Differences in Personality Traits across Ethnic Groups within New Zealand and across an International Sample

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Research indicates that there are differences in personality traits between ethnic groups and between countries. This research has not, however, included a New Zealand sample. The current study examined personality differences between respondents from three New Zealand ethnic groups (546 New Zealand Europeans, 102 Maori and 78 Pacific Islanders), and between respondents from three countries (726 New Zealanders, 268 Australians and 1,128 South Africans). Analyses revealed some significant group differences at both the global and facet personality trait level. At the global trait level, the largest differences were between countries on the Extraversion, Neuroticism and Agreeableness traits. Small, but significant differences were detected between ethnic and country groups for the personality traits that are most predictive of job performance, Conscientiousness and Neuroticism. At the facet trait level, large differences were found on the Suspiciousness trait. We conclude by discussing the potential implications of these findings for employment selection.

Cognitive ability assessments are commonly used in employment selection to predict job performance (Schmidt & Hunter, 1998). More recently, personality assessments have also become more widely used as a personnel assessment tool by New Zealand organisations and consulting firms (Taylor, Keelty & McDonnell, 2002). Furthermore, in a survey of personnel selection methods across 18 countries, Ryan, McFarland, Baron and Page (1999) identified New Zealand organisations as being among the most frequent users of personality assessments. The increased application of personality assessments may reflect the growing empirical evidence and acceptance of the five-factor model of personality and its ability to predict job performance. Additionally, their popularity and acceptance may also be in part due to growing evidence that personality assessments add incremental validity over and above cognitive ability assessments (Driskell, Hogan, Salas & Hoskin, 1994; McHenry & Hough, 1990; Rosse, Miller & Barnes, 1991). However, as a result of their relatively new acceptance, group differences in personality have not been examined to the same extent as group differences in cognitive ability. Because selection professionals need to know the levels of impact associated with the use of particular selection techniques it is important to assess group differences, such as ethnicity, associated with personality assessments.

The existence of five personality factors has repeatedly emerged in studies using different rating instruments (e.g. Goldberg, 1990; McAdams, 1992; McCrae & Costa, 1987; Noller, Law & Comrey, 1987), ratings from different sources (e.g. Borgatta, 1964; Goldberg, 1981; McCrae & Costa, 1989), different samples (e.g. Barrick & Mount, 1991; Tett, Jackson & Rothstein, 1991), and across different theoretical frameworks (e.g. McCrae & Costa, 1987; Noller et al., 1987). According to Goldberg and Saucier (1995), the five-factor model comprised of five global personality traits, commonly referred to as the Big Five, now enjoys wide acceptance as the most comprehensive and parsimonious model of the structure of personality. The Big Five traits are most commonly referred to as: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (cf. Barrick & Mount, 1991).

The development of the five-factor model of personality was based on the English lexicon and Western culture, which raises concern regarding its cross-cultural generalisability. Juni (1996) noted that if the environment influences personality, the five-factor personality structure is not likely to be found in different cultures and different languages. It is important that personality assessments are culturally generalisable to enable cross-cultural comparisons, and also to ensure their fairness in the multicultural societies now found in New Zealand and the rest of the world.

Research into the cross-cultural generalisability of personality structure has been conducted through factor analytic studies of personality descriptors in foreign languages (e.g. Church & Katigbak, 1989). It has also been studied through the translation of

personality assessments and comparison of the resulting factor structure with the United States normative structure (e.g. McCrae & Costa, 1997). Analyses of personality descriptors in foreign languages have typically identified five factors. However, the five personality factors rarely correspond with the original five factors based on United States samples (Church & Katigbak, 1989; De Raad & Szirmak, 1994; Yang & Bond, 1990). This lack of correspondence is likely to arise because personality trait descriptors rarely translate directly between languages (Huang, Church & Katigbak, 1997). However, the finding that lexical studies typically identify five, or close to five, personality factors is considered by McCrae and Costa (1997) as evidence for the cross-cultural generalisability of personality structure.

The translation of personality assessments into foreign languages allows for the comparison of personality factor structures between cultures. The translation of questionnaire items can, however, present problems as some trait adjectives do not have direct translations (Huang et al., 1997). Despite this limitation, research has attempted to gauge the cross-cultural replicability of personality structure through the translation of personality assessments. McCrae and Costa's (1997) investigation of the factor structure of six translations of the NEO PI-R (German, Hebrew, Portuguese, Chinese, Japanese and Korean) found that the resulting personality factor structures for each language were very similar to that of the United States factor structure. Additionally, Paunonen and Ashton (1998) reviewed the cross-cultural generalisability of personality structure using six different personality assessments. Their evidence suggested that the five-factor structure was similar for personality assessments across cultures.

The finding that the five-factor personality structure has been replicated across diverse cultures, through both lexical and questionnaire studies, emphasises the robust and universal nature of the Big Five personality traits. The existence of a model of personality that has cross-cultural validity does not necessarily translate to the endorsement or rejection of various trait behaviours being equivalent across cultures.

The comparison of mean personality trait scores across ethnic groups and across countries may be intrinsically interesting and may provide an insight into potential adverse impact. According to Cook (1998), a personality assessment is considered to produce an adverse impact when the individuals of a specific demographic group are less likely to be selected for employment than individuals of other demographic groups. Practitioners worldwide tend to follow the rule of four-fifths. That is, a demographic group is being adversely affected when they are selected for employment at less than four-fifths the rate of other demographic groups (Jacques, 1991).

Previous research has revealed significant differences on personality traits across ethnic groups. In a study of personality differences across South African ethnic groups, Heuchert, Parker, Stumpf and Myburgh (2000) found significant differences on the Extraversion, Openness to Experience, and Agreeableness traits of the NEO PI-R personality assessment. Goldberg, Sweeney, Merenda and Hughes (1998) investigated personality differences between ethnic groups of the United States using an adjective checklist and reported significant differences on the Conscientiousness trait. Hough, Oswald and Ployhart (2001) have summarised some of the findings of United States based studies. These authors reported that, at the Big Five level, the largest difference tends to be on the Openness to Experience trait, with those of African American ethnicity scoring lower on average than Caucasians. It is apparent that the magnitude of the difference on each trait depends on the groups being compared, and on the personality assessment applied.

Unfortunately, at the facet personality trait level, it is difficult to generalise findings across studies because different personality assessments vary according to the number of, and names given to, these lower level traits. Research has generally identified statistically significant differences in facet level personality traits across ethnic groups and across countries (e.g. Dion & Yee, 1987; Eysenck, Barrett & Barnes, 1993; Hanin, Eysenck, Eysenck & Barrett, 1991; McCrae et al., 1998; Ones & Anderson, 2002; Ones & Viswesvaran, 1998). For example, on the Personality Research Form, Asians have been found to score significantly higher than Europeans on the Need for Order, Harm-Avoidance, and Social Recognition traits, but significantly lower than Europeans on the Need for Dominance, Exhibition, Nurturance, and Affiliation traits (Dion & Yee, 1987).

The United States has dominated much of the research on ethnic group differences in personality. Therefore, research has tended to focus on the ethnic groups found in the United States, and has measured personality using instruments frequently administered in the United States. However, given the prevalence of the use of personality assessments in New Zealand and the potential legal and ethical implications of significant personality differences across ethnic groups, it is important to determine whether any ethnic groups in New Zealand are being differentiated through commonly used personality assessments. It is also of significant interest to explore personality trait differences across English-speaking countries. The present study is not an investigation of test bias, but an exploratory study to ascertain the existence of observed personality trait differences across groups. Consistent with previous research in other countries (e.g. Heuchert et al., 2000), it was hypothesised that there would be significant differences in mean personality trait scores across three ethnic groups within New Zealand, and across three countries, on a commonly used personality assessment. However, due to an absence of research on the ethnic and country groups examined in the present study, the nature of these differences could not be predicted.

Our analysis focuses on those differences that have the greatest practical significance. Thus, we identify not only group differences of the greatest magnitude, but especially focus on those personality traits that are the most important predictors of job performance. Through previous research and meta-analytic studies on the relationship between personality and job performance, two global personality traits, Conscientiousness and Neuroticism, have consistently

been identified as the most important predictors of job performance (Barrick & Mount, 1991; Hurtz & Donovan, 2000; Mount, Barrick & Stewart, 1998; Piedmont & Weistein, 1994; Salgado, 1997, 1998). Specifically, a high score on the Conscientiousness trait and a low score on the Neuroticism trait are associated with high job performance across occupations. Any group differences on these two traits could have the greatest potential to cause adverse impact. However, the potential for adverse impact within particular occupations also exists whenever there is a large group difference on any personality trait that has been found to be valid as a predictor of performance for a specific job. Therefore, all personality traits were analysed.

Method

Participants

Archival data was drawn from a large database of psychometric test scores provided by OPRA Consulting Group. The database contained raw scores for each personality trait, as well as self-reported information on each respondent's gender, age, country of residence (referred to as *country*), and New Zealand ethnic group. Information on ethnic group identification was only available for the New Zealand sample. An ethnic group is defined as a group that an individual identifies with, which may have a common origin, history, destiny, or culture (Allan, 2001). At the time of completing the personality assessment, the respondents provided consent for their demographic information and personality assessment scores to be added to the database for research and statistical purposes.

The respondents were from a range of industries and occupations. They completed the assessment between March 1999 and May 2004 for selection or assessment purposes. The respondents' ages ranged from 17 to 65 years. The New Zealand ethnic groups compared were: New Zealand European, Maori, and Pacific Islander. The countries compared were: New Zealand, Australia, and South Africa. The gender and ethnic/country breakdown of the respondents are provided in Table 1. Respondents from ethnic groups comprising less than 8% of the New Zealand sample were excluded from the analyses due to a lack of data.

Table 1. Gender and Ethnic/Country Breakdown of Respondents.

New Zealand Sample		*N*	%
Ethnicity	NZ European	546	75.21
	Maori	102	14.05
	Pacific Islander	78	10.74
Gender	Male	401	55.23
	Female	320	44.08
	Unknown	5	0.69
International Sample			
Country	New Zealand	726	34.21
	Australia	268	12.63
	South Africa	1,128	53.16
Gender	Male	1,363	64.23
	Female	707	33.32
	Unknown	52	2.45

Table 2. Maori (N=102) and New Zealand European (N=546) Mean Trait Scores, Standard Deviations, Effect Size (*d*), and Lower and Upper Confidence Intervals.

	Maori		**NZ European**		**Effect Size Statistics**		
Trait Name	*M*	*SD*	*M*	*SD*	*d*	Lower C.I.	Upper C.I.
Global Traits							
Extraversion	13.29	4.63	14.51	5.12	-.24*	-.45	-.03
Neuroticism	6.35	4.74	4.83	5.04	.30*	.09	.52
Openness	14.77	3.96	14.36	4.78	.09	-.12	.30
Agreeableness	-4.12	3.52	-4.10	4.04	-.01	-.22	.21
Conscientiousness	22.22	4.13	21.77	4.83	-.10	-.12	.31
Facet Traits							
Empathy	18.59	3.18	18.52	4.25	.02	-.24	.28
Intellectance	17.29	5.01	19.22	4.41	-.43**	-.69	-.16
Emotionally stable	16.30	4.15	17.37	4.70	-.23	-.49	.03
Dominant	14.44	4.40	14.59	4.84	-.03	-.29	.23
Enthusiastic	14.24	5.18	15.79	5.25	-.29**	-.56	-.03
Conscientious	17.85	4.89	17.65	5.52	.04	-.22	.30
Socially-bold	12.58	5.92	13.24	6.15	-.11	-.37	.15
Tender-minded	14.79	4.84	14.26	5.44	.10	-.16	.36
Suspicious	7.67	4.62	5.33	4.27	.54**	.28	.80
Abstract	10.19	4.20	9.65	4.75	.11	-.15	.37
Restrained	17.90	3.97	18.11	4.84	-.04	-.30	.22
Apprehensive	13.42	5.57	12.37	6.02	.17	-.09	.44
Radical	7.01	3.80	7.29	4.78	-.06	-.32	.20
Self-sufficient	8.68	4.61	7.60	4.88	.22	-.04	.49
Self-disciplined	18.88	3.80	18.01	4.44	.20	-.06	.46
Tense-driven	10.20	5.79	8.88	5.64	.21	-.06	.46

* $p < .05$ ** $p < .0156$

Measures

Personality traits were measured using the 15 Factor Questionnaire Plus (15FQ+), a self-report personality assessment. This assessment is widely used within New Zealand, as well as internationally, and was designed specifically for personnel assessment and selection purposes. The 15FQ+ was completed by the respondents in either a pencil-and-paper format or in a computerised format. Qualified test administrators conducted the assessments following a standardised procedure and testing conditions. The assessment had no time limit, but respondents were provided with a guide of how long the assessment should take.

Initial testing by Psytech International (1999) suggested the

15FQ+ was within the acceptable range of validity and reliability for psychometric assessments. According to Psytech International (1999), all 16 facet traits of the 15FQ+ have good internal consistency, with alpha coefficients ranging from .74 to .85. Psytech International reported that the facet traits of the 15FQ+ have good test-retest reliability, with reliability coefficients ranging from .77 to .89. The 15FQ+ has also been found to have good levels of construct validity (Psytech International, 1999). It is assumed that these psychometric properties are applicable to the current sample as is typically done in practice.

The 15FQ+ personality assessment consists of 200 items, requiring a response on a three-point Likert scale. The 15FQ+ was developed through factor analytic procedures and was designed to be an alternative to the 16 Personality Factor assessment (16PF), which measures the bipolar personality dimensions originally identified by Catell (1946). The 15FQ+, therefore measures 16 facet personality traits labelled: Empathy, Intellectance, Emotionally Stable, Dominant, Enthusiastic, Conscientious, Socially-Bold, Tender-Minded, Suspicious, Abstract, Restrained, Apprehensive, Radical, Self-Sufficient, Self-Disciplined, and Tense-Driven. These facet traits comprise five global personality traits, which correspond well with the widely accepted five-factor model of personality: Anxiety (or Neuroticism), Extraversion, Openness to Experience, Agreeableness, and Control (or Conscientiousness). Refer to the Appendix A for further description of the 15FQ+ traits.

Analysis

Because employment selection decisions are based on observed personality trait scores, the present study analysed observed scores rather than true scores. Therefore, the personality trait scores were not corrected for attenuation to maintain operational equivalence. The mean and standard deviation of each personality trait were calculated for each ethnic/country group. The mean group difference on each personality trait was analysed by calculating the standardised effect size (*d* statistic), which is an index of the standardised mean difference between two groups. The *d* statistic was calculated by dividing the mean difference on each trait by the pooled standard deviation. The mean difference (*d*) is expressed in terms of standard deviation units. A positive *d* score is indicative of a higher mean score for the smaller of the two groups being compared, while a negative *d* score is indicative of a higher mean score for the group with the larger sample size. According to Cohen (1988) effect sizes of around .20 are small, around .50 are moderate, and above .80 are large. This method was adopted to compare group means as, according to Roth et al. (2001), it is not influenced by sample size and is the most appropriate statistic to use for determining the magnitude of the difference. Analyses using standardised effect sizes are consistent with previous research on personality trait differences across groups (e.g. Ones & Anderson, 2002; Ones & Viswesvaran, 1998), thereby facilitating comparisons of results across studies. Confidence intervals were also calculated to confirm the effect size. Confidence intervals that include zero indicate that the effect size difference is not significant. As there are 16 facet and five global personality traits, there is a 3.2 times greater probability of finding a significant difference, by chance, in the facet personality traits compared with the global traits. According to Paunonen (1998) the size of the confidence interval should be adjusted to ensure there is an equal probability of obtaining a significant result by chance in both global and facet personality traits. Consequently, analyses of the global personality traits used the usual $p = .05$, while analyses of the facet personality traits applied a $p = .0156$ level of significance.

Results

The five global and 16 facet personality traits were analysed to determine whether they differed significantly between ethnic groups, and between country groups. Tables 2 to 7 present group comparisons on each personality

Table 3. Pacific Islander (N=78) and New Zealand European (N=546) Mean Trait Scores, Standard Deviations, Effect Size (*d*), and Lower and Upper Confidence Intervals.

Trait Name	Pacific Islander		NZ European		Effect Size Statistics		
	M	*SD*	*M*	*SD*	*d*	Lower C.I.	Upper C.I.
Global Traits							
Extraversion	13.71	3.71	14.51	5.12	-.16	-.40	.08
Neuroticism	6.54	4.04	4.83	5.04	.35*	.11	.58
Openness	14.30	3.19	14.36	4.78	-.02	-.25	.22
Agreeableness	-4.13	4.14	-4.10	4.04	-.01	-.24	.23
Conscientiousness	22.64	3.71	21.77	4.83	.18	-.05	.42
Facet Traits							
Empathy	18.29	3.26	18.52	4.25	-.05	-.35	.24
Intellectance	15.68	5.20	19.22	4.41	-.79**	-1.08	-.49
Emotionally stable	15.22	4.50	17.37	4.70	-.46**	-.75	-.17
Dominant	13.69	4.35	14.59	4.84	-.19	-.48	.11
Enthusiastic	14.45	4.57	15.79	5.25	-.26	-.55	.03
Conscientious	17.58	4.71	17.65	5.52	-.01	-.31	.28
Socially-bold	12.78	5.18	13.24	6.15	-.07	-.37	.22
Tender-minded	13.49	4.13	14.26	5.44	-.14	-.44	.15
Suspicious	9.85	4.04	5.33	4.27	1.06**	.77	1.36
Abstract	10.45	3.46	9.65	4.75	.17	-.12	.46
Restrained	18.44	3.66	18.11	4.84	.07	-.22	.36
Apprehensive	13.09	4.98	12.37	6.02	.12	-.17	.41
Radical	7.51	3.92	7.29	4.78	.05	-.24	.34
Self-sufficient	7.71	4.25	7.60	4.88	.02	-.27	.31
Self-disciplined	19.81	3.01	18.01	4.44	.42**	.12	.71
Tense-driven	9.00	4.95	8.88	5.64	.02	-.27	.31

* $p<.05$ ** $p<.0156$

trait, and display the group mean (*M*), standard deviation (*SD*), effect size (*d*), and lower and upper confidence intervals (95% confidence intervals for the global traits and 98.44% confidence intervals for the facet traits). The most important differences were considered to be those on the scales that are most predictive of job performance (Conscientiousness and Neuroticism), and those exceeding 0.5 standard deviation. An 0.5 standard deviation difference corresponds to a one-sten difference on the sten (standard ten) scale on which scores on the 15FQ+ are reported, and may therefore have a practical impact.

Tables 2 to 4 compare the mean personality trait scores of three New Zealand ethnic groups: New Zealand European, Maori and Pacific Islander. On the Neuroticism trait, New Zealand Europeans scored lower on average compared with both Maori (*d*=.30), and Pacific Islanders (*d*=.35). These differences would be considered small. There were no significant differences between ethnic groups on the Conscientiousness trait.

The difference of greatest magnitude was that Pacific Islanders scored higher than New Zealand Europeans on the Suspiciousness personality trait (*d*=1.06). Interestingly, differences of a moderate magnitude were also identified on the Suspiciousness trait, in which Pacific Islanders had a higher mean score than Maori (*d*=.50), and Maori had a higher mean score than New Zealand Europeans (*d*=.54). Moderate to large differences were revealed on the Intellectance trait, with New Zealand Europeans scoring higher on average than both Maori (*d*=-.43), and Pacific Islanders (*d*=-.79). Small to moderate differences were also found on the Extraversion, Intellectance, Emotionally Stable, Enthusiastic, and Self-Disciplined personality traits.

Tables 5 to 7 present the comparison of the mean trait scores of three countries: New Zealand, Australia and South Africa. Differences of a small to moderate magnitude were detected on both the Conscientiousness and Neuroticism traits. On the Conscientiousness trait, South Africans scored slightly but significantly higher than Australians (*d*= -.18) and New

Table 4. Pacific Islander (N=78) and Maori (N=102) Mean Trait Scores, Standard Deviations, Effect Size (*d*), and Lower and Upper Confidence Intervals.

Trait Name	Pacific Islander		Maori		Effect Size Statistics		
	M	*SD*	*M*	*SD*	*d*	Lower C.I.	Upper C.I.
Global Traits							
Extraversion	13.71	3.71	13.29	4.63	.10	-.20	.39
Neuroticism	6.54	4.04	6.35	4.74	.04	-.25	.34
Openness	14.30	3.19	14.77	3.96	-.13	-.42	.17
Agreeableness	-4.13	4.14	-4.12	3.52	.00	-.30	.29
Conscientiousness	22.64	3.71	22.22	4.13	.11	-.19	.40
Facet Traits							
Empathy	18.29	3.26	18.59	3.18	-.09	-.45	.27
Intellectance	15.68	5.20	17.29	5.01	-.32	-.68	.05
Emotionally stable	15.22	4.50	16.30	4.15	-.25	-.62	.11
Dominant	13.69	4.35	14.44	4.40	-.17	-.54	.19
Enthusiastic	14.45	4.57	14.24	5.18	.05	-.32	.41
Conscientious	17.58	4.71	17.85	4.89	-.06	-.42	.31
Socially-bold	12.78	5.18	12.58	5.92	.04	-.33	.40
Tender-minded	13.49	4.13	14.79	4.84	-.29	-.65	.08
Suspicious	9.85	4.04	7.67	4.62	.50**	.13	.87
Abstract	10.45	3.46	10.19	4.20	.07	-.30	.43
Restrained	18.44	3.66	17.90	3.97	.14	-.22	.50
Apprehensive	13.09	4.98	13.42	5.57	-.06	-.43	.30
Radical	7.51	3.92	7.01	3.80	.13	-.23	.49
Self-sufficient	7.71	4.25	8.68	4.61	-.22	-.58	.14
Self-disciplined	19.81	3.01	18.88	3.80	.27	-.10	.63
Tense-driven	9.00	4.95	10.02	5.79	-.19	-.55	.18

* $p<.05$ ** $p< .0156$

Table 5. Australian (N=268) and New Zealand (N=726) Mean Trait Scores, Standard Deviations, Effect Size (*d*), and Lower and Upper Confidence Intervals.

Trait Name	Australia		New Zealand		Effect Size Statistics		
	M	*SD*	*M*	*SD*	*d*	Lower C.I.	Upper C.I.
Global Traits							
Extraversion	16.28	4.16	14.26	4.94	.43*	.28	.57
Neuroticism	2.88	4.58	5.23	4.95	-.48*	-.63	-.34
Openness	14.42	4.11	14.41	4.52	.00	-.14	.14
Agreeableness	-4.17	3.97	-4.11	3.98	-.02	-.16	.13
Conscientiousness	23.05	4.34	21.93	4.63	.25*	.11	.39
Facet Traits							
Empathy	19.44	3.44	18.50	4.01	.24**	.07	.42
Intellectance	20.15	4.07	18.56	4.74	.35**	.17	.52
Emotionally stable	18.65	4.04	16.99	4.65	.37**	.20	.54
Dominant	14.65	4.74	14.47	4.73	.04	-.13	.21
Enthusiastic	17.25	4.42	15.43	5.21	.36**	.19	.54
Conscientious	19.07	4.90	17.67	5.34	.27**	.09	.44
Socially-bold	14.71	5.80	13.10	6.02	.27**	.10	.44
Tender-minded	13.74	5.08	14.25	5.24	-.10	-.27	.07
Suspicious	4.69	4.03	6.14	4.55	-.33**	-.50	-.15
Abstract	10.14	4.15	9.81	4.56	.07	-.10	.25
Restrained	19.03	4.20	18.12	4.61	.20**	.03	.37
Apprehensive	10.63	6.06	12.60	5.86	-.33**	-.50	-.16
Radical	7.18	4.29	7.27	4.56	-.02	-.19	.15
Self-sufficient	6.16	4.04	7.76	4.79	-.35**	-.52	-.17
Self-disciplined	18.47	4.03	18.32	4.26	.04	-.14	.21
Tense-driven	6.75	5.16	9.05	5.60	-.42**	-.59	-.24

* $p<.05$ ** $p< .0156$

Zealanders (*d*= -.44), and Australians scored significantly higher than New Zealanders (*d*= .25). On the Neuroticism trait, South Africans scored higher on average than both Australians (*d*= -.66) and New Zealanders (*d*= -.18), and New Zelanders scored significantly higher on average than Australians (*d*= -.48).

The largest mean personality trait difference between countries was on the Suspiciousness trait. Specifically, South Africans scored higher on average than both New Zealanders (*d*= -.81) and Australians (*d*= -1.10). Moderate to large differences were detected on the: Enthusiastic trait, on which Australians scored higher on average than South Africans (*d*=.70); Self-Disciplined trait, on which South Africans scored higher than both New Zealanders (*d*= -.65) and Australians (*d*= -.67); and Tense-Driven trait, on which South Africans scored higher on average than Australians (*d*= -.51). At the global trait level, moderate to large differences were found on the: Agreeableness trait, with South Africans scoring lower on average than both New Zealanders (*d*=.76) and Australians (*d*=.75), and also on the Extraversion trait, with Australians scoring higher on average than South Africans (*d*=.52). Many significant differences of a small to moderate magnitude (between *d*=.2 and .5) were found, as indicated by the asterisks.

Discussion

This study aimed to examine the presence or absence of differences in personality trait scores between three New Zealand ethnic groups (NZ European, Maori and Pacific Islander), and between three countries (New Zealand, Australia and South Africa). Sizeable and significant mean personality trait differences were detected between the groups at both the global and facet trait level.

In summary, for the two most important predictors of job performance, Conscientiousness and Neuroticism, there were only small significant differences in scores between the ethnic and country groups examined. Additionally, moderate to large mean score differences were also found on the global traits Extraversion and Agreeableness across country groupings. At the facet trait level, a large mean score difference was detected on the

Table 6. New Zealand (*N*=726) and South African (*N*=1,128) Mean Trait Scores, Standard Deviations, Effect Size (*d*), and Lower and Upper Confidence Intervals.

Trait Name	New Zealand		South Africa		Effect Size Statistics		
	M	*SD*	*M*	*SD*	*d*	Lower C.I.	Upper C.I.
Global Traits							
Extraversion	14.26	4.94	13.69	5.09	.11*	.02	.21
Neuroticism	5.23	4.95	6.13	5.03	-.18*	-.27	-.09
Openness	14.41	4.52	14.71	4.08	-.07	-.16	.02
Agreeableness	-4.11	3.98	-7.11	3.89	.76*	.67	.86
Conscientiousness	21.93	4.63	23.81	4.09	-.44*	-.53	-.34
Facet Traits							
Empathy	18.50	4.01	18.51	3.81	-.01	-.12	.11
Intellectance	18.56	4.74	18.99	4.43	-.09	-.21	.02
Emotionally stable	16.99	4.65	16.80	5.06	.04	-.08	.15
Dominant	14.47	4.73	16.24	4.48	-.39**	-.50	-.27
Enthusiastic	15.43	5.21	13.44	5.63	.37**	.25	.48
Conscientious	17.67	5.34	18.73	4.67	-.22**	-.33	-.10
Socially-bold	13.10	6.02	14.87	6.05	-.29**	-.41	-.18
Tender-minded	14.25	5.24	13.52	5.09	.14**	.03	.26
Suspicious	6.14	4.55	10.08	5.09	-.81**	-.92	-.69
Abstract	9.81	4.56	10.26	4.09	-.11	-.22	.01
Restrained	18.12	4.61	18.90	4.49	-.17**	-.28	-.06
Apprehensive	12.60	5.86	12.65	5.60	-.01	-.12	.11
Radical	7.27	4.56	9.05	4.63	-.39**	-.50	-.27
Self-sufficient	7.76	4.79	8.32	5.23	-.11	-.22	.01
Self-disciplined	18.32	4.26	20.66	3.08	-.65**	-.77	-.53
Tense-driven	9.05	5.60	9.61	5.68	-.10	-.21	.01

* $p<.05$ ** $p<.0156$

Table 7. Australian (N=268) and South African (N=1,128) Mean Trait Scores, Standard Deviations, Effect Size (*d*), and Lower and Upper Confidence Intervals.

Trait Name	Australia		South Africa		Effect Size Statistics		
	M	*SD*	*M*	*SD*	*d*	Lower C.I.	Upper C.I.
Global Traits							
Extraversion	16.28	4.16	13.69	5.09	.52*	.39	.66
Neuroticism	2.88	4.58	6.13	5.03	-.66*	-.79	-.52
Openness	14.42	4.11	14.71	4.08	-.07	-.20	.06
Agreeableness	-4.17	3.97	-7.11	3.89	.75*	.62	.89
Conscientiousness	23.05	4.34	23.81	4.09	-.18*	-.32	-.05
Facet Traits							
Empathy	19.44	3.44	18.51	3.81	.25**	.08	.41
Intellectance	20.15	4.07	18.99	4.43	.27**	.10	.43
Emotionally stable	18.65	4.04	16.80	5.06	.38**	.21	.54
Dominant	14.65	4.74	16.24	4.48	-.35**	-.51	-.19
Enthusiastic	17.25	4.42	13.44	5.63	.70**	.54	.87
Conscientious	19.07	4.90	18.73	4.67	.07	-.09	.24
Socially-bold	14.71	5.80	14.87	6.05	-.03	-.19	.14
Tender-minded	13.74	5.08	13.52	5.09	.04	-.12	.21
Suspicious	4.69	4.03	10.08	5.09	-1.10**	-1.26	-.93
Abstract	10.14	4.15	10.26	4.09	-.03	-.19	.13
Restrained	19.03	4.20	18.90	4.49	.03	-.13	.19
Apprehensive	10.63	6.06	12.65	5.60	-.35**	-.52	-.19
Radical	7.18	4.29	9.05	4.63	-.41**	-.57	-.24
Self-sufficient	6.16	4.04	8.32	5.23	-.43**	-.59	-.26
Self-disciplined	18.47	4.03	20.66	3.08	-.67**	-.83	-.50
Tense-driven	6.75	5.16	9.61	5.68	-.51**	-.68	-.35

* $p<.05$ ** $p<.0156$

Suspiciousness trait. Differences of a moderate to large magnitude were also identified on the Intellectance, Enthusiastic, Self-Disciplined, and Tense-Driven traits. It should be noted, however, that differences in personality trait scores between the individuals of a specific ethnic or country group were typically larger than the differences between such groups, as demonstrated by the considerable overlap in trait score distributions.

The present study found significant differences in mean personality trait scores between ethnic groups and countries, as hypothesised, and as consistent with previous research (e.g. Dion & Yee, 1987; Eysenck et al., 1993; Hanin et al., 1991; Heuchert et al., 2000; McCrae et al., 1998; Ones & Anderson, 2002; Ones & Viswesvaran, 1998). The observed differences are unlikely to be caused by differences in the structure of personality across ethnic or country groups, as the personality assessment analysed was based on the five-factor model of personality. Research has repeatedly demonstrated that this model is cross-culturally generalisable (e.g. McCrae & Costa, 1997; Paunonen & Ashton, 1998). However, as the present study was exploratory in nature, there was insufficient information to determine the amount of variance due to measurement bias or other potential moderating variables, such as socio-economic status.

Practical Implications and Future Research

While the differences found in the present study are statistically significant, they do not necessarily imply adverse impact. They are only of particular concern if they: (1) influence selection outcomes; (2) are the result of lack of measurement equivalence; or (3) lead to the differential prediction of job performance. The present study sets the foundation for these three critical avenues for future research.

As Conscientiousness and Neuroticism scores are the best predictors of general job performance across occupations (Barrick & Mount, 1991; Hurtz & Donovan, 2000; Mount et al., 1998; Piedmont & Weistein, 1994; Salgado, 1997, 1998), it could be assumed that scores on these scales might influence employment selection. Therefore, if these scores differ according to ethnicity, a logical corollary is that adverse impact is possible. To determine whether the observed differences influence employment selection outcomes, it is necessary to analyse employment offer data. However, the employment offer data required for such an analysis were not gathered for the present study. Further research is therefore required to determine the practical implications of the personality differences found in the present study.

Another avenue for future research in this area could be to investigate measurement equivalence in the 15FQ+ personality assessment. Drasgow (1984, p.134) defines equivalent measurement as "...when the relations between observed test scores and the latent attribute measured by the test are identical across subpopulations". Although the present study was not intended to be a test of measurement equivalence, it is possible that the observed differences in personality trait scores reveal a lack of such equivalence across the ethnic/country groups. The developers of the 15FQ+ are currently one of the few test developers to be undertaking research to examine measurement equivalence.

According to Drasgow (1984), if measurement equivalence is established and significant differences still exist between groups, this may lead to the differential prediction of job performance. Differential prediction exists when the predictive relationship (regression equation) between personality and performance differs for two demographic groups. Johnson, Carter, Davison and Oliver (2001) noted that a significant difference in the slope of the two regression equations implies that personality predicts job performance with greater accuracy for one group more than the other. These authors also noted that a significant difference in the intercepts of the regression equations indicates that the personality assessment misestimates the job performance of one group in comparison with the other group. Therefore, research into the differential prediction of performance by ethnic or country group poses an important question once measurement equivalence has been established.

Limitations and Conclusions

There are several limitations of the present study that require consideration. Similar to most studies of this nature, the sample size of some ethnic and country groups was small. Therefore, caution is advised when interpreting the results. This is particularly true for findings involving Pacific Islanders, whose sample size was relatively small (N=78). Due to a lack of available data, the present study was limited to analyses of only three countries and three ethnic groups within New Zealand. As data accumulate from a diverse range of countries and ethnicities, more extensive analyses will be possible. It was unfortunate that ethnic group data were not available for the Australian and South African samples, as potential ethnic group differences within each country may have impacted on the interpretation of differences detected between countries. Finally, these findings were based on the 15FQ+ personality assessment and can not be generalised to alternative personality assessments without replication.

In conclusion, this was the first study to investigate differences in personality traits between three ethnic groups within New Zealand, and between New Zealand, Australia and South Africa. Statistically significant differences were found on some personality traits, although further research is required to determine why these differences exist and the practical implications of these differences in an employment context.

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Appendix: 15FQ+ Personality Trait Descriptions.

Global Personality Traits

Big Five Trait	*15FQ+ Trait*	
Extraversion	**Introversion** Reserved; serious; withdrawn; solitary activities.	**Extraversion** Empathic; enthusiastic; socially bold; group-orientated.
Neuroticism	**Low Anxiety** Calm; composed; satisfied; able to cope.	**High Anxiety** Affected by feelings; suspicious; self-doubting; tense-driven.
Openness to Experience	**Pragmatism** Hard-headed; realistic; concrete; conventional.	**Openness to Experience** Intellectually orientated; imaginative; innovative; sensitive; enjoy variety/change.
Agreeableness	**Independence** Dominant; suspicious; radical; intellectually orientated.	**Agreeableness** People-orientated; empathetic; sensitive; accommodating; deliberating; cautious.
Conscientiousness	**Low Control** Free from social constraints; tolerant; open; live and let live; unpretentious.	**High Control** Conscientious; restrained; self-disciplined; detail conscious; conform to the situation.

Facet Level Personality Traits

fA **Distant Aloof**
Lacking empathy; distant; detached; impersonal; reserved.

β **Low Intellectance**
Lacking confidence in own intellectual ability; may avoid intellectually demanding tasks.

fC **Affected by Feelings**
Emotional; changeable; may experience mood swings.

fE **Accommodating**
Passive; mild; humble; co-operative; unassertive; placid; may prefer others to take the lead.

fF **Sober Serious**
Cautious; deliberating; restrained; inhibited; may consider alternative options before acting.

fG **Expedient**
Spontaneous; unstructured; may disregard rules and regulations; concerned with broad issues.

fH **Retiring**
Timid; socially restrained; hesitant; shy; may avoid involvement in social situations.

fI **Hard-Headed**
Factual; realistic; hard-headed; utilitarian; decisions may be based on logical evidence; unsentimental.

fL **Trusting**
Accepting; unsuspecting; may accept people at face value; tolerant.

fM **Concrete**
Down-to-earth; practical; realistic; logical; solution focused.

fN **Direct**
Forthright; genuine; open; straightforward; may express their feelings forcibly.

fO **Self-Assured**
Self-assured; secure; high self-esteem; unworried; guilt-free.

fQ_1 **Conventional**
Conservative; wary of change; respect traditional values.

fQ_2 **Group-Orientated**
Group-dependent; sociable; may prefer to consult with others; preference for group activities.

fQ_3 **Informal**
Undisciplined; non-conforming; behaviour determined by inner urges.

fQ_4 **Composed**
Relaxed; composed; patient; placid; should not get frustrated quickly.

Empathic
Friendly; personable; participating; warm-hearted; caring.

High Intellectance
Confident in own intellectual ability; may enjoy working on intellectually demanding tasks.

Emotionally Stable
Mature; calm; phlegmatic; emotions kept under control.

Dominant
Forceful; assertive; competitive; may like to take the lead in group situations.

Enthusiastic
Spontaneous; quick to act; lively; uninhibited; can act in an unplanned manner.

Conscientious
Persevering; dutiful; detail conscious; meticulous; does things by the book.

Socially-Bold
Socially confident; venturesome; enjoys social situations; may enjoy being the centre of attention.

Tender-Minded
Intuitive; sentimental; aesthetically sensitive; decisions may be based on emotions.

Suspicious
Cynical; sceptical; doubtful; mistrusting; may question the motives of other people.

Abstract
Imaginative; creative; absorbed in thought; impractical.

Restrained
Diplomatic; socially astute; perceptive; shrewd; discreet.

Apprehensive
Insecure; lacking self-confidence; worrying; apprehensive.

Radical
Open to new ideas; change orientated; experimenting.

Self-Sufficient
Self-reliant; individualistic; solitary; may prefer autonomy and independence.

Self-Disciplined
Compulsive; status-conscious; behaviour may be determined by external values.

Tense-Driven
Tense; hard-driving; impatient; may have low tolerance.