achievement-striving and Competence may account for why previous research using the NEO-PI identified a relationship between Conscientiousness and Achievement. The reason being is that these sub-facets traits appear to relate to Achievement at a conceptual level. Accordingly, they may also show significant correlations with this work value. The suggestion here is that Conscientiousness may have differing relationships with work values depending on the measure employed.

Similarly, Conscientiousness may relate to work values not covered by the measure employed in this study. For example, there is no equivalent for the work value *Structure* in the VMI. However, Berings et al. (2004) found that variance in this work value was strongly accounted for by Conscientiousness. Furthermore, the value *Conformity*, which bears only small resemblance to the VMI's Traditional scale, strongly related to Conscientiousness in both Park's (2007) meta-analysis and Roccas et al.'s research (2002). Had such scales been included in the current investigation, then significant relationships between work values and Conscientiousness may have emerged.

#### **Differences in work value orientation-trait relationships.**

Another interesting finding is that there were substantial differences in the amount of variance in work values accounted for by the Big Five personality traits. The intrinsic work values Moral, Traditional, and Ethical had the least amount of variance accounted for by personality traits, less than 10%. On the other hand, Affiliation and Affection, which are social values, and the extrinsic work value Aesthetics had over one quarter of their variance accounted for by the Big Five.

The preceding results indicate that the value-trait link may be stronger for some work values than it is for others. More specifically, personality traits may be less important for understanding variance in intrinsic work values compared to social and extrinsic values. This variation in the strengths of value-trait links may be a reflection of the distinction between *moral* and *individual* values (Meglino & Ravlin, 1998). According to Meglino and Ravlin, moral values such as Moral, Ethical, and Traditional imply a strong moral obligation; therefore, they may be heavily influenced by social and cultural factors. On the other hand, individual values such as Security, Affection, and Aesthetics may show more inter-individual variability in preference or liking. These individual values are more likely to be linked to individual factors, such as personality traits, as opposed to external environmental factors. In this way intrinsic values may be strongly grounded in the goal of fulfilling social obligations and "oughtness", rather than some inherent disposition. The suggestion here is that intrinsic values may persist despite an individual's personality. These findings also support Rokeach's (1973) idea that

“oughtness” is primarily more a component of moral values that originate within society, as opposed to within the individual.

### **Construct validity of work value orientations.**

An additional outcome of exploring work value-trait relationships using a well-established trait model is that it can further help to examine and establish the construct validity of work values (Berings et al., 2004). The analyses indicated that while values and traits share substantial variance, they have a significant amount of unique variance. This unique variance may be what differentiates work values from personality traits, suggesting that that they are indeed two conceptually distinct constructs (Berings et al., 2004). These findings support McCrae’s and Costa’s (1996) conceptualisation of traits and values at two different, but interconnected levels of interpersonal differences. This conclusion is also appearing more frequently in the research (see Berings et al., 2004; Olver & Mooradian, 2003; Roccas et al., 2002) providing growing support for the idea that values and traits are separate constructs, and cannot be substituted. The next section explores the implications of the current findings.

### **Implications of work value orientation-trait relationships.**

The current findings indicate that an individual’s disposition may relate to their work values. From a practical perspective, this suggests that when exploring work place interests, preferences, and motivation the role of personality is best not overlooked. These value-trait relationships also have possible implications for a number of important workplace outcomes.

Firstly, the identified relationships between work values and traits may say something about the manner in which an individual will strive to achieve the underlying goals the value represents. Parks and Guay’s (2009) theory of goal setting and goal striving behaviour suggests that values may determine the goals individuals choose to pursue; whereas personality traits may determine the amount of effort and persistence that individuals exert in trying to achieve their goals. In other words, once a value aligned goal is set, personality determines if and how the goal will be attained. In the context of the current findings, an individual who values being part of the group (Affiliation) and/or who values close relationships with others (Affection) is likely to go about achieving these goals in an extraverted manner. That is, they are likely to pursue goals of

establishing close relationships and having companionship at work by being socially confident, enthusiastic, and by sharing their feelings with others. The current findings also suggest that Openness is strongly related to the work value Aesthetics. One goal likely to be associated with Aesthetics may be to be involved in cultural activities at work. As such, aesthetically orientated individuals who share such a goal may pursue this goal by sharing new ideas and concepts with colleagues, by listening to how people feel about introducing cultural activities, and by challenging conventional work place procedures.

Secondly, the identified relationships between work values and personality traits may further our understanding of the Big Five trait behaviours linked to work place motivators and vocational choices (Berings et al., 2004). This insight may be of use to managers, team leaders, career counsellors, and anyone working with others where it is important to understand these factors.

According to the current results, individuals who are talkative, confident, and energetic (Extraverted) are more likely to value supportive relationships and to prefer to have a high level of contact with people. In line with this relationship, these extraverted individuals may also be motivated by supportive work environments that offer the opportunity to work closely with others. Moreover, they may have a greater likelihood of pursuing work involving a fair amount of people interaction, such as roles in customer service. Extraverts may also prefer open communication channels and may need strong social networks to keep them enthused. The strong, significant relationship identified between Openness and Aesthetics could mean that empathic, creative, and abstract individuals prefer to work in environments where cultural and artistic activities are recognised. These individuals may also view public support of the arts as worthwhile and may even pursue vocational education and employment in this area (e.g., music, theatre, galleries). Given that Openness negatively related to Financial work values, individuals high on Openness may also tend to place less value on pay and material benefits compared with those low on Openness. As such, an alternative to financial incentives, such as flexible work hours or creative room spaces, may be what is required to retain these individuals and motivate them at work.

Another implication of the value-trait relationships identified here is that certain traits may accompany work values that are advantageous in particular organisations. For example, valuing Aesthetics may be beneficial to community art organisations, such as museums and public galleries. An understanding of the traits likely to be associated with certain work values could improve hiring and placement practices, particularly those that address employee-organisational fit and/or employee-role fit. In the context of the current findings, organisations wishing to hire people who value Aesthetics may benefit from knowing that these individuals may also be radical, abstract, and sensitive. These organisations could attract such individuals by showing support for such Openness behaviours. One method to achieve this could be to state in job advertisements that new, even “crazy” ideas and innovative thinkers are welcome. Similarly, organisations that choose to hire extraverts could benefit from knowing that these individuals may be more motivated in environments where they have the opportunity to be part of the group and have supportive work relations. Consequently, these organisations may wish to put in place practices, such as social events or mentoring, to help ensure that social motivators are available. As mentioned previously, the attractiveness of an organisation to an individual may depend on the values the organisation chooses to emphasise (Locke, 1976). Individuals are likely to select organisations where they perceive a match between their own values and those of the organisation. However, such value congruent based decisions may occur only when the organisation’s values are clearly made known (Judge & Bretz, 1992). Organisations wishing to encourage employee-organisational fit may need to ensure that their values are easily recognisable to potential employees (e.g., through marketing practices, such as job advertisements and media releases).

The identified links between values and traits may also have important implications for other workplace outcomes, such as wellbeing and job satisfaction. However, this area needs further exploration. Vansteenkiste et al. (2007) suggested that the relationships between work values and job outcomes may be mediated by traits. For instance, a person who values financial rewards may be more dissatisfied with their job because they are also neurotic. Recall that Vansteenkiste et al.’s (2007) results suggested that Achievement focussed individuals have more

negative health and job satisfaction outcomes compared to those who prioritise social work values (e.g., Altruism, Affection). If Vansteenkiste et al.'s results and theory are applied to the current findings, a number of questions arise about possible outcomes. For example, will individuals who value Altruism be more satisfied in their job because they are also likely to be extraverted? Or, will individuals who value Achievement show higher levels of stress because they also tend to be low on Agreeableness? These potential mediating relationships are worthwhile exploring in future research.

There are also a number of implications associated with the finding that there is variation across work values in the amount of variance accounted for by traits. Work values endorsing close and supportive work relationships (i.e., Affiliation and Affection) and artistic endeavours (i.e., Aesthetics) appear to show a larger portion of variance explainable by personality traits, compared to values such as Moral and Ethical. Values that have a large amount of variance explainable by traits may be less susceptible to environmental pressures (Olver & Mooradian, 2003). In the context of the current findings, Aesthetics and social work values may be less susceptible to environmental influences as they appear to be to a larger extent connected to personality. On the other hand, values focused on moral obligations (e.g., Moral, Ethical) may be less likely to be influenced by personality traits. These values may instead be more likely to change in-line with societal pressures. Herein is the suggestion that there may be variation in the durability of work values. An introverted person, for example, may maintain a low regard for supportive relationships at work in spite of what they might learn from social influences (e.g., family, co-workers, and peers). This theory has implications for organisations wishing to foster employee work values of a particular kind. For example, an organisation aiming to encourage values that support cultural and artistic activities may have difficulty establishing these values if a large number of their employees are low on Openness. The idea that certain values may be more difficult to change using social influences than others is an area worth investigating in future research. Such findings would be invaluable for practitioners or organisations interested in initiating any form of work value change or alignment.

Finally, there are implications associated with the current finding that values and traits share substantial variance, yet, also appear to have significant unique variance. These results provide some evidence that while values and traits are related, they are also conceptually distinct. Traits do not appear to subsume values; suggesting they cannot be substituted. In the context of workplace practice, these findings suggest that the assessment of personality traits should not replace that of work values. In practice it may be worthwhile measuring both. Both personality and work values are likely to capture distinct and differentiable characteristics of an individual (Olver & Mooradian, 2003).

Until now, the implications discussed here have not taken into account the effects of context. Various factors of a work environment may mediate the direct or indirect impact that work values and personality traits may have on behaviour and job outcomes; these include goal orientated behaviour, vocational choice, and job satisfaction. The following section addresses a number of these environmental considerations.

**Further considerations on the relationship between work value orientations, personality traits, and behaviour.**

The level of autonomy and discretion an individual has in their role may influence the extent to which their work values may impact on their behaviour (Parks & Guay, 2009). Parks and Guay (2009) suggest that any value congruent behavioural differences are likely to be more apparent in situations where the individual has more autonomy in their role. Senior managers and entrepreneurs, for example, generally have a relatively high level of freedom in how they go about their work (Parks & Guay, 2009). For these individuals, their work values and personality may be more predictive of their work related behaviour than for those whose behaviour is more constrained by their role.

Weick (1996) also explored the impact of work values in *strong* versus *weak* situations. Weick suggested that in weak situations, where there are unstructured or ambiguous goals, the influences of work values are more critical. So, for example, where there are no performance standards or behaviour-reward structures in place, work values may have a greater impact on behaviour. On the other hand, in strong situations, where there are clear expectations and specific

behaviour-reward contingencies in place, the relative role of work values on behavioural outcomes may be decreased.

The expression of values in any form of behaviour may also depend on whether or not we are made aware of our values. Values may rely on cognitive control, meaning that we may need to rationally consider our options within the context of our values in order for them to impact decision-making (Connor & Becker, 1994). Connor and Becker's (1994) research showed that individuals made choices in line with their values, but only when their values were cognitively activated, or made salient. Rokeach (1973) also emphasised the importance of making values salient in order to initiate any behaviour change. The implication here is that practitioners wishing to encourage value aligned behaviour may need to facilitate some form of value awareness sessions with employees. These sessions may include the opportunity for employees to identify and reflect on their work values. According to Rokeach (1975), given the opportunity, people can identify their values and also consider the implications of their values. Furthermore, according to Ball-Rokeach and Loges (1994) individuals can change their value priorities to reflect their goals, and they can change their behaviour to conform to their values. This discussion now turns to the limitations of the current investigation.

### **Limitations and Directions for Future Research**

The current study had a number of limitations. The most important of these are discussed in the following paragraphs. The limitations detailed pertain to the work values measure used, the generalisability of the results, the testing procedure, and general methodological factors.

The psychometric evidence associated with the VMI limits the certainty with which it can be said to measure work value orientations. The auxiliary Exploratory Factor Analysis (EFA) reported in Appendix A provides tentative support for the construct validity of the VMI that is additional to that reported in the VMI technical manual (PsyTech International Ltd, 1999). However, the analysis undertaken also revealed a number of apparently redundant VMI items failing to load significantly on any factors. This may reduce the strength of the relationship between scale scores and actual comparable work value orientations. Subsequent revisions of the



VMI may be able to improve its validity through rewriting, substituting, or removing these potentially problematic items. Another psychometric limitation of the VMI concerned the reliability of its Achievement scale. While the VMI's reliability was generally acceptable, the scale of Achievement showed poor consistency. Caution should therefore be exercised when interpreting results relating to this scale. Another measurement limitation concerns how well the VMI scales cover each domain of work value orientations they intend to assess. It would have been preferable, had the data been available, to conduct a convergent validity check of the VMI against another commercially available work values assessment in New Zealand, such as the MVPI (J. Hogan & R. Hogan, 1996). Once again, subsequent revisions of the VMI are likely to benefit from reviewing current scales and items, and bolstering available evidence for its validity and reliability (Alwin & Krosnick, 2001). Future research looking to replicate findings reported in this thesis would also provide additional value through the use of a conceptually comparable, yet psychometrically superior, alternative to the VMI.

Another potential limitation associated with the VMI was its absence of scales relating to Structure and Conformity. As previously mentioned, this may explain why the current study did not identify any of the significant links between the Big Five Conscientiousness and work values identified in previous research (e.g., Parks, 2007; Roccas et al., 2002; Zhang et al., 2007). This is an important focus for future research as Conscientiousness is the Big Five trait most frequently associated with desirable workplace outcomes, including job performance (Barrick & Mount, 1991) and low counterproductive behaviour (Cullen & Sackett, 2003). On this basis, future research exploring the relationships between work values and Conscientiousness may provide unique insight into the motivational predictors behind such desirable work outcomes.

The generalisability of the results is another limitation of this thesis as respondents were not selected via random sampling methods. Random or probability sampling is intended to increase the likelihood that a respondent group is representative of the population of interest (Leong & Austin, 1996). The respondent group in this study was obtained via convenience. Therefore, it may be inaccurate to generalise the findings to the broader New Zealand working

population. Future research would benefit from attempting to replicate the results of this thesis with a randomly selected sample of the New Zealand working population.

Another limitation is the possibility that the testing process may have affected the results. Firstly, the measurement of values and of personality traits in this study was by self-report, which in itself has a number of limitations (Kline, 1992). The key limitation to self-report measures is that they are prone to many kinds of response bias (see Campbell & Fiske, 1959; Donaldson & Grant-Vallone, 2002). These include social desirability, self-distortion, and other psychological defences that may affect the way questions are answered (R. Lee, 1982). Secondly, respondents in this study predominantly undertook testing in a selection context. Context has been shown to be important in influencing how people fill out value surveys (Seligman & Katz, 1996). In addition, the afore mentioned self-report response bias is more likely in workplace related contexts as respondents are often conscious of the fact that their current or future employers may gain access to their responses (Donaldson & Grant-Vallone, 2002). Consequently, they may try to respond in a way that they believe will present themselves as favourably as possible. However, the measures employed in this thesis do include scales designed to detect respondents who may not be presenting themselves accurately. Furthermore, the impact of this limitation is likely to have been reduced through the exclusion of respondents who scored more than three standard deviations above the mean on these scales (Leong & Austin, 1996). Nonetheless, future research could carry out value assessments in non-selection and selection contexts in order to see if results compare. If the results do not compare then it may be preferable to develop measures that are more sensitive to contextual concerns.

Another limitation of the results reported in this thesis is the possibility that the associations found between the self-reported personality traits and work values are merely a function of common method variance and item overlap (Furnham et al., 2005). While it may be preferable to use multi-method approaches (e.g., peer interviews and/or behaviour observation) to overcome such problems, it is not clear how else to measure job values behaviourally. That said, a simple way for future research to reduce the potential impact of this limitation may be to administer the work value orientation and personality assessments on separate occasions.

Another limitation of this study concerns its failure to explore relationships between length of time in the workforce and gender differences in values. As mentioned previously, some of the research on gender differences in work values has suggested that males and females are exposed to similar opportunities and experiences in student life but these become more disparate as they move into the workforce (Schwartz & Rubel, 2005). Future research could explore gender differences in work values across individuals varying in work experience by gathering additional demographic information. For example: students, individuals with five years work experience, individuals with 15 years work experience, and so on.

Focusing exclusively upon the Big Five model of personality is another limitation within this investigation. As discussed earlier, some researchers have argued that the sub-facets of the Big Five are more important behavioural predictors than the Big Five they comprise (e.g., Ashton et al., 1995). For this reason future research may benefit from a more in-depth investigation into the relationships between trait sub-facets and work values in general. Such research could provide a greater understanding of the particular facets of the Big Five that relate to work values.

A variety of other directions for future research have also arisen as a consequence of this thesis. It was earlier suggested that the observed gender differences in work value priorities, in particular Security and Affection, may be a consequence of the different socialisation experiences of males and females in New Zealand. Future research may wish to test this hypothesis. Furthermore, future research could provide further useful information on the relationships among personality traits and values through the control of a wider range of variables during analysis; such as education, socioeconomic status, job type, and work experience. These may prove to be highly relevant factors in understanding New Zealand work values. The following section provides a brief summary of the key outcomes of this thesis.

### **Summary**

This thesis had two research objectives. The first of these objectives was to explore gender differences and similarities in the endorsement of work value orientations amongst a New Zealand respondent group. The second research objective was to explore relationships between

work values and the personality traits within a New Zealand respondent group. The current study is, to my knowledge, the first of its kind to be conducted in New Zealand use an employment based respondent group.

A number of previously identified gender differences in work values were replicated in the New Zealand respondent group (see Daehlen, 2007; R. Duffy & Sedlacek, 2007; Elizur, 1994; Lips & Lawson, 2009; Weisgram et al., 2010). Females appeared to place more importance than males on work values endorsing safety and cautiousness, benevolence, and supportive relationships with others. Males appeared to place more importance on work values relating to economic wealth. However, these differences were only small in magnitude. Furthermore, in later analyses, gender appeared to be relatively unimportant in accounting for variance in work values when considered alongside personality traits. This suggested men and women in New Zealand may not differ substantially on the priorities they place various work values.

A number of personality traits were also found to have more common associations with some work value orientations than others. The analyses revealed strong value-trait relationships between Extraversion and the social values of Affiliation and Affection. The Big Five Openness trait also strongly related to the Aesthetics value. The Big Five traits of Extraversion, Openness, and Agreeableness demonstrated strong associations overall with work value orientations. These findings are generally consistent with those identified in previous international research (R. Duffy et al., 2009; Furnham et al., 2005; Parks, 2007). However, the current finding that Openness strongly relates to Aesthetics appears to be relatively novel. One exception is Berings et al.'s (2004) study that related Openness to creativity values. Overall, these value-trait relationships were argued to arise as a result of the compatibility between the behavioural tendencies associated with a trait and the underlying motivational goals of a value. This explanation and the observed relationships appear to support Olver and Mooradian's (2003) theory that people lean toward those values that are compatible with their personalities. One unexpected finding was that Conscientiousness did not significantly relate to any of the work values explored in this study. Previous research had suggested a relatively strong relationship between Conscientiousness and work value orientations, in particular Achievement (Berings et al., 2004; Zhang et al., 2007).

Inconsistencies in values scales and conceptualisations of Conscientiousness were suggested as an explanation for this discrepancy.

The findings of this thesis also indicated that there were substantial differences in the amount of variance in work value endorsements that could be accounted for by personality traits. This outcome provides some evidence that certain values may be more strongly related to traits than others. Only a small amount of variance in the endorsement of Moral and Ethical work values emphasising social “oughtness” could be explained by personality traits. Yet, personality traits could explain a relatively greater amount of variance in individual work values, such as Aesthetics and Safety. Work values such as Moral and Ethical are theorised to be more a manifestation of social influences than individual dispositions. The identified differences in value-trait relationships may also signify potential variation in the durability of work values. Work values that are strongly related to personality traits (e.g., Affiliation, Affection, and Aesthetics) may be less susceptible to environmental influences than values with weaker personality trait relationships (e.g., Moral and Ethical).

These findings have contributed to a growing body of literature emphasising the importance of considering personality traits in the study of work values (e.g., Berings et al., 2004; Furnham et al., 2005; Zhang et al., 2007). They also provide novel, if tentative, evidence that certain personality traits may relate to an individual’s values at work within a New Zealand context. The strength of observed associations between personality traits and work value orientations does not suggest that we can deterministically predict how individuals will behave in every situation based on their personality and values. The strength of these associations instead suggests that values are likely to be dynamic constructs continuously influenced both by traits and environmental factors. With such limitations in mind, clarifying these work value-trait relationships aids our understanding of the factors that may contribute to the development and maintenance of individual work preferences, interests, and motivations.

Finally, this study has provided further construct validity for work value orientations. This study has argued that while personality traits and work values are related psychological constructs, they are indeed conceptually and empirically distinct. Neither can assimilate nor

replace the other. As such, it appears to be worthwhile assessing both personality traits and work values in order to attain a more comprehensive understanding of an individual. It is hoped this finding will further prompt and reinforce future research and practice to incorporate assessments of both work values and personality traits when exploring behaviour. In the past, personality and work value assessments have generally been used independently to predict behavioural outcomes (Zhang et al., 2007). These outcomes may include general well-being, job satisfaction, employee-fit, organisational-fit, and overall job success (Barrick & Mount, 1991; Bouckennooghe et al., 2005). By highlighting that personality traits and work values relate in theoretically predictable ways, yet both contribute unique information about an individual, the current study encourages more integrative personnel assessment methodologies that incorporate both “dispositional” and “aspirational” factors.

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## **Appendix A:**

### **VMI Exploratory Factor Analysis**

The minimum amount of data for factor analysis was satisfied. With a final sample size of 1311 (using listwise deletion), there were over 100 cases per variable. The normality and kurtosis statistics for all variables were also acceptable. The factorability of the 122 VMI items was examined. The approximate normality of the distributions was confirmed. A correlation matrix also showed that no items showed suspiciously high correlations, suggesting reasonable factorability. Third, the Kaiser-Meyer-Olkin (KM) measure of sampling adequacy was .844, above the recommended value of 0.6, indicating the sample size is adequate. The chi-square assessments of Bartlett's test of sphericity was also significant for the VMI items ( $\chi^2(7381) = 43002.79, p < .05$ ). These results suggest that the data are factorable. The diagonals of the anti-image correlation matrix were then examined for any results below the required 0.5. All results were above 0.5, thus supporting the inclusion of each item in the factor analysis. Finally, the communalities were identified to all be above .2, confirming that each item shared more than 20% of their variance with other items (Child, 2006). Given these overall indicators, Exploratory Factor Analysis (EFA) was conducted with all 122 items.

### **Principle Components Analysis**

Two methods were used to determine how many factors to extract during the EFA: the Guttman-Kaiser (unity) rule and a scree test (Child, 2006; Kline, 1994, 2000). Firstly, using the unity rule, the principal components analysis (PCA) indicated that 32 components have eigenvalues above one. The initial eigenvalues for the PCA showed that the first principal component explained 6.75 % of the variance, the second component 5.162 % of the variance, and a third component 4.607 % of the variance, and the fourth component 3.201 % of the variance. The remaining 28 components exceeding eigenvalues of one can individually account for between 3.201 and 0.823 % of variance. These 32 components can cumulatively account for 55.958 % of variance.

Secondly, the scree plot (Figure A1) shows the eigenvalue for each of the 32 principal components. The cut-off point for the number of factors to extract is where the line changes slope, or at the “elbow” (Kline, 1994). Only factors placed above the elbow are considered salient factors (Child, 2006). The elbow in Figure A1 is shown at point A (14), just before the curve appears to develop into a linear relationship. This elbow signifies that all factors above point A (13 factors) should be extracted. In cases where there appears to be more than one slope to contend with, as seen below at point B, it is recommended to select the factors above the first straight line encountered (Child, 2006).

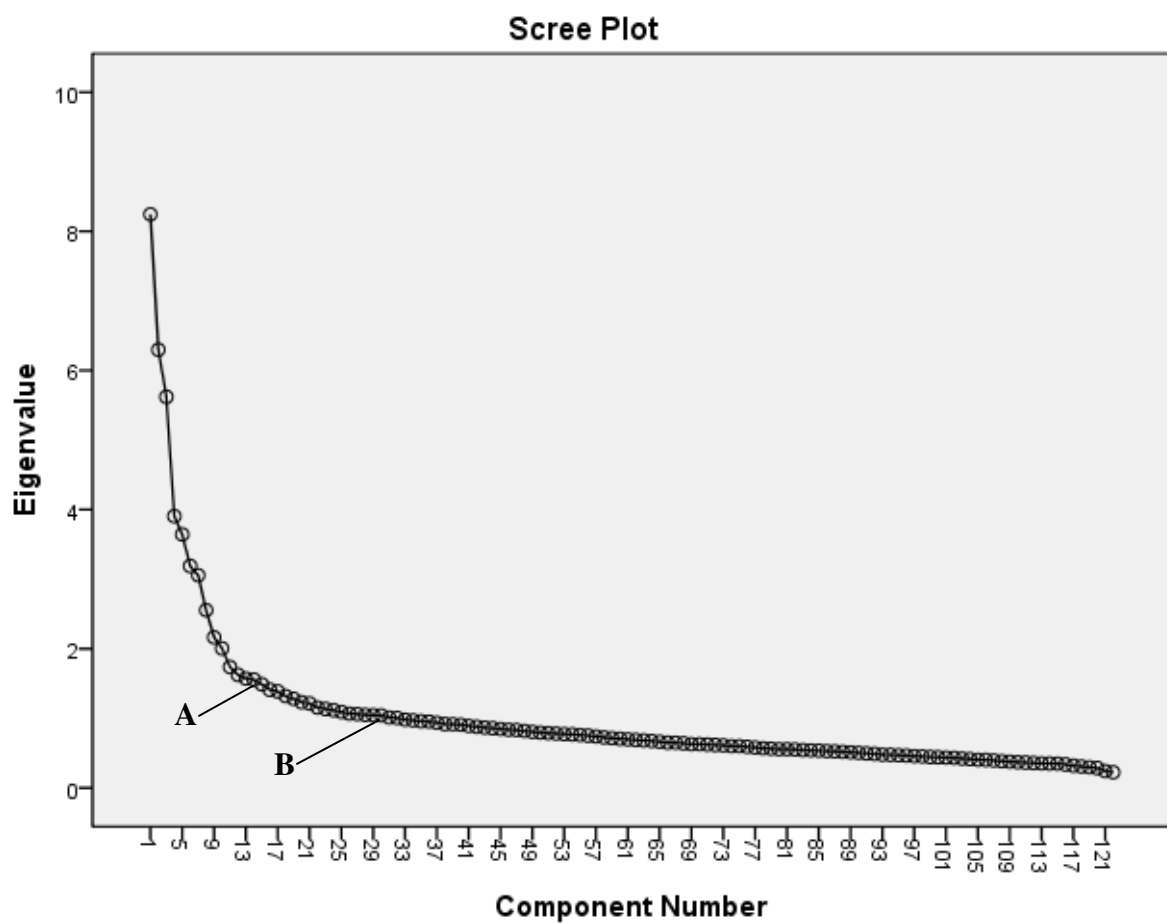


Figure A1: VMI Items Scree Plot

**Common analysis and factor rotation of extracted factors.**

Once the number of salient factors to extract had been determined, it was possible to carry out a factor analysis to detect the theoretically underlying structures within the data. All factor analysis and rotations used Principal Axis Factoring. Maximum likelihood factoring (ML) was carried out for comparative purposes on the initial solution. Only items with factor loadings of negative or positive .3 or greater were deemed significant. The absolute minimum number of variables required to define a factor was set at three (Child, 2006). Furthermore, unique factor loadings were given principal consideration in the interpretation of a factor (O'Connor & Kinnane, 1961).

The PAF factor matrix (not rotated) showed unique factor loadings on eight factors. There were 23 unique factor loadings on the first factor, 18 on the second, 12 on the third, 4 on the fourth, 3 on the fifth, 1 on the sixth, 2 on the seventh, and 2 on the eighth.

The data were then rotated obliquely using a direct oblimin rotation method. There was considerable similarity between the pattern and structure matrices. Although a few noticeable differences appeared to be significant loadings for items 9, 14, 34, 41, 57, 119 and 120 on various factors in the structure matrix but not on the pattern matrix. The structure matrix (see Table A1) was selected to be interpreted as it appeared to offer the most simple solution. The factor correlation matrix in Table A2 shows small relationships between the 13 factors extracted (all fall below 0.3). This finding further justifies using the structure matrix over the pattern matrix for interpretation (Child, 2006). The results of the factor correlation matrix also indicate that no second-order factor rotations are required.







83			.474						
84									
85								.419	
86								.423	
87							-.424		
88								-.451	
89	.646								
90		.697							
91							-.708		
92								.524	
93			.313						-.365
94		-.482							
95			-.320						.414
96								.333	
97			.348						
98									
99			.433						
100							-.430		
101								.404	
102	.397								
103									
104							-.428	-.351	
105									
106									.520
107		-.644							
108			.427						
109								.533	
110									
111									
112			.372						
113							-.483		
114								-.595	
115	.439								
116		.671							
117							.525		
118								.544	
119	.381								
120		.349							.304
121									-.491
122			.445						

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*Note.* Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. Rotation covered in 25 iterations.

The structure matrix suggested that 13 distinct factors can be identified in the data, each with at least three significant unique factor loadings. The factor loading matrix for this final solution is presented in Table A1. The highest loadings for each factor were examined and used as the basis for interpretation and for determining the identity of the 13 factors. The highest loadings for each factor are detailed along with corresponding VMI items in tables A2 to A14.

Table A2

*Highest Unique loadings for Factor 1 (Achievement)*

Loadings	Work Value Items
.646	89. It is important to me to achieve an outstanding result in everything I undertake
.622	60. I set myself the highest standards of accomplishment for everything I do
.453	45. I like to know that I am the very best in my field
.441	2. I strive to excel in everything I do, whatever the cost

Table A3

*Highest Unique loadings for Factor 2 Financial*

Loadings	Work Value Items
.697	90. The pursuit of material wealth does not at all appeal to me
.650	76. I am not at all attracted to the trappings of wealth and status
.539	32. I cannot see what people get out of constantly striving to make more and more money.

Table A4

*Highest Unique Loadings for Factor 3 (Aesthetics)*

Loadings	Work Value Items
-.746	75. I like to keep up with that is happening in the arts
-.733	65. I greatly enjoy the performing arts
.671	116. I have never understood what people see in the arts

Table A5

*Highest Unique Loadings for Factor 4 (Affection)*

Loadings	Work Value Items
.659	31. When I am upset, I like friends to show sympathy and concern
.540	26. I like to be able to share my feelings with a sympathetic person
.530	46. When I am ill, I like to be comforted by friends

Table A6

*Highest Unique Loadings for Factor 5 (Independence)*

Loadings	Work Value Items
.481	54. I would admit to having a slight problem with figures of authority
.474	83. I enjoy making fun of arrogant, self-important people in authority
.445	122. People in power are usually motivated by self-interests

Table A7

*Highest Unique Loadings for Factor 6 (Security)*

Loadings	Work Value Items
.765	4. I enjoy adventurous and daring deeds even if there is an element of danger attached.
-.708	91. I would never take part in a dangerous sports which put one's life at risk
-.613	77. The thought of skydiving (parachute jumping) fills me with dread.

Table A8

*Highest Unique Loadings for Factor 7 (Social Desirability)*

Loadings	Work Value Items
-.528	58. I never get irritated by people however difficult they are
-.515	72. I have never taken an instant dislike to anyone
-.493	28. I have never done anything that I later regretted

Table A9

*Highest Unique Loadings for Factor 8 (Traditional)*

Loadings	Work Value Items
-.595	114. More emphasis should be place on promoting a sense of national pride in schools
-.493	1. Patriotism and loyalty are very important quantities of a good citizen
-.453	33. The world would be a better place if people exerted more self-discipline and control

Table A10

*Highest Unique Loadings for Factor 9 (Ethical)*

Loadings	Work Value Items
.620	67. Most natural phenomenon will be explained by Science in due course
.533	109. Most 'mystical' events have a logical explanation
-.497	23. There are some areas which are beyond the reach of science

Table A11

*Highest Unique Loadings for Factor 10 (Altruism)*

Loadings	Work Value Items
.544	118. I often think about people who are suffering hardship
.524	92. I would like to engage in charity work, helping people less fortunate than myself
.525	7. I would be prepared to pay a higher rate of tax to support people in need.

Table A12

*Highest Unique Loadings for Factor 11 (Affiliation)*

Loadings	Work Value Items
.520	106. I regard myself as fairly self-sufficient, not really needing companionship.
.493	50. I enjoy engaging in solitary pastimes.
-.436	35. I can't stand being on my own for large periods of time.

Table A13

*Highest Unique Loadings for Factor 12 (Infrequency)*

Loadings	Work Value Items
.532	42. Danish is the world's most spoken language
.489	56. The snail is the fastest creature
.471	71. It is generally warmer at night than it is during the day

Table A14

*Highest Unique Loadings for Factor 13 (Moral)*

Loadings	Work Value Items
-.609	39. My behaviour is determined by a strict code of moral values
-.491	121. I take moral and ethical issues very seriously
.440	68. I would prefer doing something fun to something that was morally correct.

## Appendix B:

### 15FQ+ Primary Dimensions

Table B1

*15FQ+ Primary Dimension Score Descriptors*

Trait	Low Score Description	High Score Description
FA	<i>Distant Aloof:</i> Detached, lacking empathy, reserved, impersonal	<i>Empathic:</i> Friendly, personable, affable. Interest in other people, caring, participating
FB	<i>Low Intellectance:</i> Lacking confidence in own intellectual ability	<i>High Intellectance:</i> Confident in own intellectual ability
FC	<i>Affected by Feelings:</i> Emotionally sensitive, feelings easily hurt, moody	<i>Emotionally Stable:</i> Mature, secure, phlegmatic
FE	<i>Accommodating:</i> Obliging, passive, non-confrontational, non-assertive	<i>Dominant:</i> Assertive, aggressive, competitive, takes charge
FF	<i>Sober Serious:</i> Restrained, cautious, considers options carefully	<i>Enthusiastic:</i> Spontaneous, lively, happy-go-lucky, energetic
FG	<i>Expedient:</i> Flexible, big picture thinking, disregarding of rules and obligations	<i>Conscientious:</i> Organised, meticulous, persevering, detail-conscious
FH	<i>Retiring:</i> Shy, socially anxious, avoids being centre of attention	<i>Socially Bold:</i> Socially confident, talkative, quick to meet new people
FI	<i>Hard-headed:</i> Focus on data and facts, utilitarian, unsentimental	<i>Tender-minded:</i> Sensitive, sentimental, considers the human element
FL	<i>Trusting:</i> Accepting, unsuspecting, tolerant of others mistakes	<i>Suspicious:</i> Does not take things at face values, cynical, sceptical, doubting
FM	<i>Concrete:</i> Practical, realistic, operational focus, down-to-earth	<i>Abstract:</i> Imaginative, thinks outside the box, impractical, head in the clouds
FN	<i>Direct:</i> Up-front, open, genuine, blunt, tactless, straightforward	<i>Restrained:</i> Socially astute, diplomatic, thinks before speaking, perceptive
FO	<i>Self-Assured:</i> Confident, secure, unfazed by mistakes, guilt-free	<i>Apprehensive:</i> Self-critical and doubting, insecure, sensitive to criticism
FQ1	<i>Conventional:</i> Traditional, conservative, uncomfortable with change	<i>Radical:</i> Unconventional, questions status quo, open to change
FQ2	<i>Group-orientated:</i> Team focussed, group dependent, collaborative worker	<i>Self-sufficient:</i> Individualistic, self-reliant, autonomous worker
FQ3	<i>Informal:</i> Casual, undisciplined, free-thinking, ignores social norms	<i>Self-disciplined:</i> Rigid, follows social convention, particular, self-controlled
FQ4	<i>Composed:</i> Patient, placid, relaxed, stable, finds it easy to relax	<i>Tense-driven:</i> Impatient, edgy, easily frustrated

*Note.* Adapted from Psychometrics Ltd, 2002

**Appendix C:**  
**Ethics Committee Letter**



**MASSEY UNIVERSITY**

22 July 2010

Chloe Hamman  
PO Box 90-344  
AUCKLAND 1142

Dear Chloe

**Re: Gender Differences across Work Values and Personality**

Thank you for your Low Risk Notification which was received on 15 July 2010.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

**A reminder to include the following statement on all public documents:**

*"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.*

*If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".*

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

John G O'Neill (Professor)  
**Chair, Human Ethics Chairs' Committee and  
Director (Research Ethics)**

cc Dr Gus Habermann  
School of Psychology  
PN320

Assoc Prof Mandy Morgan, HoS  
School of Psychology  
PN320

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Massey University Human Ethics Committee  
Accredited by the Health Research Council

Te Kunenga  
ki Pāchuroa

Research Ethics Office, Massey University, Private Bag 11 222, Palmerston North 4442, New Zealand  
T +64 6 350 5573 +64 6 350 5575 F +64 6 350 5622  
E humanethics@massey.ac.nz animalethics@massey.ac.nz gto@massey.ac.nz  
www.massey.ac.nz

**Appendix D:**  
**VMI Factor Correlation Matrix**

Table D1

*VMI Factor Correlation Matrix*

Dimensions	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Traditional	1												
2. Moral	.39**	1											
3. Independence	.32**	.14**	1										
4. Ethical	.22**	.17**	-.02	1									
5. Altruism	.07*	.13**	.08*	.18**	1								
6. Affiliation	.10**	.05	.19**	.04	.25**	1							
7. Affection	.03	.00	.12**	.04	.28**	.44**	1						
8. Achievement	.10**	.22**	-.06	-.01	.09*	.18**	.19**	1					
9. Financial	-.03	-.07	.01	.10**	.31**	.03	.11**	.29**	1				
10. Safety	.13**	.17**	.11**	.09*	.06	-.06	-.02	-.07	.11**	1			
11. Aesthetics	.07*	.00	.04	.02	.34**	.13**	.18**	.15**	-.09*	-.06	1		
12. Infrequency	.06	-.03	.02	.04	-.02	-.01	-.05	-.02	-.05	-.00	-.03	1	
13. Social Desirability	.21**	.24**	.26**	.10**	.09*	.12**	-.09*	.05	.27**	.09*	.01	.11**	1

*Note.* Correlations marked \* are significant at  $p < .01$ , those marked \*\* are significant at  $p < .001$ .  $N=1311$  (Casewise deletion of missing data).



## Appendix E:

### 15FQ+ Primary Level Descriptive Statistics

Table E1

*Descriptive Statistics for the 15FQ+ Primary Dimensions*

Factors	Valid N	Min.	Max.	Mean.	SD
Empathic	459	1	24	18.79	3.80
High Intellectance	459	3	24	19.29	4.56
Emotionally Stable	459	2	24	18.15	4.54
Dominant	459	0	24	15.02	4.69
Enthusiastic	459	0	24	15.54	5.26
Conscientious	459	3	24	18.42	4.83
Socially Bold	459	0	24	14.11	5.83
Tender-minded	459	1	24	14.90	5.30
Suspicious	459	0	24	5.09	4.34
Abstract	459	1	24	10.46	4.55
Restrained	459	0	24	18.59	4.64
Apprehensive	459	0	24	11.78	5.85
Radical	459	0	24	7.81	5.18
Self-sufficient	459	0	22	7.36	4.64
Self-disciplined	459	1	24	17.93	4.46
Tense-driven	459	0	24	8.51	5.26
Social desirability	459	0	16	9.97	3.63

## Appendix F:

## VMI and 15FQ+ Primary Personality Trait Correlations.

Table F1

*Correlations of VMI Work Values and 15FQ+ Primary Personality Traits*

Dimensions	Empathic	Intellectance	Emotional Stability	Dominant	Enthusiastic	Conscientious	Socially Bold	Tender Minded	Suspicious	Abstract	Restrained	Apprehensive	Radical	Self-Sufficient	Self-Disciplined	Tense Driven
Traditional	.09	-.11	.06	-.05	.07	.19**	-.03	-.06	.04	.21**	.13*	.06	-.36**	-.07	<b>.45**</b>	-.04
Moral	.03	.04	.15*	.01	-.17**	.21**	.05	-.05	-.11*	.12*	.16**	-.06	-.24**	-.04	.36**	-.11*
Independence	-.08	.02	-.20**	.13*	-.05	-.20**	.03	.10	.23**	.25**	.22**	.16**	.29**	.11*	-.19**	.23**
Ethical	.11	-.24**	-.16**	-.06	-.03	.04	-.02	.14*	.06	.05	-.03	.13*	-.06	.01	.17**	.07
Altruism	<b>.40**</b>	.04	-.01	-.15*	.08	.07	.05	.33**	-.29**	.12*	.15**	.07	.04	-.13**	-.11*	-.09
Affiliation	.29**	.08	.17**	.13*	.37**	.00	.34**	.09	-.28**	.12	.04	-.05	.05	<b>-.69**</b>	-.05	-.10*
Affection	<b>.45**</b>	.12	-.06	-.05	.35**	.04	.17**	.30**	-.18**	.15**	.05	.14*	.01	-.30**	-.04	.07
Achievement	.07	.28**	.15*	.31**	.08	.05	.18**	.06	-.06	.10	.04	-.04	.08	-.05	.04	-.03
Financial	-.08	.09	-.01	.27**	.15*	-.11*	.14	-.07	.14*	.05	-.10	-.02	-.02	-.03	.03	.14**
Safety	.08	-.17**	-.14*	-.21**	-.26**	.18**	-.21**	.09	.11	-.25**	.17**	.19**	-.23**	.07	.15**	.00
Aesthetics	.25**	.24**	.05	.03	.16**	-.05	.24**	<b>.63**</b>	-.24**	.37**	.01	.01	.22**	-.08	-.24**	-.05

*Note.* Correlations marked \* are significant at  $p < .01$ , those marked \*\* are significant at  $p < .001$ ,  $N=459$ , (Casewise deletion of missing data).

