CHAPTER 9

PRESENTATION OF RESULTS

9.1 INTRODUCTION

In this chapter the results of the statistical analysis of data are presented. Descriptive statistics are used to record the numerical properties of the various distributions. The arithmetic mean is a statistic of location and the standard deviation is a statistic of dispersion among the distribution around the mean as index of locality. Correlation statistics are employed to ascertain the relationship, if any, between the dimensions of the Work Value Survey of Hofstede and the Locus of Control-scale, as refined by Levenson. The freemarket and parastatal sectors of the mining industry are compared by means of a discriminant analysis and multiple analysis of variance. The main independent variables such as language, religion, etc. and where applicable, their two-way interactions are also compared and investigated by multiple analysis of variance in combination with Scheffé tests.

9.2 PRESENTATION OF RESULTS

The presentation of the data obtained from the survey is the major contribution towards this study of South Africans' work values. The scientific data will be discussed under headings referring to various dimensions measured by the Value Survey Module and the Activism and Powerful Others-scale. Ten independent variables have been identified and divided into two groups and analysed seperately. The first table regarding the analysis of variance of a dependent variable is in regard to the four independent variables

relating to culture. The six independent variables in the second table relate to circumstances and conditions within the organization.

9.2.1 DIMENSION INDIVIDUALISM

The individualism scale is designed to described the extent of individualism observed in the sample. A crosstabulation between class intervals of scores on the individualism dimension and language group is presented in Table 9.1.

Table 9.1: TABLE OF INDIVIDUALISM BY LANGUAGE GROUP.

Individualism	Language group				
Frequency Percent Row Pct Col Pct	Afrikaans 1	English 2	Sotho 3	African Vernacular: Other 4	Total
9 - 11	36 22,09 58,06 46,75	3 1,84 4,84 14,29	12 7,36 19,35 25,00	11 6,75 17,74 64,71	62 38,04
12 - 14	23 14,11 41,07 29,87	11 6,75 19,64 52,38	18 11,04 32,14 37,50	4 2,45 7,14 23,53	56 34,36
15 - 17	6 3,68 27,27 7,79	4 2,45 18,18 19,05	12 7,36 54,55 25,00	- - - -	22 13,50
18 - 20	2 1,23 40,00 2,60	- - - -	3 1,84 60,00 6,25	- - - -	5 3,07
21 - 23	1 0,61 33,33 1,30	1 0,61 33,33 4,76	1 0,61 33,33 2,08	- - - -	3 1,84
24 - 26	4 2,45 44,44 5,19	1 0,61 11,11 4,76	2 1,23 22,22 4,17	3 1,23 22,22 11,76	9 5,52

Table 9.1 (continued)

27 ≥	5 3,07 83,33 6,49	1 0,61 16,67 4,76	- - - -	- - - -	6 3,68
Total	77 47,24	21 12,88	48 29,45	17 10,43	163 100,00

Frequency Missing = 52

According to Table 9.1 the scores tend to aggregate in the lower class intervals which indicates a tendency towards individualism among the subjects.

Descriptive statistics with regard to individualism for the ten independent variables, viz language, religion, education, years of formal schooling received, income, occupational level, age group, country of origin, ethnicity and sector of the economy employed in, are presented in Table 9.2.

Table 9.2: DESCRIPTIVE STATISTICS: INDIVIDUALISM.

Variables	Mean	Std Dev.	Std. Error	Kurtosis	Skewness	N
Afrikaans	11,85	5,52	0,54	2,91	1,81	107
English	14,00	5,31	1,08	3,15	1,50	24
Sotho	13,31	3,99	0,56	2,38	1,30	54
Vernacular: Other	11,00	4,79	0,98	5,25	2,24	28
Anglican/ Catholic	13,79	4,82	1,29	2,41	1,79	15
Dutch Reformed	12,22	5,19	0,65	3,99	1,92	64
Methodist/ Presbyterian	12,62	5,11	1,00	4,49	1,66	26
Pentacostal/ Apostolic	12,64	5,18	0,98	2,92	1,66	30
Afrikaans Sister Churches	11,13	4,60	0,75	4,96	1,98	39
Religion: Other	13,18	5,67	0,99	0,62	1,19	36

Table 9.2 (continued)

Std. 8 and Lower	12,28	4,47	0,56	4,98	1,92	71
Std. 10	12,72	5,39	0,51	1,72	1,38	112
Graduates	11,31	5,26	0,93	4,99	2,25	32
11 years and less of schooling	11,98	3,47	0,46	7,78	2,14	62
12 years of schooling	12,57	5,66	0,65	1,46	1,41	77
13 years or more of schooling	12,38	5,64	0,68	2,37	1,62	70
Income: R5 000 pa and less	13,13	4,91	1,00	1,65	1,29	29
R5 001-R30 000	12,09	4,34	0,48	3,05	1,50	83
R30 001-R45 000	12,21	5,65	0,97	3,34	1,87	34
R45 001-R80 000	12,21	5,42	0,69	3,37	1,81	62
Labourers	12,02	3,67	0,49	1,10	0,91	64
Administrative workers	12,32	5,15	0,85	2,13	1,49	37
Management and consultants	12,51	5,87	0,81	1,96	1,69	53
Supervisors	12,57	5,77	0,77	2,52	1,59	56
Age: 19 - 25	13,15	5,05	0,87	2,16	1,38	35
26 - 30	12,31	5,28	0,67	1,67	1,38	66
31 - 45	12,32	5,49	0,61	3,00	1,79	83
46 + above	11,82	3,78	0,73	7,00	1,86	27
South Africa	12,39	5,31	0,40	2,22	1,54	186
Other countries	11,78	2,04	0,43	-0,73	-0,34	24
Afrikaners	11,80	5,49	0,54	3,15	1,86	105
Anglo-Saxons	14,45	6,01	1,35	1,24	1,06	20
Blacks	12,69	4,25	0,53	1,95	1,22	72
Freemarket	12,84	4,95	0,49	2,84	1,63	108
Parastatal	11,89	5,22	0,51	3,04	1,68	107

N = 215

An analysis of the content of Table 9.2 reveals that the scores according to individualism are not normally distributed. A value of 0 for skewness indicates a normal distribution (Norusis, 1983, p 40). In general, irrespective of the independent variable concerned, the distribution is positively

skewed or skewed to the right as the tail of the distribution is towards larger values. Only in regard to variable "Country of origin: other" is the distribution negatively skewed. An analysis of the values for kurtosis reveals that, in general, the distribution is more peaked than normal, in other words, the distribution is leptokurtic. Only in regard to "Country of origin: other" is the distribution platikurtic (value < 0). The standard deviations are quite high which is also an indication of the skewness of distributions. The standard error is the standard deviation of a sampling distribution of means (Bohrnstedt and Knoke, 1988, p 500; Shavelson, 1981, p 305) and is an index of the extent the sample means vary about the population means. Table 9.2 reveals that the standard error of the mean is generally low. The observed means of most of the subgroups are good indices of the comparable population means. Therefore inferences about the population mean may be drawn with at least a certain amount of confidence.

Four of the ten independent variables mentioned above (immediately after the presentation of Table 9.1) were suitable for use in a factorial analysis of variance. The influence of these four main factors and their interaction effects on individualism was investigated and the calculations pertaining to this analysis of variance are presented in Table 9.3.

Table 9.3: ANOVA: INDIVIDUALISM BY CULTURAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	29	739,91	25,51	0,91	0,6026
Error	152	4262,66	28,04		
Corrected Total	181	5002,57			

R-square	C.V.	Root MSE	IDV Mean
0,147905	42,61	5,30	12,43

Source	DF	Anova SS	Mean Square	F Value	Pr > F
LANG	3	277,19	92,40	3,29	0,0222*
REL	5	136,39	27,28	0,97	0,4364
COUNT	1	0,01	0,01	0,00	0,9860
ETHN	2	119,94	59,97	2,14	0,1214
LANG*REL	12	132,69	11,06	0,39	0,9640
LANG*COUNT	2	34,63	17,32	0,62	0,5407
REL*COUNT	4	39,05	9,76	0,35	0,8450

*p ≤ 0,05

With reference to Table 9.3 the overall effect proved to be non-significant ($F = 0,91$, $p = 0,6026 > p = 0,05$). However, the independent variable language group, proved significant, with $F = 3,29$ and $p = 0,0222 < p = 0,05$. The remaining three independent variables were also non-significant whilst no significant interactions at all, were observed.

The single significant independent variable, language group, necessitated the use of the Scheffé test to test for significant post-hoc comparisons among any two of the four language groups. The four language groups necessitated six pairwise comparisons. However, only four comparisons provided significant results.

The first comparison, namely that between Afrikaans and English speaking subjects, yielded a significant Scheffé value of 3,232. It portrays a significant difference ($F' = 3,232 > F = 2,65$ with 3 and 129 degrees of freedom). Secondly, Afrikaans speaking subjects were compared with Sotho speaking subjects ($F' = 2,728$, $F = 2,65$ with 3 and 159 degrees of freedom). This also proved significant. When Afrikaans speaking subjects were thirdly compared with speakers of vernacular languages, the comparison was non-significant ($F' = 0,572$, $p > 0,05$). Fourthly, the comparison English vs Sotho speaking, yielded a F'-ratio of 0,282 which is non-significant. The fifth comparison between English and vernacular users yielded a Scheffé value of 4,148 ($F' = 4,148 > F = 2,79$ with 3 and 50 degrees of freedom). This fifth comparison again was significant. Finally, Sotho speaking subjects were compared with users of vernacular languages. The Scheffé-ratio was equal to 3,510 ($F' = 3,51 > F = 2,68$ with 3 and 80 degrees of freedom). This comparison was also significant. In two of the four significant comparisons Afrikaans speaking subjects were involved. The Afrikaans speaking and vernacular language groups generally had lower individualism scores than the English and Sotho speaking subgroups.

Calculations pertaining to the six factors relating to the organization and their two-way interaction effects are presented in Table 9.4.

Table 9.4: ANOVA: INDIVIDUALISM BY ORGANIZATIONAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	92	2340,73	25,44	0,90	0,6884
Error	86	2427,79	28,23		
Corrected Total	179	4768,53			

R-square	C.V.	Root MSE	IDV Mean
0,49	43,03	5,31	12,35

Source	DF	Anova SS	Mean Square	F Value	Pr F
QUAL	2	27,97	13,99	0,50	0,6110
AGE	3	40,07	13,36	0,47	0,7018
YSCH	2	2,06	1,03	0,04	0,9642
INCOME	3	16,87	5,62	0,20	0,8967
CAR	3	8,14	2,71	0,10	0,9620
GROUP	1	25,11	25,11	0,89	0,3483
QUAL*AGE	6	195,25	32,54	1,15	0,3393
QUAL*YSCH	4	79,08	19,77	0,70	0,5938
QUAL*INCOME	5	118,77	23,75	0,84	0,5240
QUAL*CAR	5	108,19	21,64	0,77	0,5764
AGE*YSCH	6	171,83	28,64	1,01	0,4214
AGE*INCOME	9	142,46	15,83	0,56	0,8255
AGE*CAR	9	204,77	22,75	0,81	0,6119
YSCH*INCOME	6	169,33	28,22	1,00	0,4309
YSCH*CAR	6	93,54	15,59	0,55	0,7670
INCOME*CAR	9	396,16	44,02	1,56	0,1406
QUAL*GROUP	2	71,16	35,58	1,26	0,2887
AGE*GROUP	3	45,79	15,26	0,54	0,6557
YSCH*GROUP	2	154,28	77,14	2,73	0,0707
INCOME*GROUP	3	206,00	68,67	2,43	0,0705
CAR*GROUP	3	63,90	21,30	0,75	0,5227

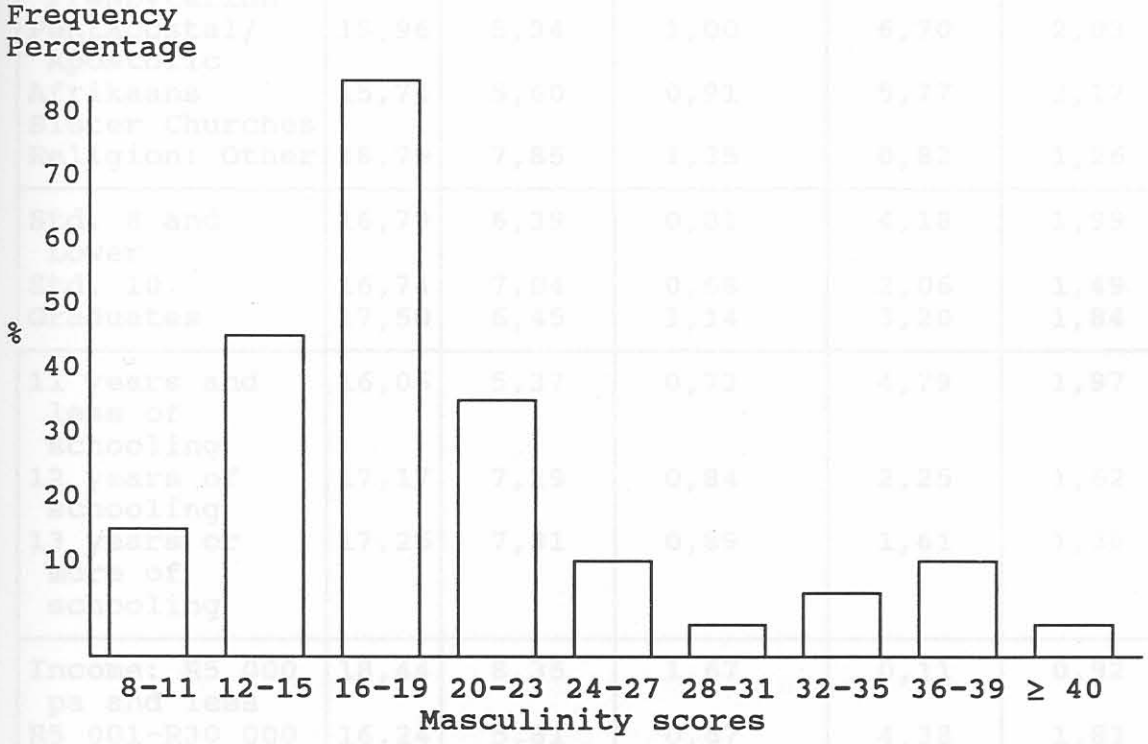
$p \leq 0,050$

An analysis of the information in Table 9.4 reveals that no significant differences are prevalent among the six independent variables in respect of individualism. The overall F-ratio of 0,90 is also non-significant ($p = 0,6884 > p = 0,05$). No significant differences exist for two-way interactions.

9.2.2 DIMENSION MASCULINITY

The Masculinity scale is designed to describe the extent to which masculinity or its opposite pole femininity, are the dominant sex role patterns observed in the sample. The shape of the distribution of scores on the masculinity dimension is visually presented by means of a barchart in Figure 9.1. The categories of scores on the masculinity dimension are arrayed along the horisontal axis and the frequencies (percentages) along the vertical axis.

Figure 9.1: BARCHART: MASCULINITY DIMENSION.



According to Figure 9.1 the scores tend to aggregate in the lower class intervals which indicate a tendency toward masculinity among the subjects.

Descriptive statistics with regard to masculinity for the ten independent variables referred to in section 9.2.1 are presented in Table 9.5.

Table 9.5: DESCRIPTIVE STATISTICS: MASCULINITY.

Variables	Mean	Std.Dev.	Std. Error	Kurtosis	Skewness	N
Afrikaans	16,69	6,75	0,66	2,82	1,75	107
English	18,42	7,48	1,53	2,50	1,58	24
Sotho	17,36	6,54	0,95	2,58	1,54	54
Vernacular: Other	15,44	6,47	1,35	3,68	1,64	28
Anglican/ Catholic	18,15	8,15	2,26	1,58	1,47	15
Dutch Reformed	17,29	6,79	0,89	2,22	1,54	64
Methodist/ Presbyterian	15,96	7,37	1,47	4,20	1,87	26
Pentacostal/ Apostolic	15,96	5,34	1,00	6,70	2,03	30
Afrikaans Sister Churches	15,74	5,60	0,91	5,77	2,17	39
Religion: Other	18,79	7,85	1,35	0,82	1,26	36
Std. 8 and Lower	16,79	6,39	0,81	4,18	1,99	71
Std. 10	16,74	7,04	0,68	2,06	1,49	112
Graduates	17,50	6,45	1,14	3,20	1,84	32
11 years and less of schooling	16,06	5,37	0,73	4,79	1,97	62
12 years of schooling	17,17	7,29	0,84	2,25	1,62	77
13 years or more of schooling	17,25	7,31	0,89	1,61	1,38	70
Income: R5 000 pa and less	18,44	8,35	1,67	0,11	0,92	29
R5 001-R30 000	16,24	5,81	0,67	4,38	1,83	83
R30 001-R45 000	16,03	6,47	1,11	4,66	2,14	34
R45 001-R80 000	17,11	6,98	0,89	2,88	1,71	62
Labourers	16,86	5,78	0,78	2,12	1,31	64
Administrative workers	16,41	6,80	1,17	4,86	2,16	37
Management and Consultants	18,04	7,08	0,98	1,41	1,47	53
Supervisors	16,11	7,45	1,02	3,12	1,80	56

Table 9.5 (continued)

Age: 19 - 25	17,29	6,72	1,21	3,07	1,81	35
26 - 30	17,66	7,08	0,90	1,18	1,20	66
31 - 45	17,08	7,21	0,81	2,58	1,73	83
46 & above	14,00	3,23	0,65	0,99	-0,02	27
South Africa	17,13	6,99	0,53	2,19	1,60	186
Other countries	14,70	4,23	0,88	0,87	0,76	24
Afrikaners	16,68	6,78	0,67	2,75	1,74	105
Anglo-Saxons	18,60	8,02	1,79	1,98	1,55	20
Blacks	17,34	6,69	0,86	2,13	1,42	72
Freemarket	16,50	6,96	0,70	3,02	1,80	108
Parastatal	17,25	6,50	0,65	2,34	1,50	107

N = 215

Table 9.5 shows that the scores according to masculinity also do not have the shape of a normal distribution. Except for the age group 46 and above which is negatively skewed, the distributions are skewed to the right (values > 0). These distributions are leptokurtic as well. The values for kurtosis indicate that the distribution is more peaked than normal. As was the case with individualism, the standard deviations are quite high which confirms that the distribution is skewed. The standard error of the means, with 13 exceptions, is generally low. The observed means of most of the subgroups are good indices of the comparable population means. Therefore inferences about the population mean may be drawn with at least a certain amount of confidence. The exceptions refer to vernacular/other, English speakers, Methodists/Presbyterians, religion other, Anglican/Catholic, graduates, income of R5 000 per annum or less, income of R30 001-R45 000, administrative workers, supervisors, age-group 19-25, and Anglo-Saxons. It is conspicuous that, in general,

the subjects in these categories are few. As there is much variability among these means, it is possible that inferences about the population mean will be in error, although analysis of variance analysis is quite robust in terms of deviations from the mean as it mainly requires a breakdown of sums of squares of various origins.

The influence of the 10 independent variables, viz language, religion, education, years of formal schooling received, income, occupational level, age group, country of origin, ethnicity and economic sector employed in and their two-way interactions on the dependent variable masculinity was also investigated by means of a factorial analysis of variance. The calculations pertaining to these analyses are presented in Tables 9.6 and 9.7.

Table 9.6: ANOVA: MASCULINITY BY CULTURAL FACTORS.

Dependent Variable: MAS		Sum of Squares	Mean Square	F Value	Pr F
Source	DF				
Model	29	1357,03	46,79	0,96	0,5360
Error	147	7194,44	48,94		
Corrected Total	176	8551,47			
R-square		C.V.	Root MSE	MAS Mean	
0,158690		40,69	6,99	17,19	
Source	DF	Anova SS	Mean Square	F Value	Pr F
LANG	3	214,11	71,37	1,46	0,2284
REL	5	321,73	64,35	1,31	0,2609
COUNT	1	23,60	23,60	0,48	0,4886
ETHN	2	44,66	22,33	0,46	0,6346
LANG*REL	12	367,51	30,63	0,63	0,8178
LANG*COUNT	2	114,56	57,28	1,17	0,3131
REL*COUNT	4	270,87	67,72	1,38	0,2424

An analysis of the information in Table 9.6 reveals that the overall F-ratio for masculinity is insignificant (F = 0,96 and p = 0,5360). No significant differences are prevalent among the four main factors, viz language, religion, country of origin and ethnicity or two-way interaction effects.

Calculations pertaining to the main factors, viz education, age, years of formal schooling received, income, occupational level and economic sector employed in and their two-way interactions are presented in Table 9.7.

Table 9.7: ANOVA: MASCULINITY BY ORGANIZATIONAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	92	4015,64	43,65	0,80	0,8505
Error	82	4471,24	54,53		
Corrected Total	174	8486,88			
	R-square	C.V.	Root MSE	MAS Mean	
	0,47	43,64	7,38	16,92	

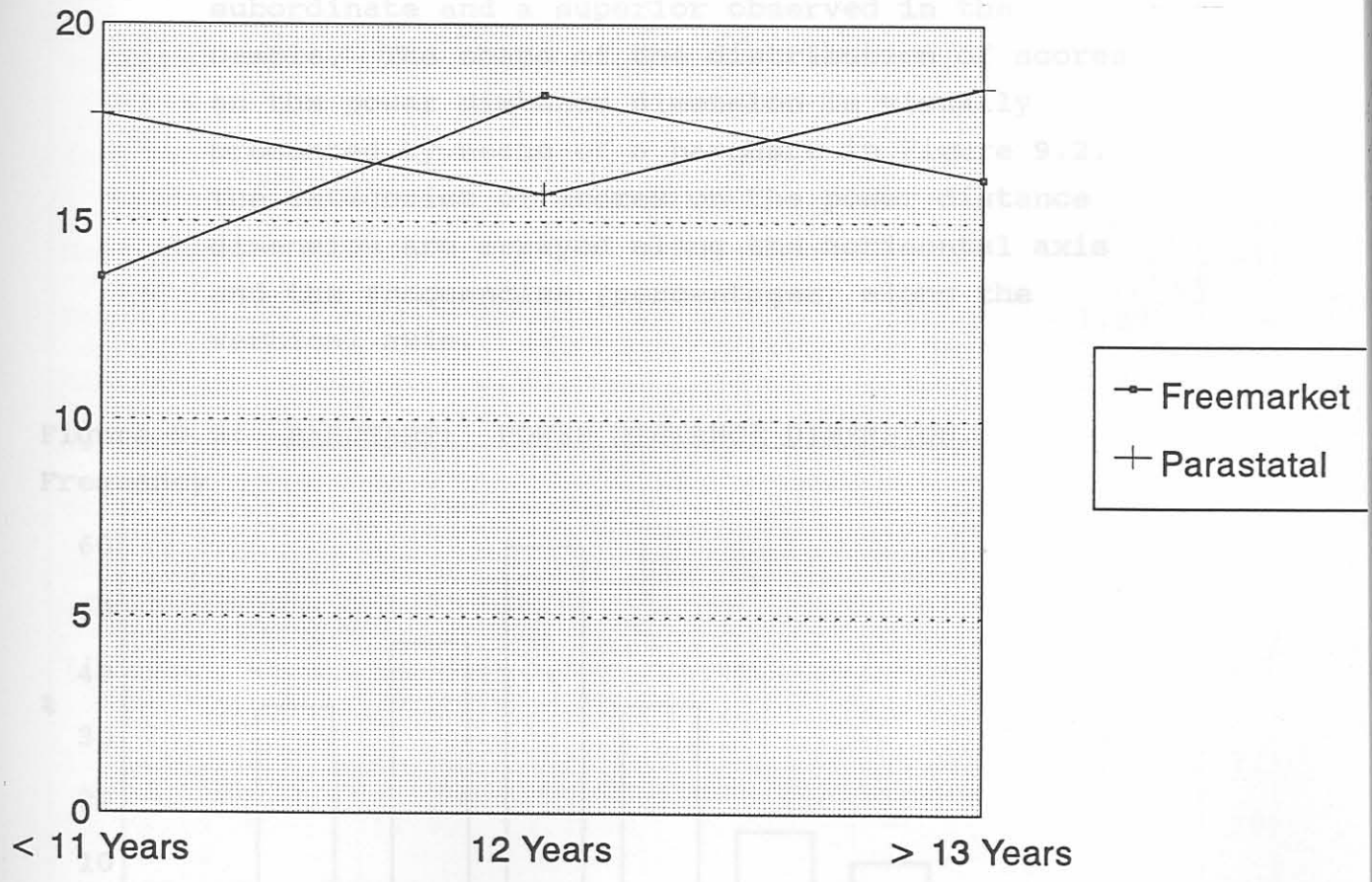
Source	DF	Anova SS	Mean Square	F Value	Pr F
QUAL	2	19,38	9,69	0,18	0,8375
AGE	3	247,26	82,42	1,51	0,2177
YSCH	2	24,40	12,20	0,22	0,8000
INCOME	3	89,22	29,74	0,55	0,6526
CAR	3	133,75	44,58	0,82	0,4878
GROUP	1	28,86	28,86	0,53	0,4690
QUAL*AGE	6	367,93	61,32	1,12	0,3554
QUAL*YSCH	4	276,69	69,17	1,27	0,2891
QUAL*INCOME	5	213,63	42,73	0,78	0,5644
QUAL*CAR	5	45,95	9,19	0,17	0,9735
AGE*INCOME	9	167,45	18,61	0,34	0,9584
AGE*CAR	9	190,81	21,20	0,39	0,9373
YSCH*INCOME	6	401,77	66,96	1,23	0,3005
YSCH*CAR	6	206,57	34,43	0,63	0,7047
INCOME*CAR	9	512,67	56,96	1,04	0,4124
QUAL*GROUP	2	52,31	26,15	0,48	0,6207
AGE*GROUP	3	101,23	33,74	0,62	0,6048
YSCH*GROUP	2	430,83	215,42	3,95	0,0230*
INCOME*GROUP	3	233,41	77,80	1,43	0,2409
CAR*GROUP	3	6,56	2,19	0,04	0,9892

* p ≤ 0,05

The information in Table 9.7 shows that no significant differences are prevalent among the six main independent variables referred to above in respect of masculinity. The overall F-ratio of 0,80 is insignificant with p = 0,8505 (> p = 0,05). Only the two-way interaction years of formal schooling received by economic sector (group) was significant.

This two-way interaction is visually presented by means of graphs in Graph 9.1.

Graph 9.1: INTERACTION EFFECTS BETWEEN YEARS OF FORMAL SCHOOLING RECEIVED AND SECTOR OF THE ECONOMY EMPLOYED IN ON MASCULINITY.

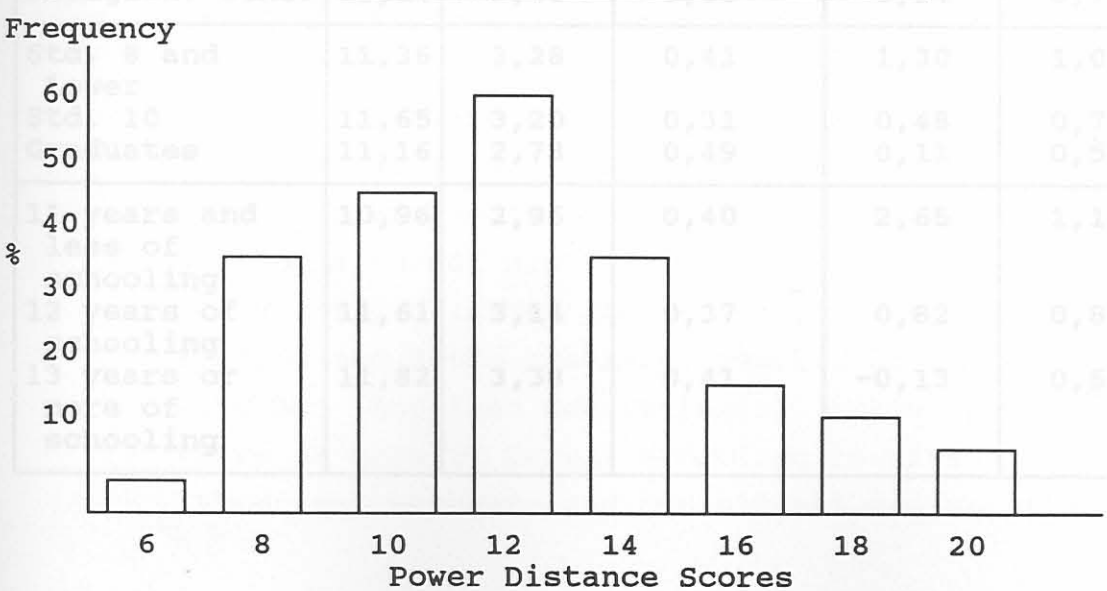


An analysis of Graph 9.1 reveals that matriculants (subjects with 12 years of formal schooling received) in the freemarket sector are conspiciously less inclined to masculinity than matriculants in the parastatal sector. Subjects in the freemarket sector with an education lower than matric (11 years or less of formal schooling received) or exposed to tertiary education (13 years of more of formal schooling received) tend toward masculinity. The opposite describes the trend in the parastatal sector of the economy.

9.2.3 DIMENSION POWER DISTANCE

The power distance scale is designed to describe the extent of the power distance between a subordinate and a superior observed in the sample. The shape of the distribution of scores on the power distance dimension is visually presented by means of a barchart in Figure 9.2. The categories of scores on the power distance dimension are arrayed along the horisontal axis and the frequencies (percentages) along the vertical axis.

Figure 9.2: BARCHART: POWER DISTANCE DIMENSION.



According to Figure 9.2 the scores tend to aggregate in the lower class intervals which indicate a great power distance between subordinate and superior among the subjects. Descriptive statistics with regard to power distance for the 10 main factors, viz language, religion, education, years of formal schooling received, income, occupational level, age group, country of origin, ethnicity and economic sector employed in, are presented in Table 9.8.

Table 9.8: DESCRIPTIVE STATISTICS: POWER DISTANCE.

Variables	Mean	Std.Dev.	Std. Error	Kurtosis	Skewness	N
Afrikaans	11,36	3,06	0,31	1,32	0,99	107
English	12,00	3,38	0,69	-0,03	0,51	24
Sotho	11,88	3,23	0,46	-0,04	0,53	54
Vernacular: Other	10,76	3,30	0,66	2,78	1,33	28
Anglican/ Catholic	12,50	3,35	0,89	-0,73	0,12	15
Dutch Reformed	11,12	2,88	0,38	0,43	0,85	64
Methodist/ Presbyterian	11,04	3,21	0,63	0,68	0,90	26
Pentacostal/ Apostolic	11,71	3,63	0,69	2,45	1,47	30
Afrikaans Sister Churches	11,17	2,71	0,45	0,19	0,40	39
Religion: Other	12,24	3,46	0,60	0,54	0,71	36
Std. 8 and Lower	11,36	3,28	0,41	1,30	1,00	71
Std. 10	11,65	3,20	0,31	0,48	0,77	112
Graduates	11,16	2,78	0,49	0,11	0,59	32
11 years and less of schooling	10,96	2,96	0,40	2,65	1,19	62
12 years of schooling	11,61	3,14	0,37	0,82	0,82	77
13 years or more of schooling	11,82	3,38	0,41	-0,13	0,59	70

Table 9.8 (continued)

Income: R5 000 pa and less	12,22	3,49	0,73	-0,73	0,14	29
R5 001-R30 000	11,29	3,02	0,34	1,53	0,96	83
R30 001-R45 000	11,27	2,99	0,52	0,03	0,56	34
R45 001-R80 000	11,25	2,92	0,38	0,74	0,84	62
Labourers	11,83	2,94	0,40	-0,34	0,31	64
Administrative workers	11,83	3,49	0,58	0,67	0,77	37
Management and Consultants	11,75	2,89	0,40	-0,46	0,37	53
Supervisors	10,96	3,46	0,47	2,49	1,56	56
Age: 19 - 25	12,61	3,51	0,61	0,97	1,01	35
26 - 30	11,48	2,95	0,38	0,26	0,63	66
31 - 45	11,16	3,20	0,37	0,08	0,69	83
46 & above	11,07	2,95	0,57	3,75	1,52	27
South Africa	11,47	3,19	0,24	0,52	0,82	186
Other countries	11,30	2,31	0,48	0,28	-0,14	24
Afrikaners	11,32	3,08	0,31	1,31	1,01	105
Anglo-Saxons	12,25	3,37	0,75	0,30	0,44	20
Blacks	11,45	3,18	0,40	0,04	0,65	72
Freemarket	11,45	2,91	0,29	0,82	0,87	108
Parastatal	11,51	3,39	0,34	0,58	0,80	107

N = 215

The information in Table 9.8 shows that the scores according to power distance are also not normally distributed. Except for country of origin: other, the distributions are positively skewed or skewed to the right. Only values in regard to country of origin: other are < 0 and thus negatively skewed. The kurtosis clearly indicates that the peak of the distribution is not mesokurtic, namely the peak of a normal distribution. The peak is platykurtic (flatter than normal) in regard to English and Sotho speakers, members of the high Churches (Anglican and Catholic), subjects with 13 years or more of formal schooling received, labourers, managers and consultants and country

of origin other. In regard to the other variables the distribution of scores is leptokurtic (values > 0). The large standard deviations confirm that the scores are not normally distributed. However, the standard error of the mean is generally low which is indicative of small variability among the sample means. This implies that the observed means of most subgroups are good indices of the comparable population means. Therefore inferences about the population mean may be drawn with at least a certain amount of confidence. The influence of the 10 independent variables referred to above and their two-way interactions on the dependent variable power distance was also investigated by means of a factorial analysis of variance. The calculations pertaining to these factorial analyses are presented in Tables 9.9 and 9.10.

Data in regard to the four main factors, viz language, religion, country of origin and ethnicity and their two-way interactions on power distance are presented in Table 9.9.

Table 9.9: ANOVA: POWER DISTANCE BY CULTURAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	29	245,36	8,46	0,83	0,7122
Error	146	1484,64	10,17		
Corrected Total	175	1729,99			
	R-square	C.V.	Root MSE	PDIST Mean	
	0,141825	27,72	3,19	11,51	
Source	DF	Anova SS	Mean Square	F Value	Pr F
LANG	3	59,50	19,83	1,95	0,1241
REL	5	47,20	9,44	0,93	0,4645
COUNT	1	0,92	0,92	0,09	0,7642
ETHN	2	14,07	7,04	0,69	0,5023
LANG*REL	12	85,62	7,13	0,70	0,7480
LANG*COUNT	2	4,16	2,08	0,20	0,8152
REL*COUNT	4	33,88	8,47	0,83	0,5063

The information in Table 9.9 shows that no significant differences are prevalent among the four main independent variables in respect of power distance. The overall F-ratio of 0,83 is also insignificant ($p = 0,7122 > p = 0,05$). Also, no significant two-way interaction could be detected.

Data in regard to the main factors, viz education, age group, years of formal schooling received, income, occupational level and economic sector employed in, and their two-way interactions on power distance are presented in Tabel 9.10.

Table 9.10: ANOVA: POWER DISTANCE BY ORGANIZATIONAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	92	839,98	9,13	0,88	0,7300
Error	81	843,31	10,41		
Corrected Total	173	1683,29			

R-square	C.V.	Root MSE	PDIST Mean
0,50	28,14	3,23	11,47

Source	DF	Anova SS	Mean Square	F Value	Pr F
QUAL	2	1,53	0,77	0,06	0,9372
AGE	3	49,91	16,64	1,60	0,1963
YSCH	2	7,10	3,55	0,34	0,7119
INCOME	3	17,01	5,67	0,54	0,6531
CAR	3	30,16	10,05	0,97	0,4132
GROUP	1	1,21	1,21	0,12	0,7341
QUAL*AGE	6	85,32	14,22	1,37	0,2384
QUAL*YSCH	4	25,94	6,48	0,62	0,6475
QUAL*INCOME	5	30,89	6,18	0,59	0,7050
QUAL*CAR	5	40,17	8,03	0,77	0,5730
AGE*YSCH	6	66,31	11,05	1,06	0,3925
AGE*INCOME	9	24,53	2,73	0,26	0,9829
AGE*CAR	9	90,20	10,02	0,96	0,4769
YSCH*INCOME	6	48,88	8,15	0,78	0,5861
YSCH*CAR	6	59,28	9,88	0,95	0,4651
INCOME*CAR	9	123,11	13,68	1,31	0,2428
QUAL*GROUP	2	35,65	17,82	1,71	0,1870
AGE*GROUP	3	22,74	7,58	0,73	0,5382
YSCH*GROUP	2	22,64	11,32	1,09	0,3420
INCOME*GROUP	3	34,43	11,48	1 10	0,3531
CAR*GROUP	3	23,15	7,72	0,74	0,5305

The information in Table 9.10 shows that no significant differences are prevalent among the six independent variables in respect of power distance. The overall F-ratio also proves to be insignificant (F = 0,88, p = 0,7300 > p = 0,05). Also no significant two-way interaction was detected.

9.2.4 DIMENSION UNCERTAINTY AVOIDANCE

The uncertainty avoidance scale is designed to described the extent of uncertainty observed in the sample. A crosstabulation between class intervals of scores on the uncertainty avoidance dimension and language is presented in Table 9.11.

Table 9.11: TABLE OF UNCERTAINTY AVOIDANCE BY LANGUAGE GROUP.

Uncertainty Avoidance	Language group				
Frequency Percent Row Pct Col Pct	Afrikaans 1	English 2	Sotho 3	African vernacular Other 4	Total
≤ 8	3 1,41 33,33 2,80	- - - -	3 1,41 33,33 5,56	3 1,41 33,33 10,71	9 4,23
9 - 11	6 2,82 50,00 5,61	- - - -	3 1,41 25,00 5,56	3 1,41 25,00 10,71	12 5,63
12 - 14	23 10,80 46,00 21,50	- - - -	16 7,51 32,00 29,63	11 5,16 22,00 39,29	50 23,47
15 - 17	28 13,15 45,16 26,17	13 6,10 20,97 54,17	16 7,51 25,81 29,63	5 2,35 8,06 17,86	62 29,11

Table 9.11 (continued)

18 - 20	28 13,15 65,12 26,17	2 0,94 4,65 8,33	10 4,69 23,26 18,52	3 1,41 6,98 10,71	43 20,19
21 - 23	4 1,88 26,67 3,74	6 2,82 40,00 25,00	3 1,41 20,00 5,56	2 0,94 13,33 7,14	15 7,04
24 - 26	12 5,63 80,00 11,21	1 0,47 6,67 4,17	1 0,47 6,67 1,85	1 0,47 6,67 3,57	15 7,04
27 - 29	2 0,94 40,00 1,87	2 0,94 40,00 8,33	1 0,47 20,00 1,85	- - - -	5 2,35
30 ≥	1 0,47 50,00 0,93	- - - -	1 0,47 50,00 1,85	- - - -	2 0,94
Total	107 50,23	24 11,27	54 25,35	28 13,15	213 100,00

Frequency Missing = 2

According to Table 9.11 the scores tend to aggregate in the lower and mid-range class intervals which indicates a tendency towards security and stability, i.e. avoidance of uncertainty.

Descriptive statistics with regard to uncertainty avoidance for the 10 independent variables mentioned above are presented in Table 9.12.

Table 9.12: DESCRIPTIVE STATISTICS: UNCERTAINTY AVOIDANCE.

Variables	Mean	Std.Dev.	Std. Error	Kurtosis	Skewness	N
Afrikaans	17,40	4,44	0,43	0,23	0,66	107
English	19,04	4,17	0,85	0,26	1,06	24
Sotho	16,27	4,42	0,61	1,80	0,91	54
Vernacular: Other	15,28	3,86	0,77	1,31	1,21	28
Anglican/ Catholic	18,71	4,98	1,33	-1,07	0,61	15
Dutch Reformed	17,61	4,15	0,53	-0,18	0,31	64
Methodist/ Presbyterian	16,40	4,66	0,93	0,82	1,03	26
Pentacostal/ Apostolic	16,21	3,47	0,64	1,69	1,15	30
Afrikaans Sister Churches	16,50	3,77	0,61	0,98	0,84	39
Religion: Other	17,69	5,34	0,90	0,59	1,04	36
Std. 8 and Lower	15,97	4,05	0,50	2,52	1,09	71
Std. 10	16,97	4,46	0,43	0,53	0,79	112
Graduates	19,38	4,22	0,75	-0,63	0,43	32
11 years and less of schooling	16,02	3,95	0,51	1,24	0,55	62
12 years of schooling	17,35	4,24	0,49	0,73	0,88	77
13 years or more of schooling	17,65	4,91	0,59	-0,14	0,67	70
Income: R5 000 pa and less	17,89	5,08	1,00	0,19	0,56	29
R5 001-R30 000	19,94	3,56	0,40	2,27	0,99	83
R30 001-R45 000	16,18	4,03	0,69	0,52	0,80	34
R45 001-R80 000	18,03	4,77	0,61	-0,37	0,41	62
Labourers	16,30	3,93	0,51	0,97	0,46	64
Administrative workers	16,22	4,22	0,74	4,37	1,95	37
Management and Consultants	18,69	4,64	0,64	-0,52	0,21	53
Supervisors	16,86	4,40	0,59	0,25	0,81	56

Table 9.12 (continued)

Age: 19 - 25	17,53	4,31	0,74	2,07	1,41	35
26 - 30	17,56	4,44	0,56	-0,28	0,46	66
31 - 45	17,06	4,59	0,51	0,53	0,92	83
46 & above	15,33	3,82	0,74	-0,11	-0,21	27
South Africa	17,00	4,53	0,34	0,55	0,81	186
Other countries	18,83	3,58	0,75	0,01	0,23	24
Afrikaners	17,32	4,39	0,43	0,38	0,72	105
Anglo-Saxons	18,65	4,33	0,97	1,00	1,42	20
Blacks	16,19	4,36	0,53	1,39	0,99	72
Freemarket	16,84	4,27	0,42	0,93	1,04	108
Parastatal	17,19	4,56	0,45	0,34	0,55	107

N = 215

An analysis of the content of Table 9.12 reveals that the scores according to uncertainty avoidance are also not normally distributed. Neither the skewness nor the kurtosis equals 0. The distributions are positively skewed except for the age group 46 years and above which is skewed to the left. The values for kurtosis indicate that the peak of the distribution is either leptokurtic (the distribution is more peaked as the values are > 0) or the distribution is platykurtic (peak flatter than normal) as the values are < 0. This holds for the Anglican/Catholic Churches, Dutch Reformed Churches, graduates, subjects with 13 years or more of formal schooling received, subjects with an income of R45 001 to R80 000, managers and consultants, and subjects in the age group 46 years and above. The large standard deviations are also indicative of a skewed distribution. The standard error fluctuates between large and small. The standard error provides information about the amount of error likely to be made by inferring the value of the population mean from a sample mean. The greater the variability among sample means, the greater

the chance that the inference about the population mean from a single sample mean will be in error. In regard to uncertainty avoidance it is possible that some inferences about the population mean may be in error as there is quite a variability among sample means.

The influence of the 10 independent variables and their two-way interactions in respect of uncertainty avoidance was also investigated by means of a factorial analysis of variance. The calculations pertaining to these analyses are presented in Tables 9.13 and 9.14.

Data in regard to the four main factors, viz language, religion, country of origin and ethnicity and their two-way interactions with uncertainty avoidance are presented in Table 9.13.

Table 9.13: ANOVA: UNCERTAINTY AVOIDANCE BY CULTURAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	29	700,05	24,14	1,32	0,1424
Error	153	2791,70	18,25		
Corrected Total	182	3491,75			
	R-square	C.V.	Root MSE	UNVOI Mean	
	0,200487	24,88	4,27	17,17	

Source	DF	Anova SS	Mean Square	F Value	Pr F
LANG	3	123,24	41,08	2,25	0,0846
REL	5	116,90	23,38	1,28	0,2748
COUNT	1	4,74	4,74	0,26	0,6110
ETHN	2	79,63	39,82	2,18	0,1163
LANG*REL	12	239,69	19,97	1,09	0,3684
LANG*COUNT	2	68,37	34,18	1,87	0,1571
REL*COUNT	4	67,47	16,87	0,92	0,4514

An analysis of the information in Table 9.13 reveals that no significant differences are prevalent among the four main independent variables, viz language, religion, country of origin and ethnicity in respect of uncertainty avoidance. The overall F-ratio of 1,32 was also insignificant (F = 1,32, p = 0,1424 > p = 0,05). No significant two-way interaction was detected.

Data in regard to the main factors, viz education, age group, years of formal schooling received, income, occupational level and economic sector employed in and their two-way interactions with uncertainty avoidance are presented in Table 9.14.

Table 9.14: ANOVA: UNCERTAINTY AVOIDANCE BY ORGANIZATIONAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	87	2176,77	25,02	1,84	0,0021
Error	92	1252,23	13,61		
Corrected Total	179	3429,00			

R-square	C.V.	Root MSE	UNVOI Mean
0,63	21,49	3,69	17,17

Source	DF	Anova SS	Mean Square	F Value	Pr F
QUAL	2	143,30	71,65	5,26	0,0068*
AGE	3	68,40	22,80	1,68	0,1778
YSCH	2	29,28	14,64	1,08	0,3453
INCOME	3	140,58	46,86	3,44	0,0200*
CAR	3	176,95	58,98	4,33	0,0067*
GROUP	1	15,31	15,31	1,12	0,2917
QUAL*AGE	6	225,53	37,59	2,76	0,0163*
QUAL*YSCH	4	265,47	66,37	4,88	0,0013*
QUAL*INCOME	5	62,08	12,42	0,91	0,4767
AGE*YSCH	6	170,60	28,43	2,09	0,0619
AGE*INCOME	9	81,35	9,04	0,66	0,7392
AGE*CAR	9	163,32	18,15	1,33	0,2308
YSCH*INCOME	6	185,79	30,97	2,28	0,0430*
YSCH*CAR	6	80,11	13,35	0,98	0,4428
INCOME*CAR	9	47,41	5,27	0,39	0,9386
QUAL*GROUP	2	32,57	16,29	1,20	0,3069
AGE*GROUP	3	57,72	19,24	1,41	0,2439
YSCH*GROUP	2	103,97	51,98	3,82	0,0255*
INCOME*GROUP	3	62,98	20,99	1 54	0,2088
CAR*GROUP	3	64,04	21,35	1,57	0,2024

The information in Table 9.14 shows that significant differences are prevalent among the six main independent variables in respect of uncertainty avoidance. The overall F-ratio is significant ($F = 1,84$, $p = 0,0021 < p = 0,05$). This ratio however does not pinpoint the particular independent variables concerned. Three of the six main factors in the survey did show significant differences. The first of these is educational qualifications ($F = 5,26$, $p = 0,0068$). Secondly, income provided significant differences ($F = 3,44$, $p = 0,0200$). The third significant variable was occupational level ($F = 4,33$, $p = 0,0067$). Significant two-way interactions were also detected. The first of these are qualifications by age ($F = 2,76$, $p = 0,0163$). Secondly, the interaction educational qualification by years of formal schooling received was also significant ($F = 4,88$, $p = 0,0013$). The third significant two-way interaction was between years of formal schooling received by income ($F = 2,28$, $p = 0,0430$). Fourthly, the two-way interaction years of formal schooling received by group (sector of the economy employed in) was also significant ($F = 3,82$, $p = 0,0255$).

In regard to the main factors educational qualifications, income and occupational level post hoc comparisons were done by means of a Scheffé-test.

In regard to educational qualifications, the lower educated group (Std 8 and lower) was compared with matriculants. In this comparison t equals 1,79 so that $F' = 3,19$ (t^2) which with 2 and 181 degrees of freedom (df) is significant ($F' = 3,19 > F = 3,04$ with 2 and 181 df p being <

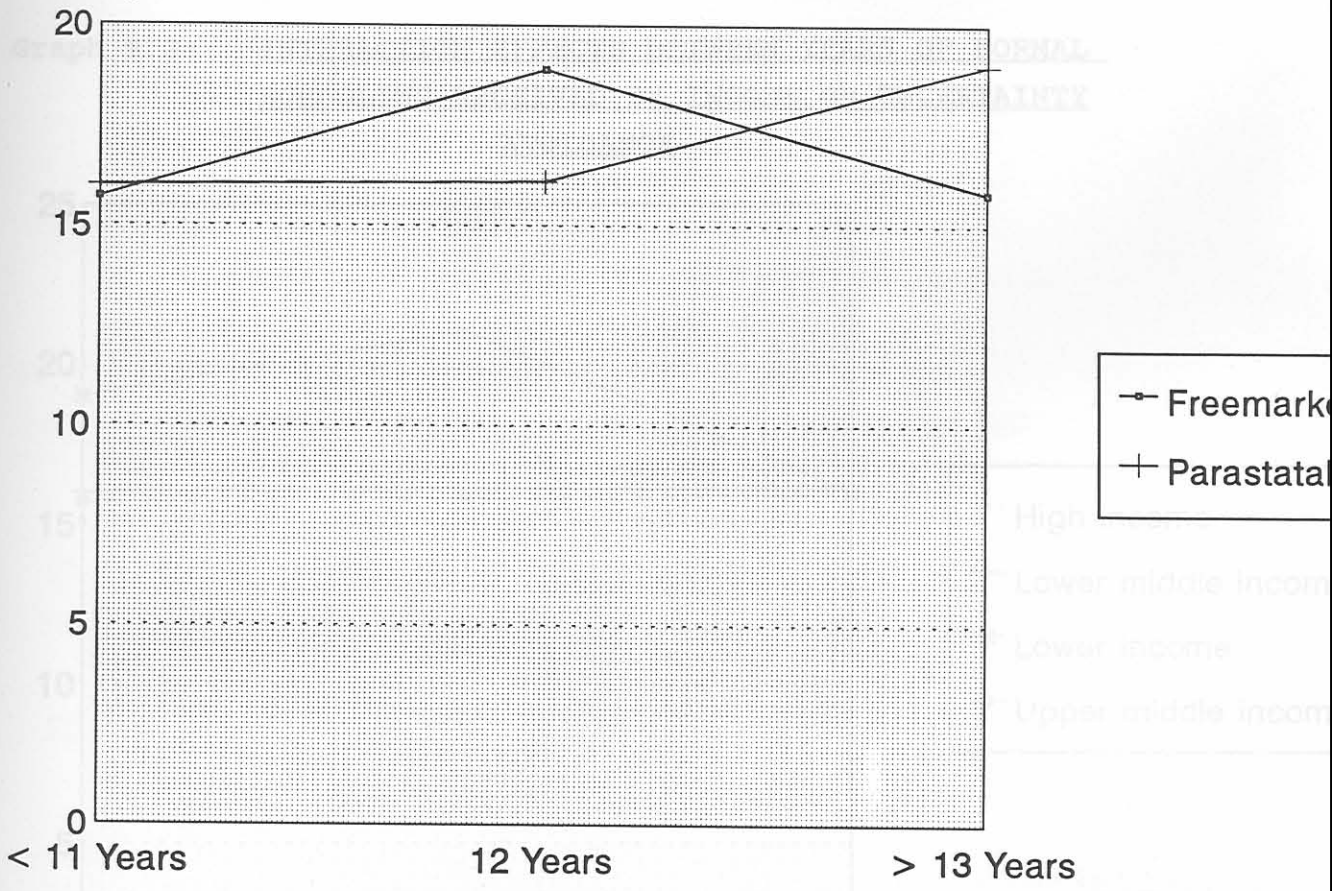
0,05). The second comparison, namely that between the lower educated group and the graduates yielded a F' value of 18,85. It portrays a significant difference (F' = 18,85 > F = 3,07 with 2 and 101 df, p < 0,05). Thirdly, the matriculants were compared with the graduates. This comparison yielded a Scheffé-value of 10,62 which proved significant (F' = 10,62, > F = 3,04 with 2 and 142 df, p being < 0,05).

In regard to the main factor income the lower income group was compared with the lower middle class. This comparison yielded a F' value of 6,631 which portrays a significant difference between the two groups (F' = 6,631 > F = 2,45 with 3 and 110 df, p < 0,05). The second comparison, viz between the lower income group and the upper middle income group yielded a Scheffé-value of 3,363 which is significant (F' = 3,363 > F = 2,76 with 3 and 61 df, p < 0,05). Thirdly, the lower income group was compared with the high income group (F' = 0,028 < F = 2,68 with 3 and 89 df, p > 0,05). This comparison proved non-significant. Subjects in the lower middle income group were compared with members of the upper middle income group. This comparison yielded a F' value of 25,055. It portrays a significant difference (F' = 25,055 > F = 2,68 with 3 and 115 df, p < 0,05). The fifth comparison, viz between the lower middle class and the high income group yielded a F' ratio of 9,513 which is significant (F' = 9,513, > F = 2,65 with 13 and 143 df, p < 0,05). Finally, the upper middle income group was compared with the high income group. The Scheffé-ratio was equal to 5,522 which portrays a significant difference. (F' = 5,522, > F = 2,68 with 3 and 94 df, p < 0,05).

In regard to the occupational level (career level) the group comprising the artisans, semi-skilled and unskilled labour was compared with the administrative staff by means of the Scheffé-test. In this comparison t equals 0,05 so that $t^2 = 0,011$ (F') which with 3 and 99 df is non-significant ($F' = 0,011$, $< F = 2,68$ with 3 and 99 df, $p > 0,05$). Secondly, the labourers were compared with the group comprising managers and consultants. In this comparison a t-value of 3,488 was obtained so that $F' = 12,168$ (t^2) which with 3 and 115 df is significant ($F' = 12,168$, $> F = 2,68$ with 3 and 115 df, $p < 0,05$). When the labourers were thirdly compared with supervisors, the comparison was non-significant ($F' = 0,688$, $< F = 2,68$ with 3 and 118 df, $p > 0,05$). The administrative staff were also compared with the managers and consultants. This comparison portrays a significant difference ($F' = 9,767$, $> F = 2,68$ with 3 and 88 df, $p < 0,05$). The comparison between the administrative personnel and the superiors yielded a Scheffé-value of 0,671 which is non-significant ($F' = 0,671$, $< F = 2,68$ with 3 and 91 df, $p > 0,05$). Lastly, the managers and consultants were compared with the supervisors. In this comparison a t-value of 2,588 was obtained so that $F' = 6,700$ (t^2) which with 3 and 107 df is significant ($F' = 6,700$, $> F = 2,68$ with 3 and 107 df, $p < 0,05$).

The significant two-way interactions are visually presented by means of graphs. Graph 9.2 represents the two-way interaction years of formal schooling received by economic sector.

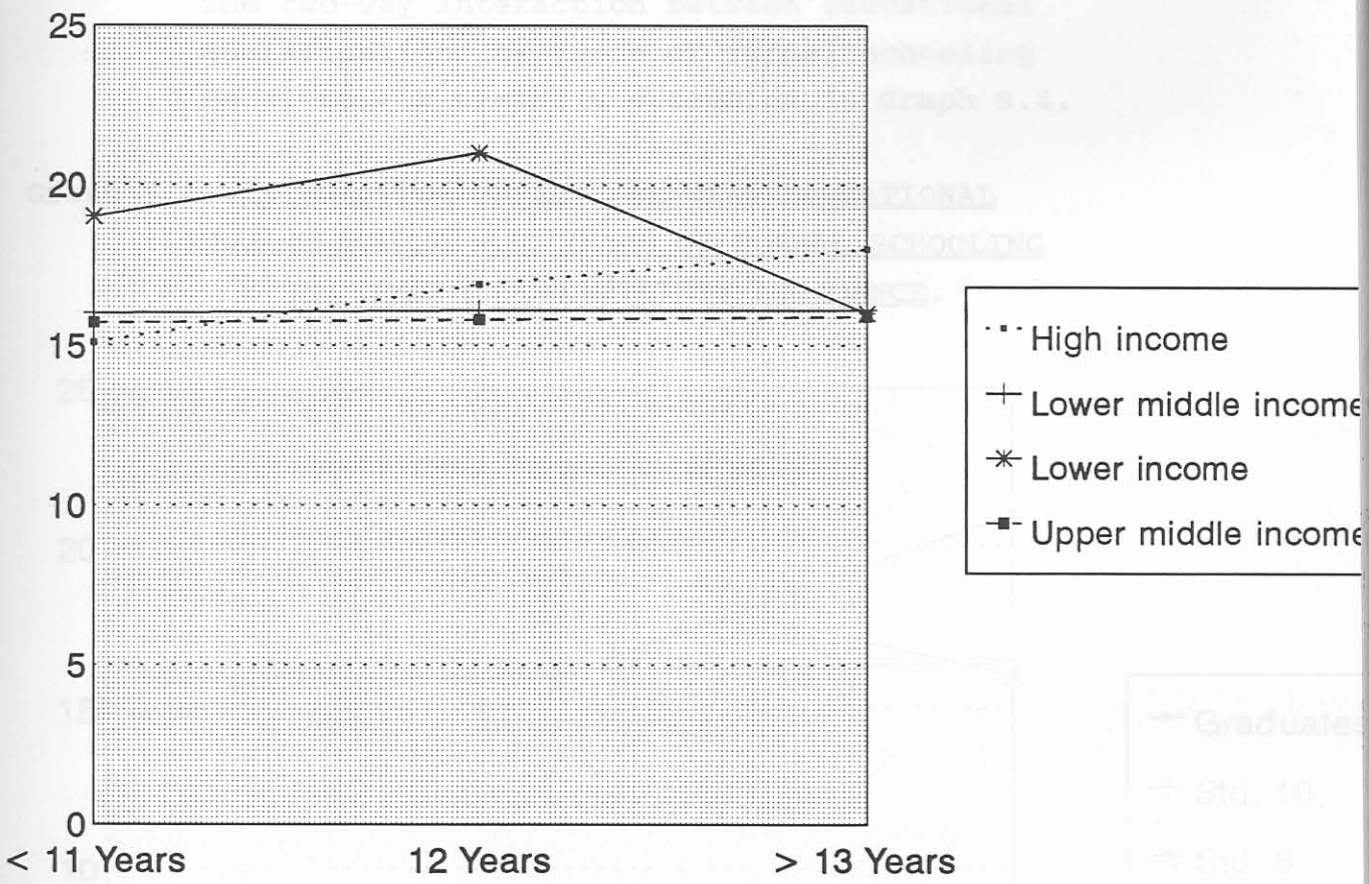
Graph 9.2: INTERACTION EFFECTS BETWEEN YEARS OF FORMAL SCHOOLING RECEIVED AND SECTOR OF THE ECONOMY EMPLOYED IN ON UNCERTAINTY AVOIDANCE.



The information in Graph 9.2 shows that subjects with 12 years of formal schooling received (matriculants) employed in the freemarket sector are more inclined to face risk and uncertainty than matriculants employed in the parastatal sector. However, subjects employed in the freemarket sphere with 11 years or less of formal schooling or exposed to tertiary education (13 years or more of formal schooling received), were more inclined toward uncertainty avoidance. The opposite describes the trend in the parastatal sector of the economy.

The two-way interaction years of formal schooling received by income is visually represented in Graph 9.3.

Graph 9.3: INTERACTION EFFECTS BETWEEN YEARS OF FORMAL SCHOOLING RECEIVED BY INCOME ON UNCERTAINTY AVOIDANCE.

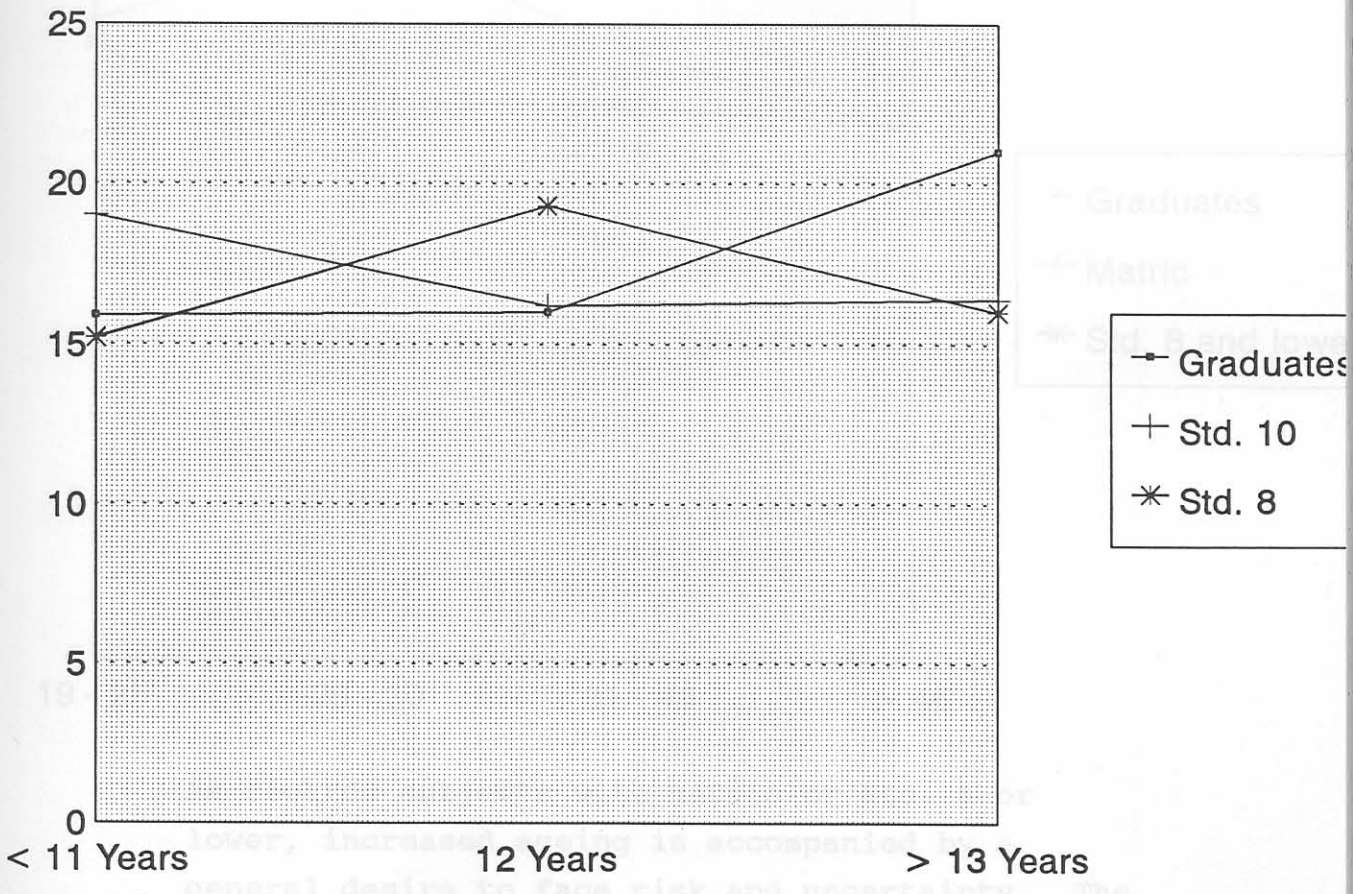


Four trends are noticeable in Graph 9.3. Firstly, the lower and upper middle income groups, irrespective of number of years of formal schooling received, tended towards avoidance of uncertainty, i.e. the pursuit of stability and security. The lower income group with 11 years or less or more than 12 years of formal schooling, also tended more towards uncertainty avoidance. Thirdly, subjects with a lower income and exactly 12 years of formal schooling, tended the most of all towards exposing themselves to uncertainty and

risk. Fourthly, the high income group with more than 12 years of formal schooling received (i.e. post-matriculation, when compared with high earners with less than 12 years of formal schooling, were more inclined to uncertainty and risk.

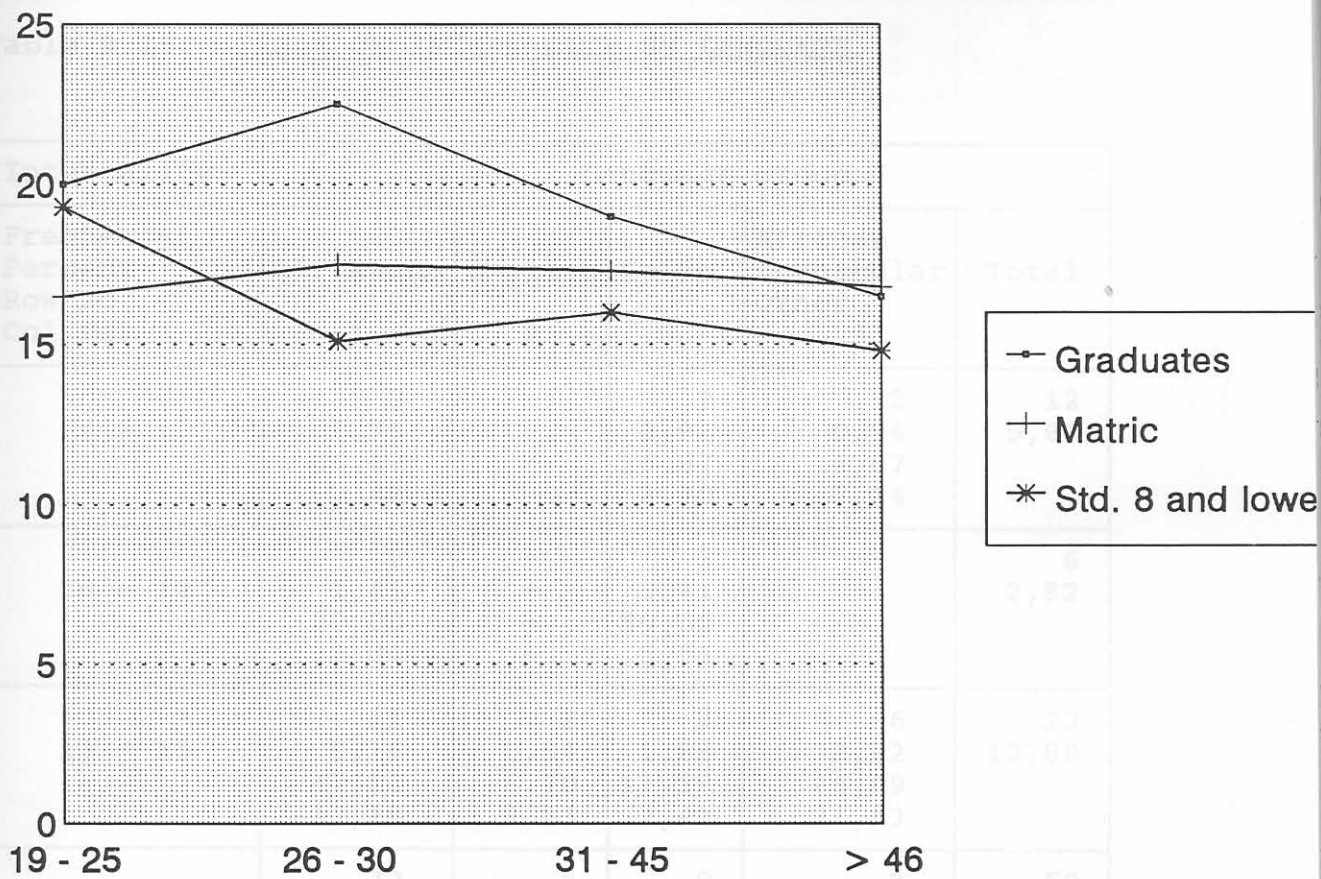
The two-way interaction between educational qualifications by years of formal schooling received, is visually presented in Graph 9.4.

Graph 9.4: INTERACTION EFFECTS BETWEEN EDUCATIONAL QUALIFICATIONS AND YEARS OF FORMAL SCHOOLING RECEIVED ON UNCERTAINTY AVOIDANCE.



Three subgroups, each with 13 or more years of formal schooling, are conspicious. Of these three groups, the graduates with longer educational exposure are more inclined to facing risk and uncertainty whereas the Std. 10 group as well as the group with Std. 8 and lower were more inclined to avoiding risk and uncertainty.

Graph 9.5: INTERACTION EFFECTS BETWEEN EDUCATIONAL QUALIFICATIONS AND AGE ON UNCERTAINTY AVOIDANCE.



As regards subjects with matric or Std. 8 or lower, increased ageing is accompanied by a general desire to face risk and uncertainty. The argument also holds for matriculants with the exception of the 26 to 30 years age group. Subjects in the 26 to 30 years age group with matric were the most inclined to face uncertainty and risk.

9.2.5 DIMENSION INTERNALITY

The dimension internality is measured by the Activism and Powerful Others-scale. Internality indicates the extent to which subjects in the sample believe that events are contingent upon their own behaviour.

A crosstabulation between class intervals of scores on the internality dimension and language is presented in Table 9.15.

Table 9.15: TABLE OF INTERNALITY BY LANGUAGE.

Internality	Language group				
Frequency Percent Row Pct Col Pct	Afrikaans 1	English 2	Sotho 3	African vernacular Other 4	Total
≤ 9	8 3,76 66,67 7,48	- - - -	2 0,94 16,67 3,70	2 0,94 16,67 7,14	12 5,63
10 - 12	3 1,41 50,00 2,80	- - - -	3 1,41 50,00 5,56	- - - -	6 2,82
13 - 15	11 5,16 47,83 10,28	2 0,94 8,70 8,33	4 1,88 17,39 7,41	6 2,82 26,09 21,43	23 10,80
16 - 18	32 15,02 64,00 29,91	6 2,82 12,00 25,00	9 4,23 18,00 16,67	3 1,41 6,00 10,71	50 23,47
19 - 21	26 12,21 47,27 24,30	6 2,82 10,91 25,00	17 7,98 30,91 31,48	6 2,82 10,91 21,43	55 25,82
22 - 24	13 6,10 41,94 12,15	2 0,94 6,45 8,33	9 4,23 29,03 16,67	7 3,29 22,58 25,00	31 14,55

Table 9.15 (continued)

25 - 27	10 4,69 43,48 9,35	4 1,88 17,39 16,67	6 2,82 26,09 11,11	3 1,41 13,04 10,71	23 10,80
28 - 30	2 0,94 22,22 1,87	2 0,94 22,22 8,33	4 1,88 44,44 7,41	1 0,47 11,11 3,57	9 4,23
31 ≥	2 0,94 50,00 1,87	2 0,94 50,00 8,33	- - - -	- - - -	4 1,88
Total	107 50,23	24 11,27	54 25,35	28 13,15	213 100,00
Frequency Missing = 2					

According to Table 9.15 the scores tend to aggregate in the middle class intervals which indicates a tendency to be unsure about the subjects' control and influence of their own lives.

Descriptive statistics with regard to internality for the 10 independent variables referred to above are presented in Table 9.16.

Table 9.16: DESCRIPTIVE STATISTICS: INTERNALITY.

Variables	Mean	Std.Dev.	Std. Error	Kurtosis	Skewness	N
Afrikaans	18,22	4,62	0,46	1,18	0,70	107
English	20,63	5,30	1,08	-0,62	0,71	24
Sotho	19,10	4,53	0,63	-0,20	-0,06	54
Vernacular: Other	19,00	4,45	0,87	-0,90	-0,02	28
Anglican/ Catholic	18,00	4,90	1,31	0,06	0,35	15
Dutch Reformed	18,38	4,58	0,59	0,98	0,58	64
Methodist/ Presbyterian	18,58	4,91	0,96	1,43	0,91	26
Pentacostal/ Apostolic	16,69	3,93	0,73	-0,58	0,23	30

Table 9.16 (continued)

Afrikaans	18,29	3,88	0,66	0,42	-0,28	39
Sister Churches						
Religion: Other	20,06	5,79	0,98	-0,62	-0,30	36
Std. 8 and Lower	19,21	4,62	0,57	-0,69	-0,03	71
Std. 10	18,88	4,73	0,46	-0,61	0,50	112
Graduates	17,87	4,56	0,82	3,71	1,62	32
11 years and less of schooling	19,49	4,25	0,55	-0,37	-0,03	62
12 years of schooling	18,45	3,87	0,45	1,79	0,86	77
13 years or more of schooling	18,48	5,60	0,68	0,06	0,57	70
Income: R5 000 pa and less	18,96	4,36	0,84	-0,35	0,02	29
R5 001-R30 000	19,54	4,85	0,54	-0,01	0,11	83
R30 001-R45 000	19,00	4,86	0,83	1,01	0,91	34
R45 001-R80 000	17,58	4,49	0,59	1,63	0,92	62
Labourers	19,59	4,64	0,59	-0,44	0,02	64
Administrative workers	19,31	4,19	0,71	-0,32	0,62	37
Management and Consultants	17,90	4,69	0,65	1,96	0,75	53
Supervisors	18,67	4,50	0,68	0,61	0,70	56
Age: 19 - 25	19,91	5,57	0,97	-0,09	0,27	35
26 - 30	18,49	4,89	0,60	-0,16	0,14	66
31 - 45	18,54	4,28	0,49	1,05	0,95	83
46 & above	19,30	4,13	0,80	1,26	0,49	27
South Africa	18,82	4,51	0,34	0,58	0,47	186
Other countries	19,17	5,81	1,21	-0,58	0,40	24
Afrikaners	18,28	4,61	0,46	1,22	0,67	105
Anglo-Saxons	20,25	4,94	1,11	-0,15	1,70	20
Blacks	19,36	4,28	0,52	-0,47	0,08	72
Freemarket	18,67	4,86	0,48	0,56	0,62	108
Parastatal	19,00	4,49	0,44	0,11	0,30	107

N = 215

The information in Table 9.16 shows that in regard to internality the distributions of scores are also skewed. The distribution is largely positively skewed (values are > 0) with a few values skewed to the left (values < 0). However, regarding the values for the Sotho language, other vernaculars, educational qualification of Std. 8 and lower, 11 years and less of formal schooling received, income of R5 000 pa and less and labourers, the distribution may be normal as measures of skewness (and kurtosis) do not need to be exactly zero but will fluctuate around zero because of sampling variation (Norusis, 1983, p 40). However, measures of kurtosis also indicate a deviation from the normal distribution. For the Afrikaans language, Methodist/Presbyterian churches, Dutch Reformed Churches, graduates, subjects with 12 years of formal schooling, subjects in the income brackets R30 001 to R45 000 and R45 001 to R80 000, managers and consultants, age brackets 31 years to 45 years and 46 years and above, country of origin (other) and Anglo-Saxons, the distribution is quite peaked (leptokurtic). The peak is flatter than that of a normal distribution (platykurtic) for the African languages, Pentacostal/Apostolic faiths, Religion other, Matric and lower educational qualifications, 11 years or less of formal schooling received, lower income brackets, labourers and administrative workers, younger employees, subjects hailing from other countries, Anglo-Saxons and Blacks. Again the standard deviation is quite large which confirms that the distribution is not normal. The standard errors indicate some variability among the sample means, implying that inferences about the population mean should be treated with some care.

The influence of the 10 independent variables, viz language, religion, educational qualifications, years of formal schooling received, income, occupational level, age group, country of origin, ethnicity and economic sector employed in as well as their two-way interactions on the dependent variable internality, was also investigated by means of a factorial analysis of variance. Calculations pertaining to the four main factors relating to culture and their two-way interaction effects are presented in Table 9.17.

Table 9.17: ANOVA: INTERNALITY BY CULTURAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	29	906,58	31,26	1,64	0,0295
Error	150	2851,40	19,01		
Corrected Total	179	3758,06			

R-square	C.V.	Root MSE	INTERL Mean
0,241236	23,03	4,36	12,43

Source	DF	Anova SS	Mean Square	F Value	Pr F
LANG	3	118,25	39,42	2,07	0,1061
REL	5	110,91	22,18	1,17	0,3282
COUNT	1	37,11	37,11	1,95	0,1644
ETHN	2	92,03	46,01	2,42	0,0923
LANG*REL	12	161,02	13,42	0,71	0,7440
LANG*COUNT	2	234,02	117,01	6,16	0,0027*
REL*COUNT	4	153,24	38,31	2,02	0,0952

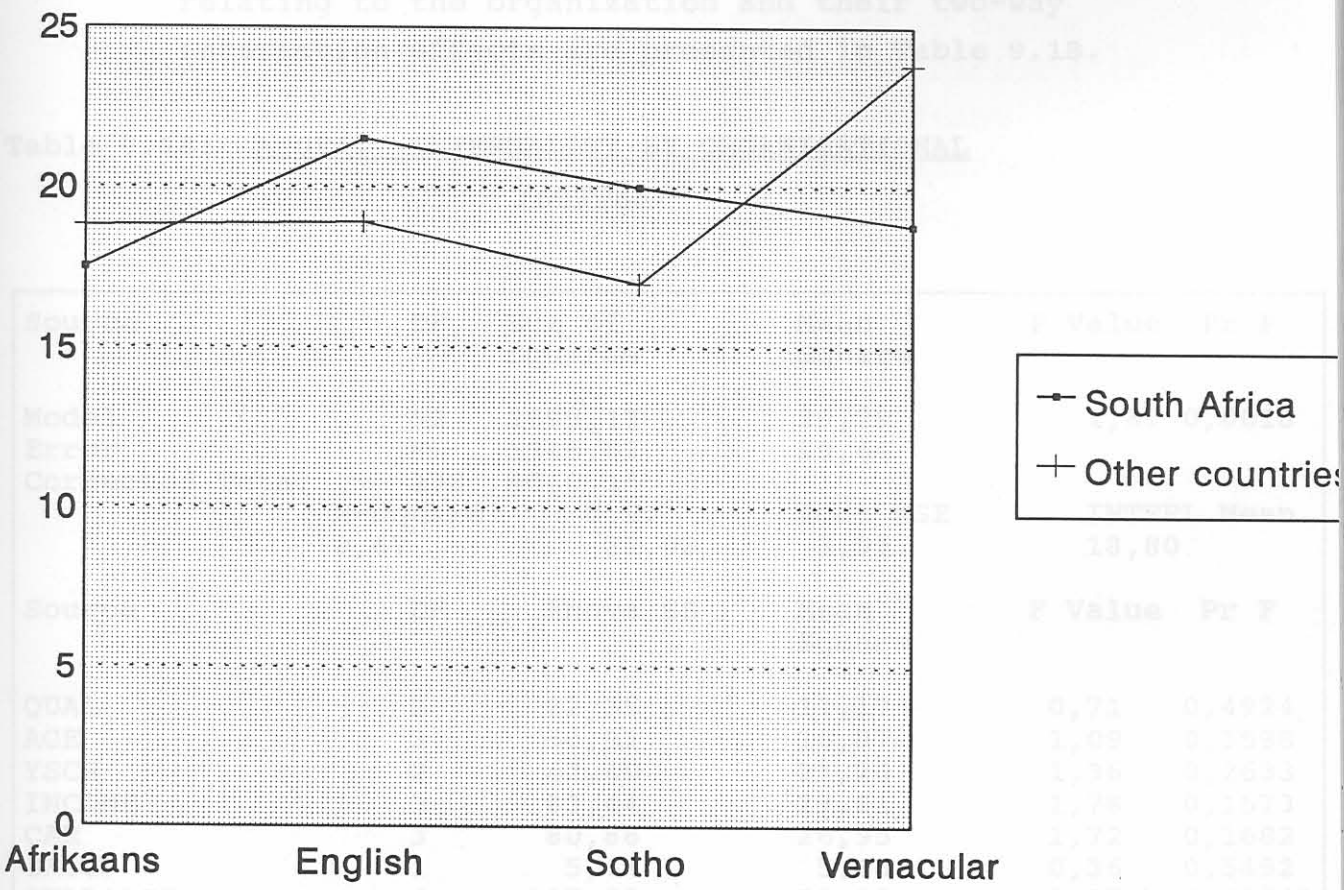
*p ≤ 0,05

The information in Table 9.17 shows that significant differences exist for the two-way interaction language by country of origin in respect of internality ($F = 6,16$, $p = 0,0027$). The overall F-ratio is significant ($F = 1,64$, $p = 0,0295 < p = 0,05$). This ratio however does not pinpoint the particular two-way interaction concerned.

No significant differences are prevalent among the four main independent variables in respect of internality.

The two-way interaction language by country of origin is visually presented in Graph 9.6.

Graph 9.6: INTERACTION EFFECTS BETWEEN LANGUAGE AND COUNTRY OF ORIGIN ON INTERNALITY.



An analysis of Graph 9.6 reveals that subjects tend to be unsure about their control and influence of their own lives as the scores tend to aggregate towards the middle class-intervals. However, English speaking subjects, irrespective of country of origin, show an increased uncertainty about their control of their own lives. Also, subjects from other countries using

a vernacular, showed an increased uncertainty about their control of their own lives. Subjects originating from South Africa and using a vernacular, showed a decreased uncertainty. Sotho speaking subjects originating from other countries were the least unsure about their control and influence of their own lives.

Calculations pertaining to the six factors relating to the organization and their two-way interaction effects are presented in Table 9.18.

Table 9.18: ANOVA: INTERNALITY BY ORGANIZATIONAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	92	2695,13	29,29	1,87	0,0018
Error	86	1345,02	15,64		
Corrected Total	178	4040,16			

R-square	C.V.	Root MSE	INTERL Mean
0,67	21,03	3,95	18,80

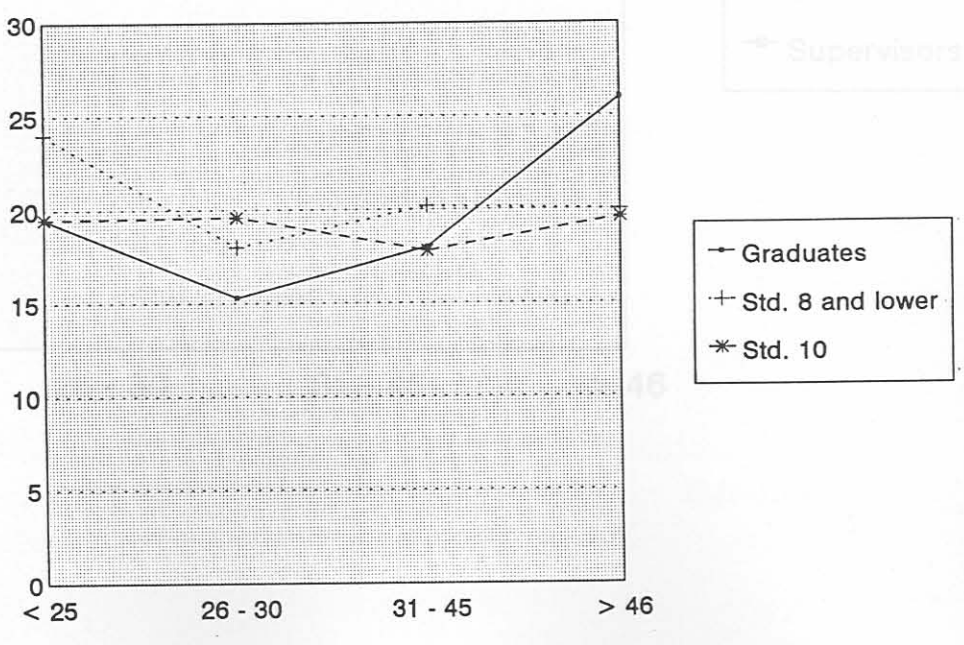
Source	DF	Anova SS	Mean Square	F Value	Pr F
QUAL	2	22,35	11,17	0,71	0,4924
AGE	3	50,92	16,97	1,09	0,3598
YSCH	2	42,40	21,20	1,36	0,2633
INCOME	3	83,44	27,81	1,78	0,1573
CAR	3	80,86	26,95	1,72	0,1682
GROUP	1	5,66	5,66	0,36	0,5492
QUAL*AGE	6	307,09	51,18	3,27	0,0060*
QUAL*YSCH	4	25,20	6,30	0,40	0,8061
QUAL*INCOME	5	110,60	22,12	1,41	0,2272
QUAL*CAR	5	176,49	35,30	2,26	0,0558
AGE*YSCH	6	179,85	29,97	1,92	0,0872
AGE*INCOME	9	228,43	25,38	1,62	0,1214
AGE*CAR	9	337,04	37,45	2,39	0,0180*
YSCH*INCOME	6	130,76	21,79	1,39	0,2265
YSCH*CAR	6	21,18	4,53	0,23	0,9674
INCOME*CAR	9	151,64	16,85	1,08	0,3878
QUAL*GROUP	2	169,70	84,85	5,43	0,0060*
AGE*GROUP	3	53,58	17,86	1,14	0,3369
YSCH*GROUP	2	39,74	19,87	1,27	0,2859
INCOME*GROUP	3	401,66	133,89	8,56	0,0001*
CAR*GROUP	3	76,56	25,52	1,63	0,1880

* $p \leq 0,05$

An analysis of the information in Table 9.18 reveals that no significant differences are prevalent among the six main independent variables in respect of internality. However, the overall F-ratio of 1,87 is significant at the 0,0018 level. Significant two-way interactions were detected. The first of these is educational qualifications by age (F = 3,27, p = 0,0060). Secondly, the two-way interaction age by career level (occupational level) was also significant (F = 2,39, p = 0,0180). The third significant two-way interaction was educational qualifications by economic sector (F = 5,43, p = 0,0060). Lastly, the two-way interaction income by economic sector also proved significant (F = 8,56, p = 0,0001).

These significant two-way interactions are presented visually by means of graphs. The two-way interaction between educational qualifications by age, is presented in Graph 9.7.

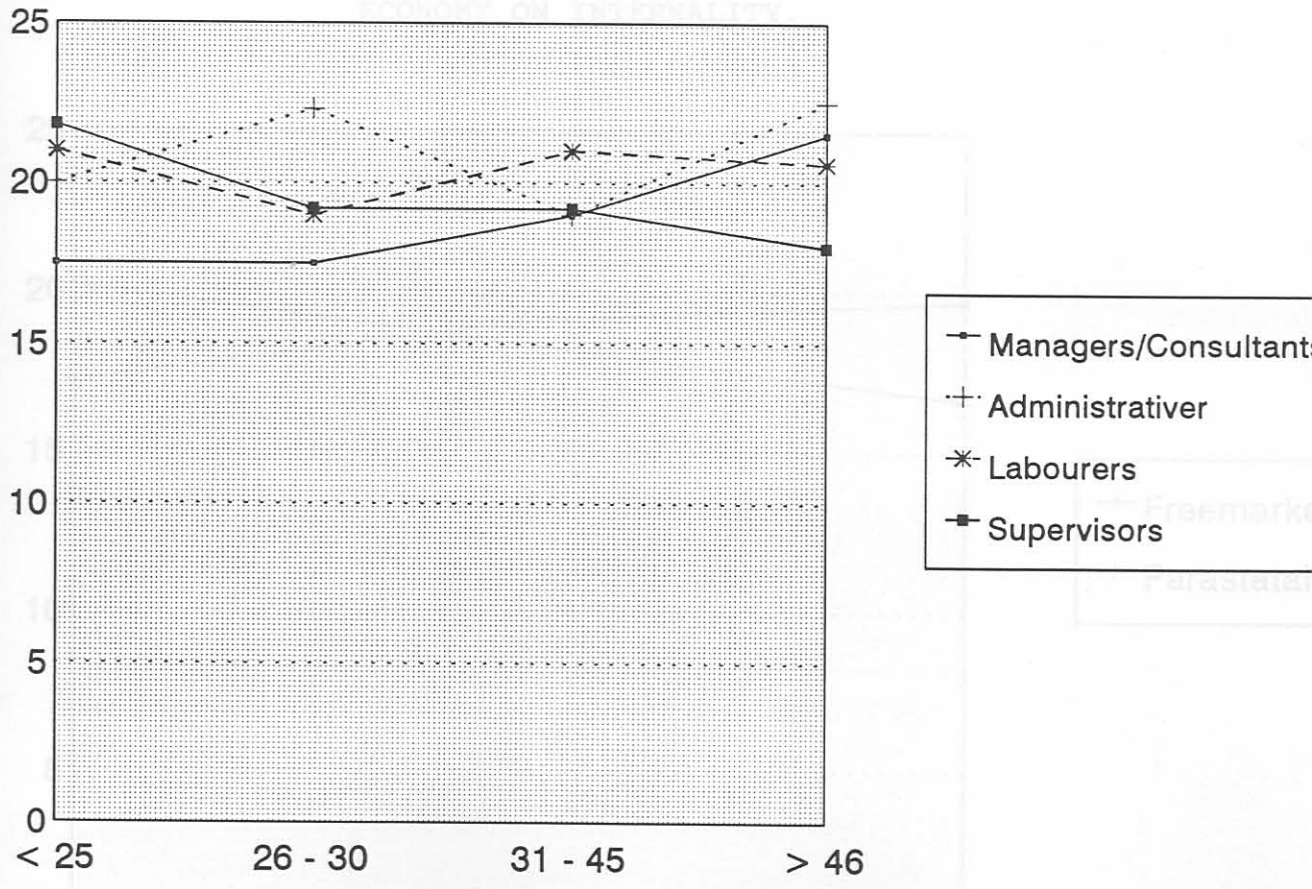
Graph 9.7: INTERACTION EFFECTS BETWEEN EDUCATIONAL QUALIFICATIONS BY AGE ON INTERNALITY.



Subjects with Std.8 or lower or matric, with one exception, tended towards internality. The one exception, subjects with Std. 8 or lower and being 25 years or younger, were less favourable inclined toward internality. Graduates prior to their 45th birthday, conspicuously tended towards internality. Beyond the age of 45, these subjects were less inclined to internality.

The two-way interaction between age by occupational level (career level), is presented in Graph 9.8.

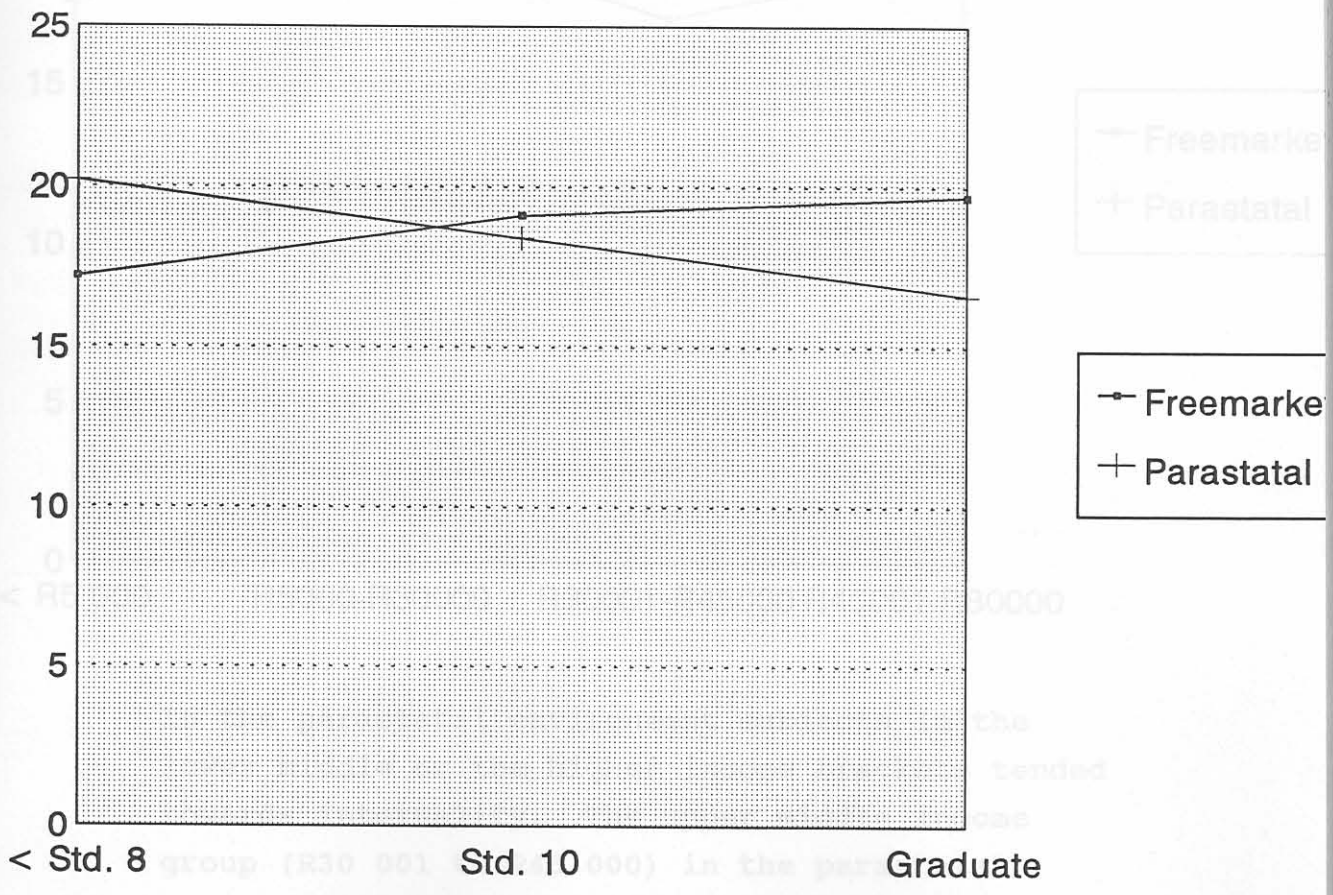
Graph 9.8: INTERACTION EFFECTS BETWEEN AGE BY OCCUPATIONAL LEVEL ON INTERNALITY.



Administrative staff of the age group 26 to 30 years, were less inclined toward internality. Marked differences among occupational levels occured beyond the age of 45. In this age category, managers and to a lesser extent administrative staff, revealed a tendency to be less favourably disposed towards internality whereas labourers and especially supervisors tended toward internality.

The two-way interaction between educational qualifications by sector of the economy employed in, is presented in Graph 9.9.

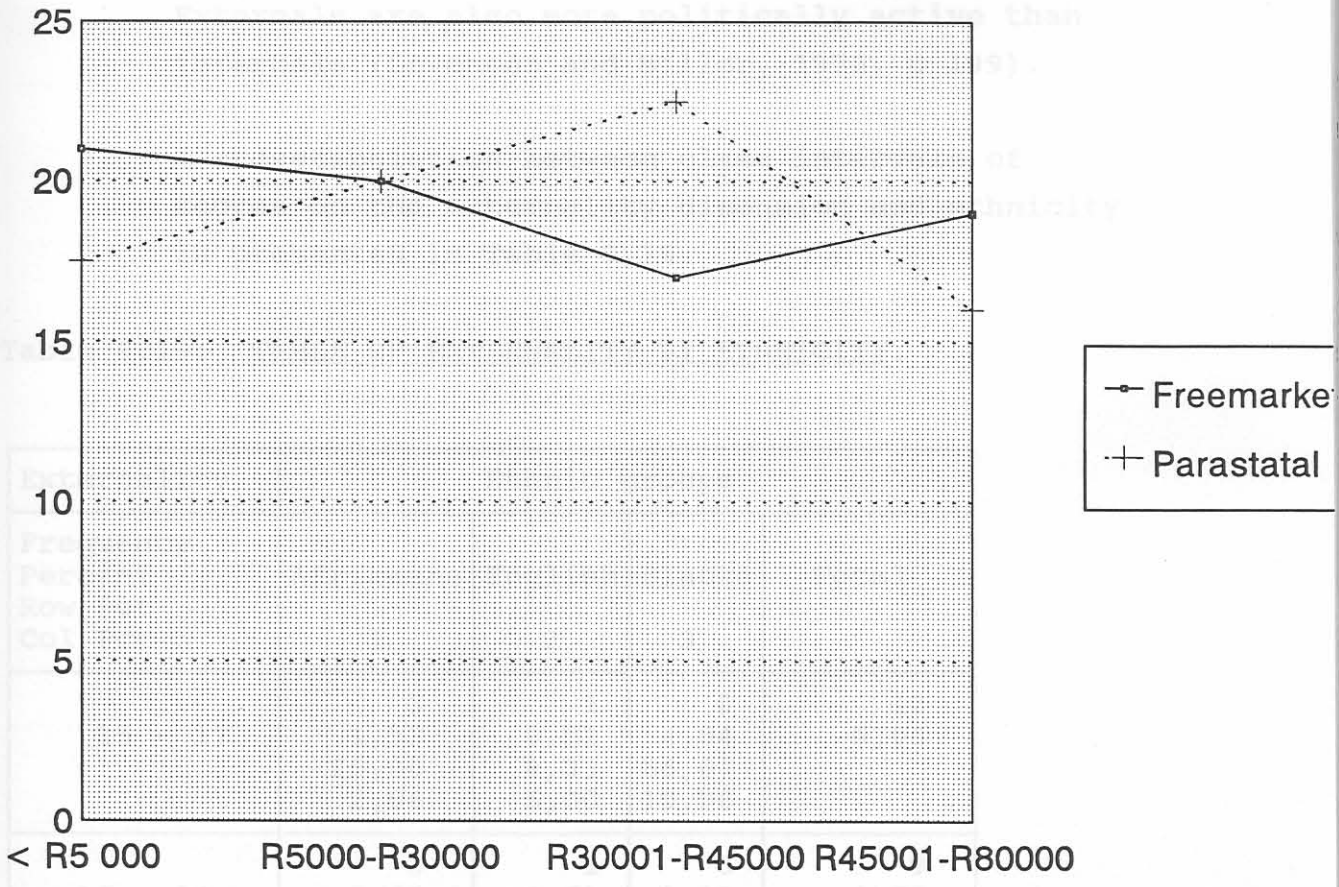
Graph 9.9: INTERACTION EFFECTS BETWEEN EDUCATIONAL QUALIFICATIONS BY SECTOR OF THE ECONOMY ON INTERNALITY.



Graduates in the parastatal environment tended more toward internality than graduates in the freemarket sector. The reverse pattern holds for subjects with Std. 8 or lower.

The two-way interaction between income by sector of the economy employed in, is presented in Graph 9.10.

Graph 9.10: INTERACTION EFFECTS BETWEEN INCOME AND SECTOR OF THE ECONOMY ON INTERNALITY.



In the parastatal environment subjects in the lower middle or the higher income brackets tended towards internality. The upper middle income group (R30 001 to R45 000) in the parastatal sector were less favourable disposed towards

internality. Subjects in the freemarket sector with lower or upper middle incomes tended more to internality whereas the lower middle income and high income groups were less inclined to internality.

9.2.6 DIMENSION EXTERNALITY

The dimension externality is also measured by means of the Activism and Powerful Others-scale. Externality indicates the degree to which the subjects feel that events are beyond their own control and are determined by fate and/or chance. Externals are also more politically active than internals (Levenson and Miller, 1976, p 199).

A crosstabulation between class intervals of scores on the externality dimension and ethnicity is presented in Table 9.19.

Table 9.19: TABLE OF EXTERNALITY BY ETHNICITY.

Externality	Ethnic groups			
Frequency Percent Row Pct Col Pct	Afrikaans 1	English 2	Blacks 3	Total
15 - 17	3 1,52 25,00 2,86	1 0,51 8,33 5,00	8 4,04 66,67 10,96	12 6,06
18 - 20	2 1,01 22,22 1,90	1 0,51 11,11 5,00	6 3,03 66,67 8,22	9 4,55

Table 9.19 (continued)

21 - 23	- - - -	- - - -	11 5,56 100,00 15,07	11 5,56
24 - 26	8 4,04 38,10 7,62	3 1,52 14,29 15,00	10 5,05 47,62 13,70	21 10,61
27 - 29	12 6,06 46,15 11,43	2 1,01 7,69 10,00	12 6,06 46,15 16,44	26 13,13
30 - 32	21 10,61 56,76 20,00	2 1,01 5,41 10,00	14 7,07 37,84 19,18	37 18,69
33 - 35	25 12,63 69,44 23,81	4 2,02 11,11 20,00	7 3,54 19,44 9,59	36 18,18
36 - 38	21 10,61 72,41 20,00	6 3,03 20,69 30,00	2 1,01 6,90 2,74	29 14,65
39 - 41	10 5,05 83,33 9,52	1 0,51 8,33 5,00	1 0,51 8,33 1,37	12 6,06
42 - 44	3 1,52 60,00 2,86	- - - -	2 1,01 40,00 2,74	5 2,53
Total	105 53,03	20 10,10	73 36,87	198 100,00

Frequency Missing = 17

According to Table 9.19 the scores tend to aggregate in the higher class intervals which indicates a tendency away from externality.

Descriptive statistics with regard to externality for the 10 independent variables referred to above are presented in Table 9.20.

Table 9.20: DESCRIPTIVE STATISTICS: EXTERNALITY.

Variables	Mean	Std Dev.	Std. Error	Kurtosis	Skewness	N
Afrikaans	33,15	4,88	0,48	-0,01	-0,30	107
English	32,00	5,98	1,25	-0,28	-0,78	24
Sotho	27,77	5,50	0,76	-0,34	-0,24	54
Vernacular: Other	28,84	7,06	1,41	-0,03	-0,14	28
Anglican/ Catholic	31,00	7,48	2,00	-1,14	-0,14	15
Dutch Reformed	31,90	5,47	0,71	-0,29	-0,35	64
Methodist/ Presbyterian	29,96	6,44	1,26	-0,11	-0,04	26
Pentacostal/ Apostolic	29,73	6,95	1,36	-0,16	-0,22	30
Afrikaans Sister Churches	33,14	3,74	0,62	0,14	-0,41	39
Religion: Other	29,81	6,32	1,05	-0,16	-0,23	36
Std. 8 and Lower	27,08	5,83	0,73	-0,54	-0,21	71
Std. 10	31,46	5,81	0,56	0,15	-0,34	112
Graduates	34,00	5,04	0,89	2,24	-1,11	32
11 years and less of schooling	28,75	5,44	0,72	-0,55	-0,16	62
12 years of schooling	32,12	5,67	0,66	1,10	-0,86	77
13 years or more of schooling	32,35	5,85	0,70	-0,32	-0,25	70
Income: R5 000 pa and less	28,42	6,09	1,19	0,23	0,38	29
R5 001-R30 000	29,46	5,89	0,67	-0,20	0,02	83
R30 001-R45 000	32,27	5,31	0,91	1,83	-1,16	34
R45 001-R80 000	33,62	4,63	0,60	0,16	-0,48	62
Labourers	28,71	5,98	0,78	-0,12	0,10	64
Administrative workers	29,91	5,57	0,96	-0,13	-0,54	37
Management and Consultants	33,98	4,81	0,67	1,38	-0,96	53
Supervisors	31,78	5,98	0,81	0,27	-0,41	56

Table 9.20 (continued)

Age: 19 - 25	31,13	6,71	1,19	-0,80	-0,14	35
26 - 30	30,75	5,86	0,73	-0,40	-0,06	66
31 - 45	31,73	5,20	0,59	0,85	-0,66	83
46 & above	30,19	7,04	1,36	-0,27	-0,55	27
South Africa	31,09	5,89	0,46	-0,19	-0,29	186
Other countries	32,09	5,63	1,17	-0,29	-0,82	24
Afrikaners	33,15	4,84	0,48	0,08	-0,31	105
Anglo-Saxons	31,90	5,00	1,19	-0,11	-0,71	20
Blacks	27,54	6,02	0,74	0,07	0,29	72
Freemarket	30,80	5,99	0,59	-0,25	-0,42	108
Parastatal	31,44	5,84	0,58	-0,02	-0,34	107

N = 215

Table 9.20 shows that the scores in regard to externality is somewhat negatively skewed or skewed to the left. In other words the tail of the distribution is toward smaller values. Also, the peak of the distribution for most measures is flatter than that of a normal distribution. However, for some measures such as Std. 10, graduates, the income bracket R30 001 - R45 000 and management and consultants, the distribution is more peaked than in a normal distribution. The standard error indicates some variability among sample means which implies that the observed means of most of the subgroups are deviant to some extent from the comparable population means and therefore inferences about the population cannot be drawn with absolute confidence. The large standard deviations confirm that the distributions are skewed.

The influence of the 10 independent variables and their two-way interactions in respect of externality was also investigated by means of a factorial analysis of variance. Calculations pertaining to these analyses are presented in

Tables 9.21 and 9.22.

Data relating to the four main factors in regard to culture are presented in Table 9.21.

Table 9.21: ANOVA: EXTERNALITY BY CULTURAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	29	3428,96	118,24	5,93	0,0001*
Error	149	2972,69	19,95		
Corrected Total	178	6401,64			

R-square	C.V.	Root MSE	EXTERL Mean
0,535637	14,39	4,47	31,04

Source	DF	Anova SS	Mean Square	F Value	Pr F
LANG	3	1139,26	379,75	19,03	0,0001*
REL	5	381,14	76,23	3,82	0,0028*
COUNT	1	16,41	16,41	0,82	0,3659
ETHN	2	1232,04	616,02	30,88	0,0001*
LANG*REL	12	112,11	9,34	0,47	0,9305
LANG*COUNT	2	179,28	89,64	4,49	0,0127*
REL*COUNT	4	368,72	92,18	4,62	0,0015*

*p ≤ 0,05

An analysis of the information in Table 9.21 reveals that significant differences are prevalent among the four main independent variables in respect of externality. The overall F-ratio of 5,93 is significant at the 0,0001 level. This ratio, however does not pinpoint the particular independent variables concerned. The first of these is language (F = 19,03, p = 0,0001). Secondly, religion also provided significant differences (F = 3,82, p = 0,0028). The third significant variable was ethnicity (F = 30,88, p = 0,0001). Significant two-way interactions were also detected between religion by country of origin (F = 4,62, p = 0,0015) and language by country of origin (F = 4,49, p = 0,0127).

In regard to language, the Afrikaans group was compared with the Sotho-speaking group by means of the Scheffé-test. In this comparison t equals 7,216 so that $F' = 52,068$ (t^2) which with 3 and 159 df is significant ($F' = 52,068 > F = 2,65$ with 3 and 159 df, p being < 0,05). The Afrikaans group was also compared with the group of subjects speaking an African vernacular. This comparison yielded a t-value of 4,55 so that $F' = 20,664$ (t^2) which with 3 and 133 df is significant ($F' = 20,664 > F = 2,68$ with 3 and 117 df, p being < 0,05). The Afrikaans group was also compared with the English speakers by means of a Scheffé-test. This comparison yielded a t-value of 1,140 so that $F' = 1,230$ (t^2) which with 3 and 129 df is non-significant ($F' = 1,230 < F = 2,68$ with 3 and 129 df, p being > 0,05). In the fourth comparison, the English speaking whites were compared with the Sothos. This comparison yielded a t-value of 3,860 so that $F' = 14,902$ which with 3 and 76 df is significant ($F' = 14,902 > F = 2,76$ with 3 and 76 df, p being < 0,05).

Fifthly, the English speaking whites were compared with the Blacks using an African vernacular. This comparison yielded a t-value of 2,543 so that $F' = 6,468$ which with 3 and 50 df is significant ($F' = 6,468 > F = 2,79$ with 3 and 50 df, p being < 0,05). Lastly, the Sothos were compared with the Blacks using an African vernacular. This comparison yielded a t-value of 1,028 so that $F' = 1,059$ (t^2) which with 3 and 80 df is insignificant ($F' = 1,059 < F = 2,76$ with 3 and 80 df, p being > 0,05).

Post hoc comparisons were also done in regard to religion by means of the Scheffé-test. The High Churches (Anglican and Roman Catholic) were compared with the Dutch Reformed Church. In this comparison a t-value of 0,702 was obtained so that t^2 (F') = 0,493 which with 5 and 77 df is non-significant (F' = 0,493 < F = 2,37 with 5 and 77 df, p being > 0,05). The High Churches were also compared with the Methodist/Presbyterian churches. This comparison yielded a t-value of 0,718 so that F' = 0,516 (t^2) which with 5 and 39 df is insignificant (F' = 0,516 < F = 2,45 with 5 and 39 df, p being > 0,05). Thirdly, the High Churches were compared with the Pentacostal/Apostolic group. A t-value of 0,899 was obtained so that F' = 0,808 (t^2) which with 5 and 43 df is insignificant (F' = 0,808 < F = 2,45 with 5 and 43 df, p being > 0,05). A comparison between the Anglican/Roman Catholic Churches and the Dutch Reformed Sister Churches (Gereformeerde en Nederduitsche-Hervormende) yielded a t-value of 1,577 so that F' = 2,487 (t^2) which with 5 and 52 df is significant (F' = 2,487 > F = 2,40 with 5 and 52 df, p being < 0,05).

A comparison between the High Churches (Anglican and Roman Catholic) and Religion Other yielded a t-value of 0,867 so that F' = 0,752 (t^2) which with 5 and 49 df is non-significant (F' = 0,752 < F = 2,40 with 5 and 49 df, p being > 0,05). A comparison between the Dutch Reformed Churches and the Methodist/Presbyterian group yielded a t-value of 1,868 so that F' = 3,488 (t^2) which with 5 and 88 df is significant (F' = 3,488 > F = 2,37 with 5 and 88 df, p being < 0,05). The Dutch Reformed churches were also compared with the

Pentacostal/Apostolic faiths. This comparison yielded a t-value of 2,196 so that $F' = 4,821$ which with 5 and 92 df is significant ($F' = 4,821 > F = 2,29$ with 5 and 92 df, p being $< 0,05$). A comparison between the Dutch Reformed Church and the Dutch Reformed Sister Churches yielded a t-value of 1,367 so that $F' = 1,868$ (t^2) which with 5 and 101 df is non-significant ($F' = 1,868 < F = 2,29$ with 5 and 101 df, p being $> 0,05$). A comparison between the Dutch Reformed Churches and Other Religions yielded a t-value of 2,246 so that $F' = 5,045$ (t^2) which with 5 and 98 df is significant ($F' = 5,045 > F = 2,29$ with 5 and 98 df, p being $< 0,05$).

The Methodist/Presbyterian Churches were compared with the Pentacostal/Apostolic Churches. A t-value of 0,192 was obtained so that $F' = 0,037$ (t^2) which with 5 and 54 df is non-significant ($F' = 0,037 < F = 2,40$ with 5 and 54 df, p being $> 0,05$). In a comparison between the Methodist/Presbyterian Churches and the Dutch Reformed Sister Churches a t-value of 2,812 was obtained so that $F' = 7,907$ (t^2) which with 5 and 63 df is significant ($F' = 7,907 > F = 2,37$ with 5 and 63 df, p being $< 0,05$). The Methodist/Presbyterian Churches were also compared with the group comprising other religions (Lutheran,Zionist, Independent Churches, Islamic and Others). This comparison yielded a t-value of 0,130 so that $F' = 0,017$ (t^2) which with 5 and 60 df is non-significant ($F' = 0,017 < F = 2,37$ with 5 and 60 df, p being $> 0,05$).

A comparison between the Pentacostal/Apostolic Churches and the Dutch Reformed Sister Churches

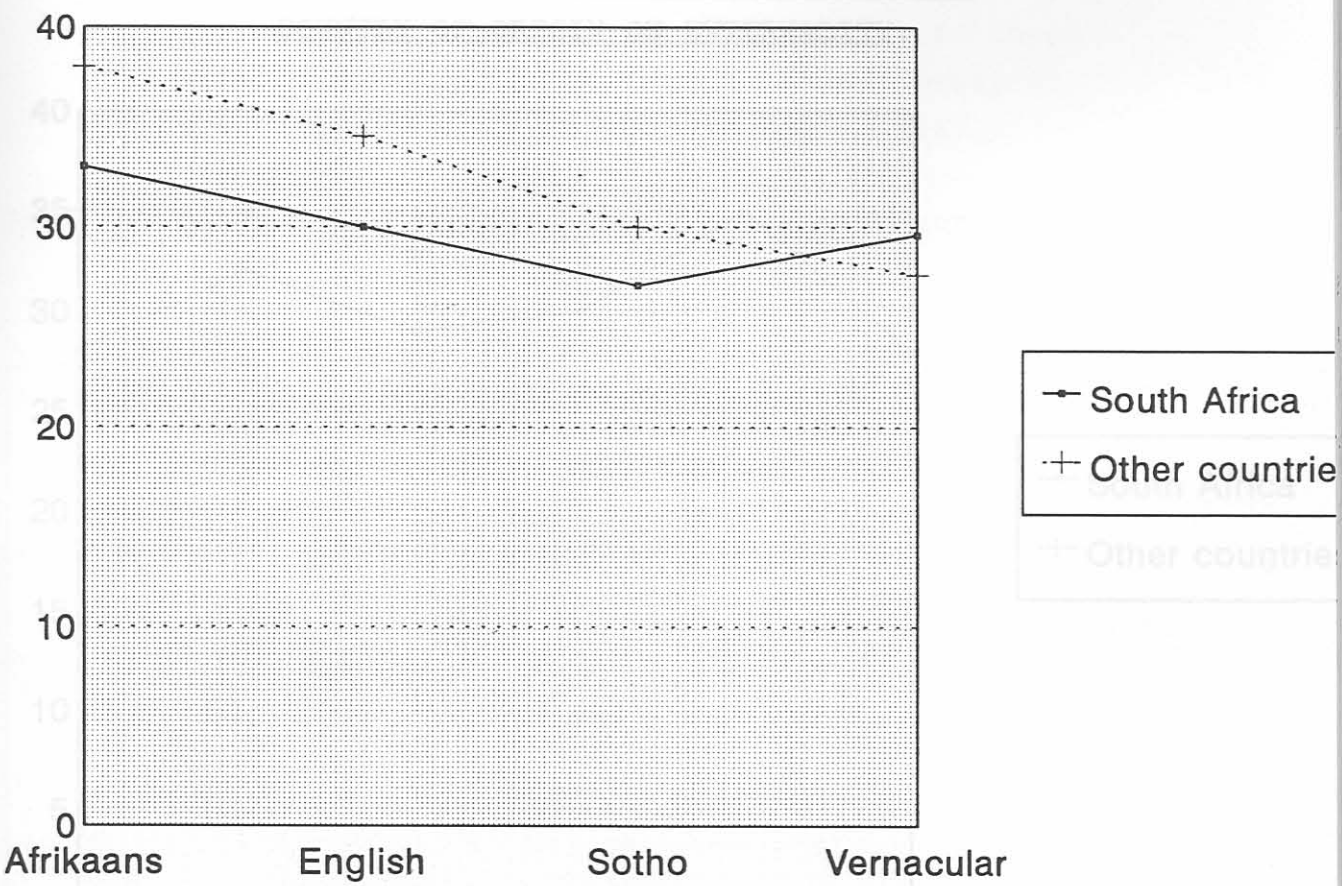
yielded a t-value of 3,144 so that $F' = 9,883$ (t^2) which with 5 and 67 df is significant ($F' = 9,883 > F = 2,37$ with 5 and 67 df, p being < 0,05). A comparison between the Pentacostal/Apostolic Churches and Other Religions yielded a t-value of 0,072 so that $F' = 0,005$ which with 5 and 64 df is non-significant ($F' = 0,005 < F = 2,37$ with 5 and 60 df, p being > 0,05). Finally, the Dutch Reformed Sister Churches were compared with other religions (Lutheran, Zionist, Independent Churches, Islamic and Others). In this comparison a t-value of 3,226 was obtained so that $F' = 10,405$ (t^2) which with 5 and 75 df is significant ($F' = 10,405 > F = 2,37$ with 5 and 75 df, p being < 0,05).

The Scheffé-test was also applied to do post hoc comparisons in regard to the three ethnic groups. In regard to ethnicity, the Afrikaners were compared with the English speaking group (Anglo-Saxons). This comparison yielded a t-value of 1,147 so that $F' = 1,316$ (t^2) which with 2 and 123 df is non-significant ($F' = 1,316 < F = 3,07$ with 2 and 123 df, p being > 0,05). A comparison between the Afrikaners and the Blacks (comprising Xhosas, Sothos, Tswanas and Zulus) yielded a t-value of 8,209 so that $F' = 67,380$ (t^2) which with 2 and 175 df is significant ($F' = 67,380 > F = 3,04$ with 2 and 175 df, p being < 0,05). Finally, English speaking whites were compared with blacks. In this comparison a t-value of 3,862 was obtained so that $F' = 14,914$ (t^2) which with 2 and 90 df is significant ($F' = 14,914 > F = 3,07$ with 2 and 90 df, p being < 0,05).

The significant two-way interaction are visually presented by means of graphs.

The two-way interaction between language by country of origin, is presented in Graph 9.11.

Graph 9.11: INTERACTION EFFECTS BETWEEN LANGUAGE BY COUNTRY OF ORIGIN ON EXTERNALITY.

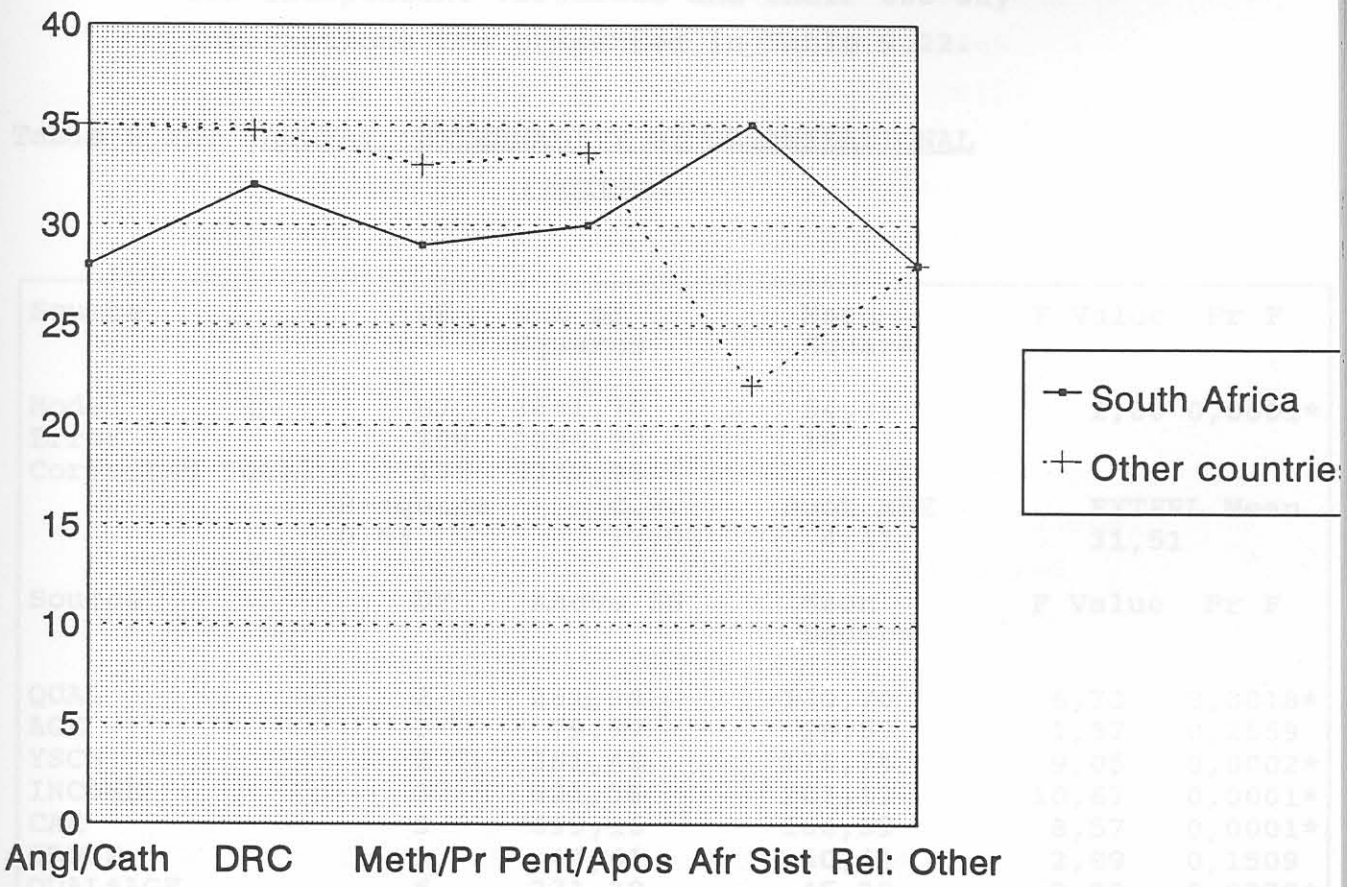


Afrikaans speaking subjects, either having South Africa or another country of origin, conspicuously tended to not being sensitive to external powers and influences. English speaking subjects scored slightly lower but also showed a lack of sensitiveness for external forces. Black subjects, either Sotho or vernacular speaking,

generally scored lower than both English and Afrikaans subjects. However, their scores indicate an obvious trend away from being aware of external forces and powerful others.

The two-way interaction between religion and country of origin, is presented in Graph 9.12.

Graph 9.12: INTERACTION EFFECTS BETWEEN RELIGION BY COUNTRY OF ORIGIN ON EXTERNALITY.



Three trends are discernible. Subjects with South Africa as country of origin and being Anglican or Catholic, tend to be less reliant on external forces and powerful others when compared to Anglicans and Catholics with another country of origin. Subjects belonging to the Afrikaans,

Sister Churches and having another country as country of origin, when compared with their brethern of South African origin, were more inclined to externality, i.e. greater awareness of external influences and powerful others.

The influence of the six main factors relating to the organization and their two-way interactions with respect to externality was also investigated. Calculations pertaining to these six independent variables and their two-way interactions are presented in Table 9.22.

Table 9.22: ANOVA: EXTERNALITY BY ORGANIZATIONAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	67	3641,70	54,35	2,80	0,0001*
Error	108	2096,30	19,41		
Corrected Total	175	5737,99			

R-square	C.V.	Root MSE	EXTERL Mean
0,63	13,98	4,41	31,51

Source	DF	Anova SS	Mean Square	F Value	Pr F
QUAL	2	261,39	130,70	6,73	0,0018*
AGE	3	79,77	26,59	1,37	0,2559
YSCH	2	351,48	175,74	9,05	0,0002*
INCOME	3	621,38	207,13	10,67	0,0001*
CAR	3	499,16	166,39	8,57	0,0001*
GROUP	1	40,61	40,61	2,09	0,1509
QUAL*AGE	6	271,30	45,22	2,33	0,0373*
QUAL*YSCH	4	64,50	16,12	0,83	0,5085
AGE*YSCH	6	103,16	17,19	0,89	0,5081
AGE*INCOME	9	285,65	31,74	1,64	0,1142
AGE*CAR	9	317,77	35,31	1,82	0,0728
YSCH*CAR	6	63,37	10,56	0,54	0,7736
QUAL*GROUP	2	173,45	86,72	4,47	0,0137*
AGE*GROUP	3	194,60	64,87	3,34	0,0220*
YSCH*GROUP	2	60,08	30,04	1,55	0,2174
INCOME*GROUP	3	38,42	12,81	0,66	0,5786
CAR*GROUP	3	215,61	71,87	3,70	0,0140*

* p = 0,05

The information in Table 9.22 shows that significant differences are prevalent among the six main independent variables in respect of externality. The overall F-ratio of 2,80, is significant at the 0,0001 level. This ratio does not however, pinpoint the particular independent variables concerned. Four of the six main factors in the survey showed significant differences. The first is educational qualifications (F = 6,73, p = 0,0018). Secondly, years of formal schooling received also provided significant differences (F = 9,05, p = 0,0002). The third significant variable was income (F = 10,67, p = 0,0001). Lastly, career level also provided significant differences (F = 8,57, p = 0,0001). Significant two-way interactions existed between educational qualifications and age, educational qualifications and economic sector (group) age and economic sector and occupational level and economic sector.

Again post hoc comparisons between the different subgroups in regard to educational qualifications, years of formal schooling received, income and occupational level (career level) were done by means of the Scheffé-test. The group with an educational qualification of Std 8 and lower was compared with the group of matriculants. A t-value of 6,554 was obtained so that $F' = 42,948$ (t^2) which with 2 and 181 df is significant ($F' = 42,948 > F = 3,04$ with 2 and 181 df, p being < 0,05). Secondly, the group with educational qualifications of Std 8 and lower was compared with the graduates. This comparison yielded a t-value of 7,377 so that $F' = 54,420$ (t^2) which with 2 and 101 df is significant ($F' = 54,420 > F = 3,07$ with 2 and 101 df, p being < 0,05). Lastly, the matriculants were

compared with the graduates. A t-value of 2,876 was obtained so that $F' = 8,273$ (t^2) which with 2 and 142 df is significant ($F' = 8,273 > F = 3,07$ with 2 and 142 df, p being < 0,05).

The group comprising subjects with 11 years and less of formal schooling received, was compared with the group comprising subjects with 12 years of formal schooling received. A t-value of 4,483 was obtained so that $F' = 20,096$ (t^2) which with 2 and 137 df is significant ($F' = 20,096 > F = 3,07$ with 2 and 137 df, p being < 0,05). The second comparison was between the group comprising subjects with 11 years or less of formal schooling received and the group comprising those subjects with 13 years or more of formal schooling received. This comparison yielded a t-value of 4,685 so that $F' = 21,953$ (t^2) which with 2 and 130 df is significant ($F' = 21,953 > F = 3,07$ with 2 and 130 df, p being < 0,05). Finally, the group comprising subjects with 12 years of formal schooling was compared with those with 13 year or more of formal schooling received. A t-value of 0,316 was obtained so that $F' = 0,0999$ (t^2) which with 2 and 145 df is non-significant ($F' = 0,0999 < F = 3,07$ with 2 and 145 df, p being > 0,05).

In regard to income, the group comprising subjects with an income of R5 000 per annum and less was compared with the group comprising subjects with an annual income of between R5 001 and R30 000. This comparison yielded a t-value of 1,094 so that $F' = 1,198$ (t^2) which with 3 and 110 df is non-significant ($F' = 1,198 < F = 2,68$ with 3 and 110 df, p being > 0,05). Secondly, the low

income group (R5 000 per annum and less) was compared with the upper middle income group (R30 001 to R45 000). This comparison yielded a t-value of 3,457 so that $F' = 11,952$ (t^2) which with 3 and 61 df is significant ($F' = 11,952 > F = 2,76$ with 3 and 61 df, p being < 0,05). Thirdly, the low income group was compared with the high income group (R45 001 to R80 000). This comparison yielded a t-value of 5,246 so that $F' = 27,525$ (t^2) which with 3 and 89 df is significant ($F' = 27,525 > F = 2,76$ with 3 and 89 df, p being < 0,05). The lower middle income group (R5 001 to R30 000) was also compared with the upper middle income group (R30 001 to R45 000). A t-value of 3,132 was obtained so that $F' = 9,812$ (t^2) which with 3 and 115 df is significant ($F' = 9,812 > F = 2,68$ with 3 and 115 df, p being < 0,05). Fifthly, the lower middle income group was also compared with the high income group. This comparison yielded a t-value of 5,625 so that $F' = 31,642$ which with 3 and 143 df is significant ($F' = 31,642 > F = 2,68$ with 3 and 143 df, p being < 0,05). Lastly, the upper middle income group was compared with the high income group (R45 001 to R80 000). A t-value of 1,436 was obtained so that $F' = 2,062$ which with 3 and 94 df is non-significant ($F' = 2,062 < F = 2,68$ with 3 and 94 df, p being > 0,05).

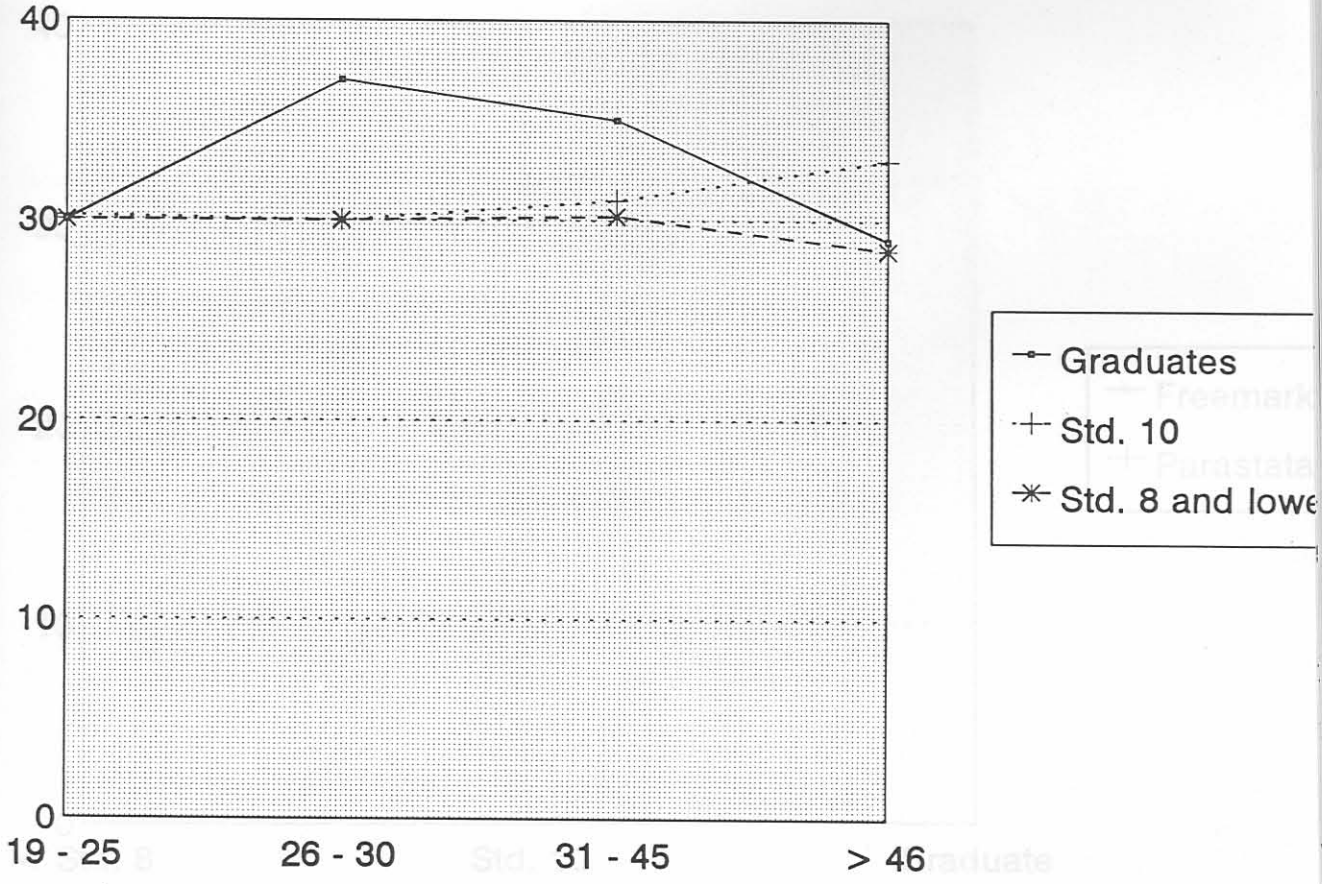
In regard to occupational level (career level), the group comprising labourers (skilled and semi-skilled and artisans) was compared with administrative workers. This comparison yielded a t-value of 1,319 so that $F' = 1,739$ (t^2) which

with 3 and 99 df is non-significant ($F' = 1,739 < F = 2,68$ with 3 and 99 df, p being > 0,05). Secondly, the group of labourers was compared with the managers and consultants. This comparison yielded a t-value of 6,441 so that $F' = 41,486$ (t^2) which with 3 and 115 df is significant ($F' = 41,486 > F = 2,68$ with 3 and 115 df, p being < 0,05). Thirdly, the labourers were compared with the supervisors. In this comparison a t-value of 3,808 was obtained so that $F' = 14,502$ (t^2) which with 3 and 118 df is significant ($F' = 14,502 > F = 2,68$ with 3 and 118 df, p being < 0,05). Fourthly, the administrative group was compared with the managers and consultants. This comparison yielded a t-value of 4,360 so that $F' = 19,014$ (t^2) which with 3 and 88 df is significant ($F' = 19,014 > F = 2,76$ with 3 and 88 df, p being < 0,05). The administrative staff and the supervisors were also compared. A t-value of 2,004 was obtained so that $F' = 4,014$ (t^2) which with 3 and 91 df is significant ($F' = 4,014 > F = 2,68$ with 3 and 91 df, p being < 0,05). Lastly, the group comprising managers and consultants was compared with the supervisors. This comparison yielded a t-value of 2,606 so that $F' = 6,790$ (t^2) which with 3 and 107 df is significant ($F' = 6,790 > F = 2,68$ with 3 and 107 df, p being < 0,05).

The significant two-way interactions are visually presented by means of graphs.

The two-way interaction between educational qualifications and age group is presented in Graph 9.13.

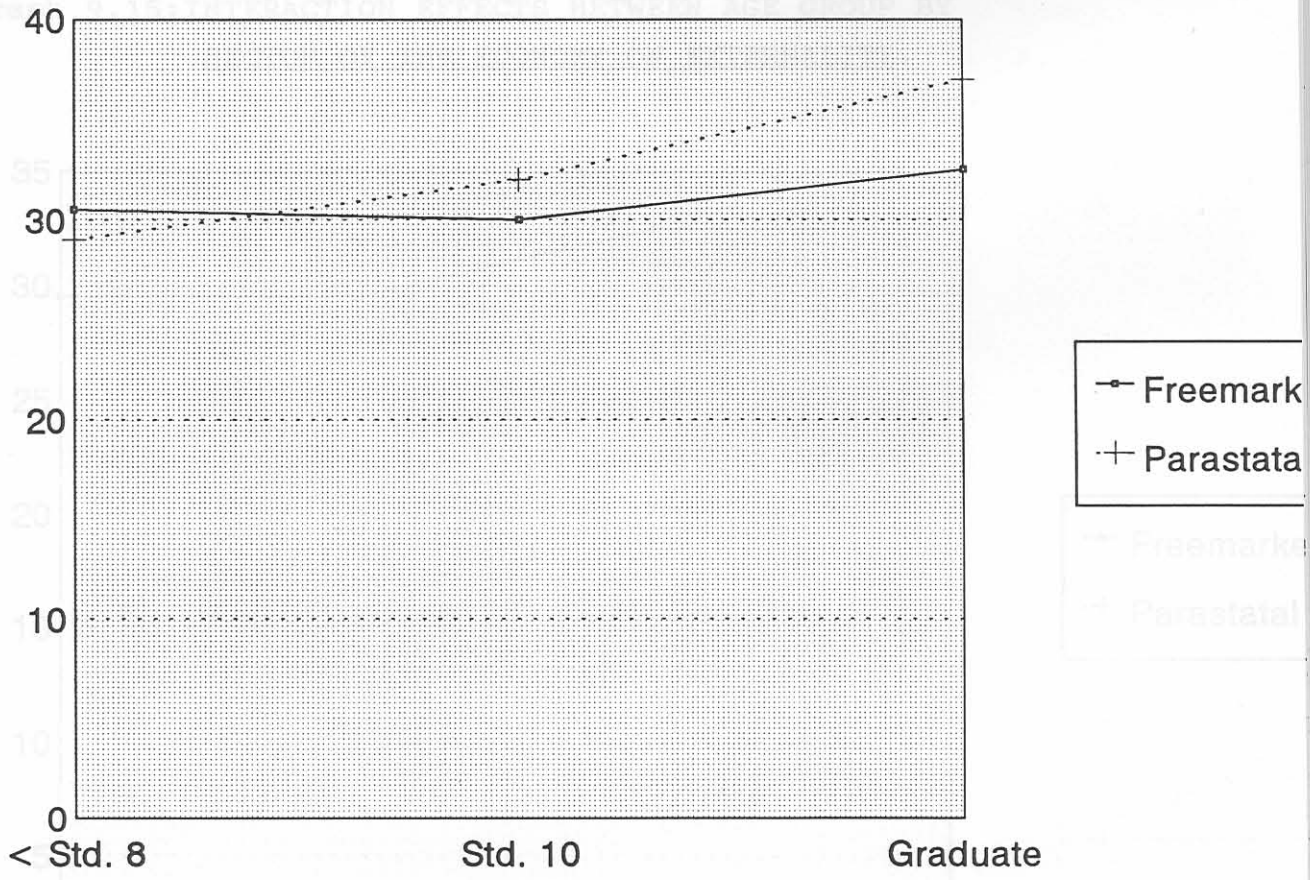
Graph 9.13: INTERACTION EFFECTS BETWEEN EDUCATIONAL QUALIFICATIONS BY AGE GROUP ON EXTERNALITY.



Graduates in the age group 26 to 30 years, are less prone to external forces and powerful others when compared with other subgroups. Beyond the age of 45 years, both the graduates and subjects with Std. 8 or less showed an increased sensitivity for externality. However, matriculants in this age group tend to become somewhat less sensitive to externality.

The two-way interaction between educational qualifications and sector of the economy employed in, is presented in Graph 9.14.

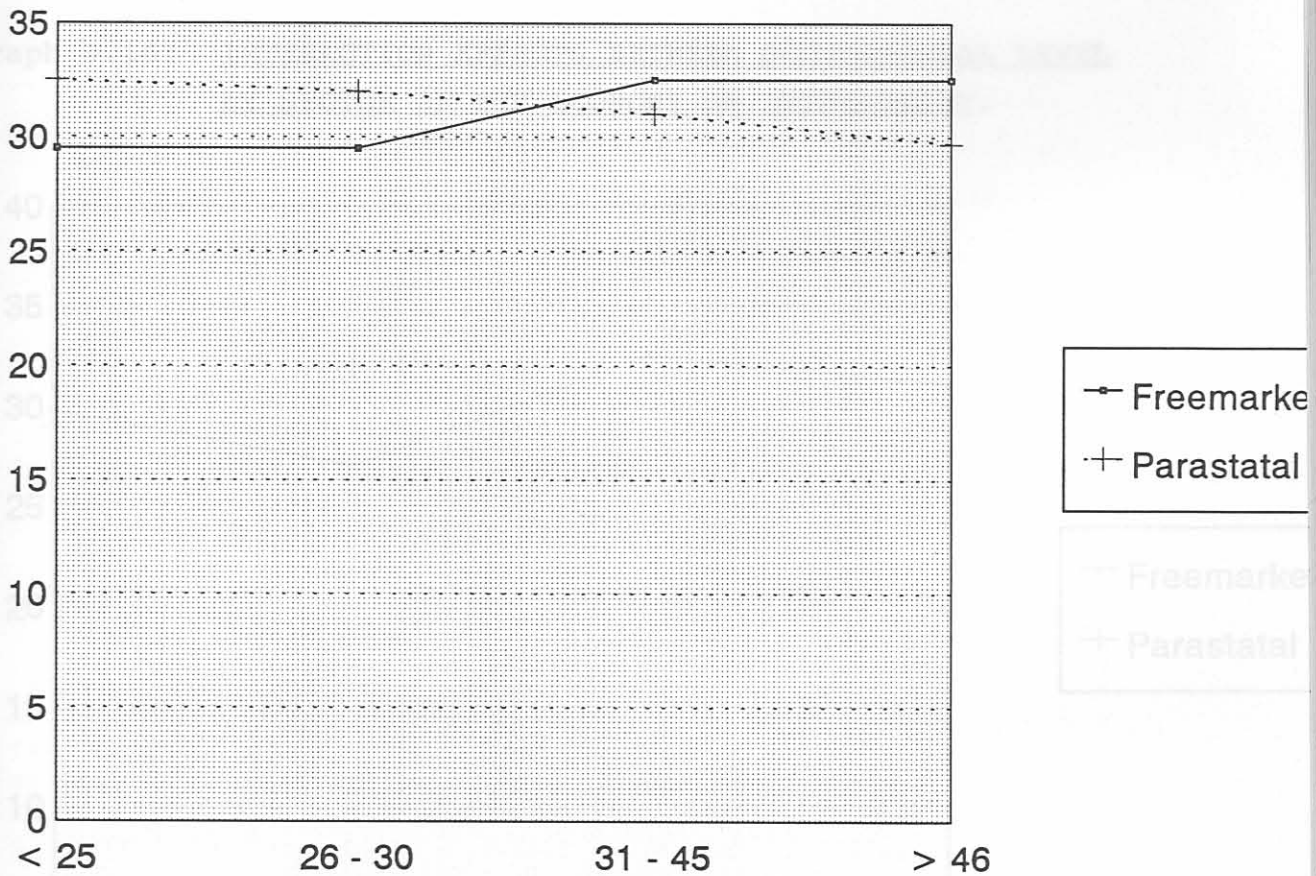
Graph 9.14: INTERACTION EFFECTS BETWEEN EDUCATIONAL QUALIFICATIONS BY SECTOR OF THE ECONOMY ON EXTERNALITY.



In the parastatal environment subjects with Std. 8 or lower tended more to externality while their graduate counterparts were obvious less sensitive to external influences. Rather slight differences occured in the freemarket sector with graduates again tending to less sensitivity. The scores of these graduates in the freemarket environment are lower than those of graduates in the parastatal environment.

The two-way interaction between age group by sector of the economy employed in, is presented in Graph 9.15.

Graph 9.15: INTERACTION EFFECTS BETWEEN AGE GROUP BY SECTOR OF THE ECONOMY ON EXTERNALITY.

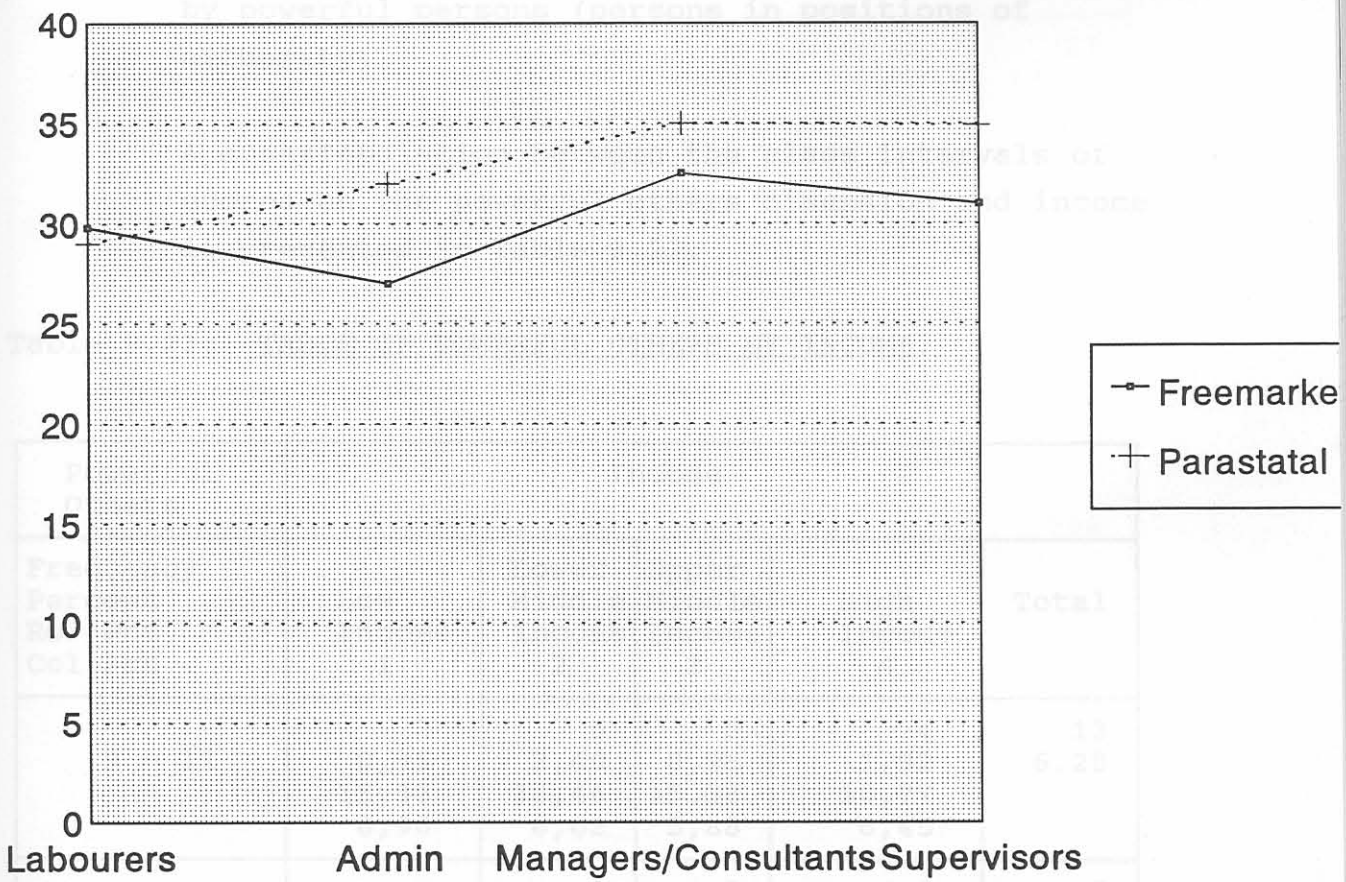


In the parastatal sphere, subjects of 30 years of age and younger, were obviously less sensitive to external forces and powerful others than their counterparts in the same age bracket in the freemarket sector. Beyond the age of 45, subjects in the parastatal environment tended to be more sensitive to external forces and powerful others while subjects in the same age category in the

freemarket environment tended to be less inclined to externality, i.e. a lesser awareness of external forces and powerful others.

The two-way interaction between occupational level (career level) and economic sector employed in, is presented in Graph 9.16.

Graph 9.16: INTERACTION EFFECTS BETWEEN OCCUPATIONAL LEVEL BY SECTOR OF THE ECONOMY ON EXTERNALITY.



In the parastatal sphere managers/consultants and supervisors tended to be less sensitive to externality whereas the administrative staff and especially the labourers were more sensitive. Administrative staff in the freemarket environment

were rather sensitive to external forces while managers/consultants and supervisors were less so inclined.

9.2.7 DIMENSION POWERFUL OTHERS

Powerful Others is the third dimension being measured by means of the Activism and Powerful Others-scale of Levenson (1974). The dimension "Powerful Others" indicates the extent to which subjects believe that their lives are controlled by powerful persons (persons in positions of authority).

A crosstabulation between the class intervals of scores on the powerful others dimension and income is presented in Table 9.23.

Table 9.23: TABLE OF POWERFUL OTHERS BY INCOME.

Powerful Others	Income				
Frequency Percent Row Pct Col Pct	Low Income 1	Lower Middle Income 2	Upper Middle Income 3	High Income 4	Total
9 - 11	2 0,96 15,38 6,90	5 2,40 38,46 6,02	2 0,96 15,38 5,88	4 1,92 30,77 6,45	13 6,25
12 - 14	- - - -	3 1,44 42,86 3,61	2 0,96 28,57 5,88	2 0,96 28,57 3,23	7 3,37
15 - 17	3 1,44 10,34 10,34	17 8,17 58,62 20,48	4 1,92 13,79 11,76	5 2,40 17,24 8,06	29 13,94

Table 9.23 (continued)

18 - 20	9 4,33 22,50 31,03	19 9,13 47,50 22,89	2 0,96 5,00 5,88	10 4,81 25,00 16,13	40 19,23
21 - 23	10 4,81 23,48 34,48	15 7,21 35,71 18,07	6 2,88 14,29 17,65	11 5,29 26,19 17,74	42 20,19
24 - 26	4 1,92 11,11 13,79	10 4,81 27,78 12,05	8 3,85 22,22 23,53	14 6,73 38,89 22,58	36 17,31
27 - 29	- - - -	9 4,33 33,33 10,84	8 3,85 29,63 23,53	10 4,81 37,04 16,13	27 12,98
30 - 32	1 0,48 8,33 3,45	4 1,92 33,33 4,82	2 0,96 16,67 5,88	5 2,40 41,67 8,06	12 5,77
33 - 35	- - - -	1 0,48 50,00 1,20	- - - -	1 0,48 50,00 1,61	2 0,96
Total	29 13,94	83 39,90	34 16,35	62 29,81	208 100,00

Frequency Missing = 7

According to Table 9.23 the scores tend to aggregate in the higher class intervals which counter-indicates a tendency towards a belief in the role of powerful others in the subjects' lives.

Descriptive statistics with regard to powerful others for the 10 independent variables, viz language, religion, educational qualifications, years of formal schooling received, income, occupational level, age, country of origin, ethnicity and economic sector employed in (group) are presented in Table 9.24.

Table 9.24: DESCRIPTIVE STATISTICS: POWERFUL OTHERS.

Variables	Mean	Std.Dev.	Std. Error	Kurtosis	Skewness	N
Afrikaans	22,22	4,90	0,49	-0,69	-0,30	107
English	22,49	5,68	1,16	-0,90	-0,10	24
Sotho	18,90	3,86	0,54	0,42	-0,11	54
Vernacular: Other	20,54	5,16	1,01	0,37	0,27	28
Anglican/ Catholic	22,64	5,60	1,50	-0,96	0,06	15
Dutch Reformed	22,15	4,85	0,63	-0,73	0,03	64
Methodist/ Presbyterian	18,85	4,86	0,95	-0,66	-0,20	26
Pentacostal/ Apostolic	21,00	4,57	0,85	-0,94	0,21	30
Afrikaans Sister Churches	21,32	5,06	0,83	-0,69	-0,20	39
Religion: Other	20,40	4,70	0,80	0,23	0,08	36
Std. 8 and Lower	19,96	3,63	0,45	0,54	0,19	71
Std. 10	21,27	5,56	0,53	-0,90	-0,12	112
Graduates	23,37	4,46	0,81	-0,18	-0,14	32
11 years and less of schooling	20,14	3,82	0,51	0,13	0,51	62
12 years of schooling	22,01	5,56	0,65	-0,60	-0,28	77
13 years or more of schooling	21,38	4,92	0,59	-0,71	-0,05	70
Income: R5 000 pa and less	20,15	3,34	0,64	1,55	0,97	29
R5 001-R30 000	20,04	5,11	0,57	-0,41	0,28	83
R30 001-R45 000	22,24	5,21	0,91	-0,39	-0,63	34
R45 001-R80 000	22,34	4,99	0,65	-0,35	-0,19	62
Labourers	20,03	4,36	0,56	1,01	0,77	64
Administrative workers	21,09	4,85	0,82	-1,30	0,12	37
Management and Consultants	22,48	4,45	0,63	-0,40	-0,05	53
Supervisors	21,20	5,72	0,76	-0,66	-0,63	56
Age: 19 - 25	21,59	5,51	0,97	-1,08	-0,13	35
26 - 30	20,68	5,35	0,66	-0,59	-0,46	66
31 - 45	21,70	4,09	0,47	-0,45	-0,18	83
46 + above	20,33	5,79	1,11	-0,36	-0,22	27

Table 9.24 (continued)

South Africa	21,06	5,00	0,38	-0,56	0,04	186
Other countries	21,61	4,96	1,03	-0,27	-0,04	24
Afrikaners	22,26	5,07	0,51	-0,73	-0,22	105
Anglo-Saxons	21,70	5,16	1,15	-1,17	-0,32	20
Blacks	19,28	4,51	0,55	0,69	0,29	72
Freemarket	20,71	5,31	0,52	-0,75	0,09	108
Parastatal	21,60	4,56	0,45	-0,23	0,01	107

N = 215

An analysis of the content of the Table 9.24 reveals that also in regard to powerful others the distribution is moderately skewed - in regard to some measures positively and in others negatively. However, scores in regard to Anglican/Catholic, Dutch Reformed, managers and consultants, 13 years or more of formal schooling received, South Africa as country of origin, country of origin: other and parastatal organization, the distribution may be normal as measures of skewness will not exactly be zero but fluctuate around zero because of sampling variation. The measures of kurtosis point to a platykurtic distribution (values < 0). The standard deviations generally are acceptable which indicate that the scores are normally distributed. The small standard errors imply that the possibilities are good for inferences about the population mean not to be in error.

The influence of the 10 independent variables referred to above and their two-way interactions in respect of the dependent variable powerful others, was also investigated by means of a factorial analysis of variance. Calculations pertaining to the four cultural variables, viz

language, religion, country of origin and ethnicity and their two-way interactions are presented in Table 9.25.

Table 9.25: ANOVA: POWERFUL OTHERS BY CULTURAL FACTORS.

Dependent Variable: POWERFUL OTHERS					
Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	29	1589,65	54,82	2,75	0,0001*
Error	150	2992,93	19,95		
Corrected Total	179	4582,58			
	R-square	C.V.	Root MSE	POWER Mean	
	0,346890	21,18	4,47	21,09	
Source	DF	Anova SS	Mean Square	F Value	Pr F
LANG	3	430,59	143,53	7,19	0,0002*
REL	5	323,67	64,73	3,24	0,0082*
COUNT	1	0,001	0,001	0,00	0,9936
ETHN	2	341,87	170,93	8,57	0,0003*
LANG*REL	12	320,50	26,71	1,34	0,2025
LANG*COUNT	2	78,39	39,20	1,96	0,1438
REL*COUNT	4	94,63	23,66	1,19	0,3195

*p ≤ 0,05

The information in Table 9.25 shows that significant differences are prevalent among the four main independent variables in respect of powerful others. The overall F-ratio of 2,75 is significant at the 0,0001 level. This ratio however does not pinpoint the particular independent variable(s) concerned. Three of the four main factors in the survey did show significant differences. The first of these is language ($F = 7,19$, $p = 0,0002$). Secondly, religion also provided significant differences ($F = 3,24$, $p = 0,0082$). The third significant variable is ethnicity ($F = 8,57$, $p = 0,0003$). No significant two-way interaction was detected.

In regard to language, religion and ethnicity post hoc comparisons were done by means of a Scheffé-test in order to determine significant differences, if any, between the means of subgroups.

In regard to language, the Afrikaans speaking group was compared to the English speaking group. This comparison yielded a t-value of 0, 268 so that $F' = 0,072$ (t^2) which with 3 and 129 df is non-significant ($F' = 0,072 < F = 2,68$ with 3 and 129 df, p being > 0,05). The Afrikaans group was also compared with the group comprising Sotho speakers. This comparison yielded a t-value of 4,453 so that $F' = 19,828$ (t^2) which with 3 and 159 df is significant ($F' = 19,828 > F = 2,65$ with 3 and 159 df, p being < 0,05). Thirdly, the Afrikaans speaking group was compared with the group using an African vernacular. A t-value of 1,772 was obtained so that $F' = 3,140$ (t^2) which with 3 and 133 df is significant ($F' = 3,140 > F = 2,68$ with 3 and 133 df, p being < 0,05). Fourthly, the English speaking group was compared with the Sotho speaking group and a t-value of 3,276 obtained. Thus $F' = 10,734$ (t^2) which with 3 and 76 df is significant ($F' = 10,734 > F = 2,76$ with 3 and 76 df, p being < 0,05). Fifthly, the English speaking group was compared with the group using an African vernacular. This comparison yielded a t-value of 1,569 so that $F' = 2,463$ (t^2) which with 3 and 50 df is non-significant ($F' = 2,463 < F = 2,79$ with 3 and 50 df, p being > 0,05). Lastly, the Sotho speakers were compared with the group using an African vernacular. This comparison yielded a t-value of 1,577 so that $F' = 2,486$ (t^2) which

with 3 and 80 df is non-significant ($F' = 2,486 < F = 2,76$ with 3 and 80 df, p being > 0,05). In regard to religion the group comprising members of the Anglican and Catholic Churches was compared with the group comprising members of the Dutch Reformed Churches. This comparison yielded a t-value of 0,382 so that $F' = 0,146$ (t^2) which with 5 and 77 df is non-significant ($F' = 0,146 < F = 2,37$ with 5 and 77 df, p being > 0,05). Secondly, the group comprising members of the Anglican and Catholic Churches was also compared with a group comprising members of the Methodist and Presbyterian Churches and a t-value of 2,617 was obtained so that $F' = 6,849$ (t^2) which with 5 and 39 df is significant ($F' = 6,849 > F = 2,45$ with 5 and 39 df, p being < 0,05). Thirdly, a comparison between members of the Anglican and Catholic Churches and members of the Pentacostal and Apostolic Churches yielded a t-value of 1,161 so that $F' = 1,348$ (t^2) which with 5 and 43 df is non-significant ($F' = 1,348 < F = 2,45$ with 5 and 43 df, p being > 0,05). Fourthly, a comparison between members of the Anglican and Catholic Churches and members of the Dutch Reformed Sister Churches yielded a t-value of 0,973 so that $F' = 0,946$ (t^2) which with 5 and 52 df is non-significant ($F' = 0,946 < F = 2,40$ with 5 and 52 df, p being > 0,05). Fifthly, members of the Anglican and Catholic Churches were compared with members of other religions (Lutheran, Zionist, Independent Churches, Islam and Others). A t-value of 1,632 was obtained so that $F' = 2,673$ (t^2) which with 5 and 49 df is significant ($F' = 2,663 > F = 2,40$ with 5 and 49 df, p being < 0,05).

Sixthly, members of the Dutch Reformed Churches were compared with members of the Pentacostal and Apostolic faiths. This comparison yielded a t-value of 1,164 so that $F' = 1,354$ (t^2) which with 5 and 92 df is non-significant ($F' = 1,354 < F = 2,29$ with 5 and 92 df, p being > 0,05). Seventhly, members of the Dutch Reformed Churches were compared with members of the Dutch Reformed Sister Churches. This comparison yielded a t-value of 0,915 so that $F' = 0,836$ (t^2) which with 5 and 101 df is non-significant ($F' = 0,836 < F = 2,29$ with 5 and 101 df, p being > 0,05).

Next, members of the Dutch Reformed Churches were compared with the group comprising members of the other religions referred to above. A t-value of 1,881 was obtained so that $F' = 3,537$ (t^2) which with 5 and 98 df is significant ($F' = 3,537 > F = 2,29$ with 5 and 98 df, p being < 0,05). Ninthly, members of the Dutch Reformed Churches were compared with members of the Methodist and Presbyterian Churches. This comparison yielded a t-value of 3,177 so that $F' = 10,092$ (t^2) which with 5 and 88 df is significant ($F' = 10,092 > F = 2,37$ with 5 and 88 df, p being < 0,05). Tenthly, members of the Methodist and Presbyterian Churches were compared with members of the Pentacostal and Apostolic faiths. A t-value of 1,796 was obtained so that $F' = 3,227$ (t^2) which with 5 and 54 df is significant ($F' = 3,227 > F = 2,40$ with 5 and 54 df, p being < 0,05).

Members of the Methodist/Presbyterian Churches were also compared with members of the Dutch Reformed Sister Churches. This comparison yielded

a t-value of 2,184 so that $F' = 4,771$ (t^2) which with 5 and 63 df is significant ($F' = 4,771 > F = 2,37$ with 5 and 63 df, p being < 0,05). Twelfthly, members of the Methodist and Presbyterian Churches were compared with members of other religions (as referred to earlier above). This comparison yielded a t-value of 1,348 so that $F' = 1,818$ (t^2) which with 5 and 60 df is non-significant ($F' = 1,818 < F = 2,37$ with 5 and 60 df, p being > 0,05). In the thirteenth place, members of the Pentacostal and Apostolic faiths were compared with members of Dutch Reformed Sister Churches. A t-value of 0,295 was obtained so that $F' = 0,087$ (t^2) which with 5 and 67 df is non-significant ($F' = 0,087 < F = 2,37$ with 5 and 67 df, p being > 0,05). In the fourteenth place, members of the Pentacostal and Apostolic Churches were compared with members of other religions (as referred to above). A t-value of 0,543 was obtained so that $F' = 0,295$ (t^2) which with 5 and 64 df is non-significant ($F' = 0,295 < F = 2,37$ with 5 and 64 df, p being > 0,05). Lastly, members of the Dutch Reformed Sister Churches were compared with members of other religions (Lutheran, Zionist, Independent Churches, Islam and Other religions). This comparison yielded a t-value of 0,891 so that $F' = 0,794$ (t^2) which with 5 and 73 df is non-significant ($F' = 0,794 < F = 2,37$ with 5 and 73 df, p being > 0,05).

In regard to ethnicity, the Afrikaners were compared with the English group (Anglo-Saxons). A t-value of 0,514 was obtained so that $F' = 0,264$ (t^2) which with 2 and 123 df is non-significant ($F' = 0,264 < F = 3,07$ with 2 and 123 df, p

being > 0,05). Secondly, the Afrikaners were compared with the Blacks (Xhosas, Sothos, Tswanas and Zulus). This comparison yielded a t-value of 4,360 so that $F' = 19,012$ (t^2) which with 2 and 177 df is significant ($F' = 19,012 > F = 3,04$ with 2 and 177 df, p being < 0,05). Lastly, the English spaking whites were compared with the Blacks. A t-value of 2,144 was obtained so that $F' = 4,595$ (t^2) which with 2 and 90 df is significant ($F' = 4,595 > F = 3,07$ with 2 and 90 df, p being < 0,05).

Calculations pertaining to the six organizational variables, viz educational qualifications, age, years of formal schooling received, income, occupational level and economic sector employed in and their two-way interactions are presented in Table 9.26.

Table 9.26: ANOVA: POWERFUL OTHERS BY ORGANIZATIONAL FACTORS.

Source	DF	Sum of Squares	Mean Square	F Value	Pr F
Model	87	2748,57	31,59	1,78	0,0036
Error	89	1576,56	17,71		
Corrected Total	176	4325,13			

R-square	C.V.	Root MSE	POWER Mean
0,64	19,70	4,21	21,37

Source	DF	Anova SS	Mean Square	F Value	Pr F
QUAL	2	187,94	93,97	5,30	0,0067*
AGE	3	40,46	13,49	0,67	0,5187
YSCH	2	122,40	61,20	3,45	0,0359*
INCOME	3	297,56	99,19	5,60	0,0015*
CAR	3	108,49	36,16	2,04	0,1138
GROUP	1	61,79	61,79	3,49	0,0651
QUAL*AGE	6	211,78	35,30	1,99	0,0750
QUAL*YSCH	4	18,65	4,66	0,26	0,9008
QUAL*CAR	5	5,96	1,19	0,07	0,9968

Table 9.26 (continued)

AGE*YSCH	6	127,72	21,29	1,20	0,3129
AGE*INCOME	9	147,63	16,40	0,93	0,5067
AGE*CAR	9	323,64	35,96	2,03	0,0449*
YSCH*INCOME	6	100,87	16,81	0,95	0,4645
YSCH*CAR	6	108,66	18,11	1,02	0,4161
INCOME*CAR	9	82,93	9,21	0,52	0,8564
QUAL*GROUP	2	131,52	65,76	3,71	0,0283*
AGE*GROUP	3	58,79	19,60	1,11	0,3509
YSCH*GROUP	2	91,27	45,64	2,58	0,0817
INCOME*GROUP	3	74,89	24,96	1,41	0,2454
CAR*GROUP	3	445,61	148,54	8,39	0,0001*

*p ≤ 0,05

The information in Table 9.26 shows that significant differences are prevalent among the six main independent variables in respect of powerful others. The overall F-ratio of 1,78 is significant at the 0,0036 level. This ratio however, does not pinpoint the particular independent variables concerned. Three of the six main factors in the survey showed significant differences. The first of these is educational qualifications (F = 5,30, p = 0,0067). Secondly, years of formal schooling completed also provided significant differences (F = 3,45, p = 0,0359). Income also provided significant differences (F = 5,60, p = 0,0015). Significant two-way interactions existed between educational qualifications by group (economic sector employed in), career level by group (economic sector employed in) and age by career level (career level = occupational level).

In regard to educational qualifications, years of formal schooling received and income, post hoc comparisons were also done by means of a Scheffé-test in order to determine significant differences, if any, between the means of the subgroups.

In regard to educational qualifications, the group comprising subjects with a Std. 8 qualification or lower was compared with matriculants. This comparison yielded a t-value of 2,052 so that $F' = 4,211$ (t^2) which with 2 and 181 df is significant ($F' = 4,211 > F = 3,04$ with 2 and 181 df, p being < 0,05). Secondly, the group with lower qualifications (Std. 8 and lower) was compared with graduates. A t-value of 3,806 was obtained so that $F' = 14,483$ (t^2) which with 2 and 101 df is significant ($F' = 14,483 > F = 3,07$ with 2 and 101 df, p being < 0,05). Lastly, the matriculants were compared with the graduates. This comparison yielded a t-value of 2,490 so that $F' = 6,198$ (t^2) which with 2 and 142 df is significant ($F' = 6,198 > F = 3,07$ with 2 and 142 df, p being < 0,05).

In regard to years of formal schooling received, the group comprising subjects with 11 years and less of formal schooling was compared with the group with exactly 12 years of formal schooling received (the number of years it normally takes to complete matric). This comparison yielded a t-value of 2,604 so that $F' = 6,782$ (t^2) which with 2 and 137 df is significant ($F' = 6,782 > F = 3,07$ with 2 and 137 df, p being < 0,05). Secondly, the group comprising subjects with 11 years and less of formal education received was compared with the group comprising subjects with 13 years or more of formal education received (the number of years it usually takes to reach an institution of tertiary education). A t-value of 1,690 was obtained so that $F' = 2,855$ which with 2 and 130 df is non-significant ($F' = 2,855 < F = 3,07$ with 2 and 130 df, p being > 0,05).

Lastly, the comparison between the group comprising subjects with 12 years of formal education and the group with 13 years and/or more of formal education received, yielded a t-value of 0,906 so that $F' = 0,822$ (t^2) which with 2 and 145 df is non-significant ($F' = 0,822 < F = 3,04$ with 2 and 145 df, p being > 0,05).

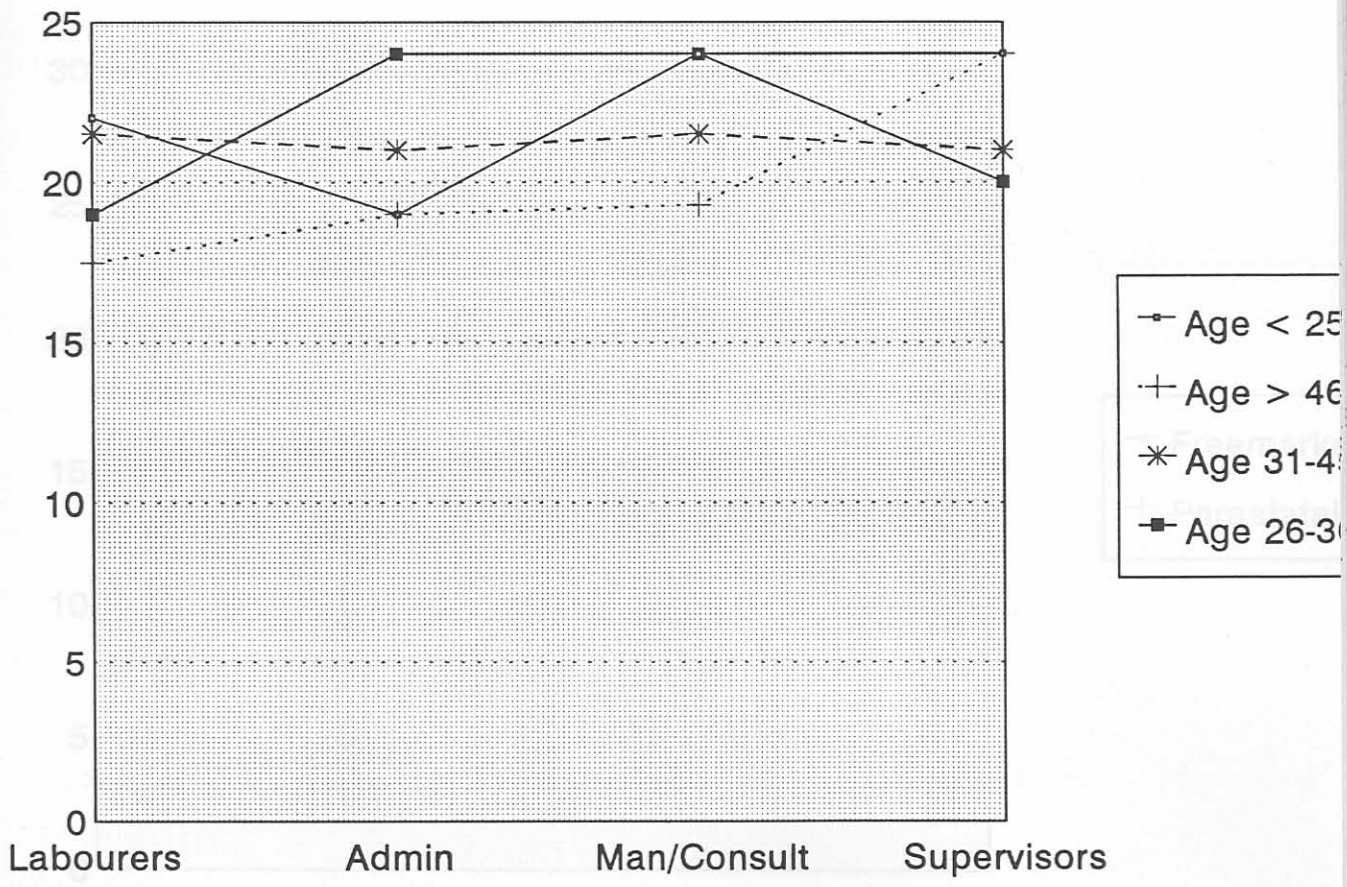
In regard to income, the group with an income of R5 000 per annum and less was compared with the lower middle income group (R5 001 to R30 000). This comparison yielded a t-value of 0,121 so that $F' = 0,147$ (t^2) which with 3 and 110 df is non-significant ($F' = 0,147 < F = 2,68$ with 2 and 110 df, p being > 0,05). Secondly, the lower income group (≤ R5 000) was compared with the upper middle income group (R30 001 to R45 000). A t-value of 1,965 was obtained so that $F' = 3,860$ (t^2) which with 3 and 61 df is significant ($F' = 3,860 > F = 2,76$ with 3 and 61 df, p being < 0,05). Thirdly, the lower income group was compared with the high income group (R45 001 to R80 000). This comparison yielded a t-value of 2,313 so that $F' = 5,351$ (t^2) which with 3 and 89 df is significant ($F' = 5,351 > F = 2,68$ with 3 and 89 df, p being < 0,05). Fourthly, the lower middle income group was compared with the upper middle income group. This comparison yielded a t-value of 2,567 so that $F' = 6,592$ (t^2) which with 3 and 115 df is significant ($F' = 6,592 > F = 2,68$ with 3 and 115 df, p being < 0,05). Fifthly, the lower middle income group was compared with the high income group. This comparison yielded a t-value of 3,256 so that $F' = 10,601$ (t^2) which with 3 and 143 df is significant ($F' = 10,601 > F = 2,68$ with 3 and 143 df, p being < 0,05). Lastly, the upper middle

income group was compared with the high income group. A t-value was obtained of 0,111 so that $F' = 0,124$ (t^2) which with 3 and 94 df is non-significant ($F' = 0,124 < F = 2,68$ with 3 and 94 df, p being > 0,05).

The significant two-way interactions are visually presented by means of graphs.

The two-way interaction between age group and occupational level (career level), is presented in Graph 9.17.

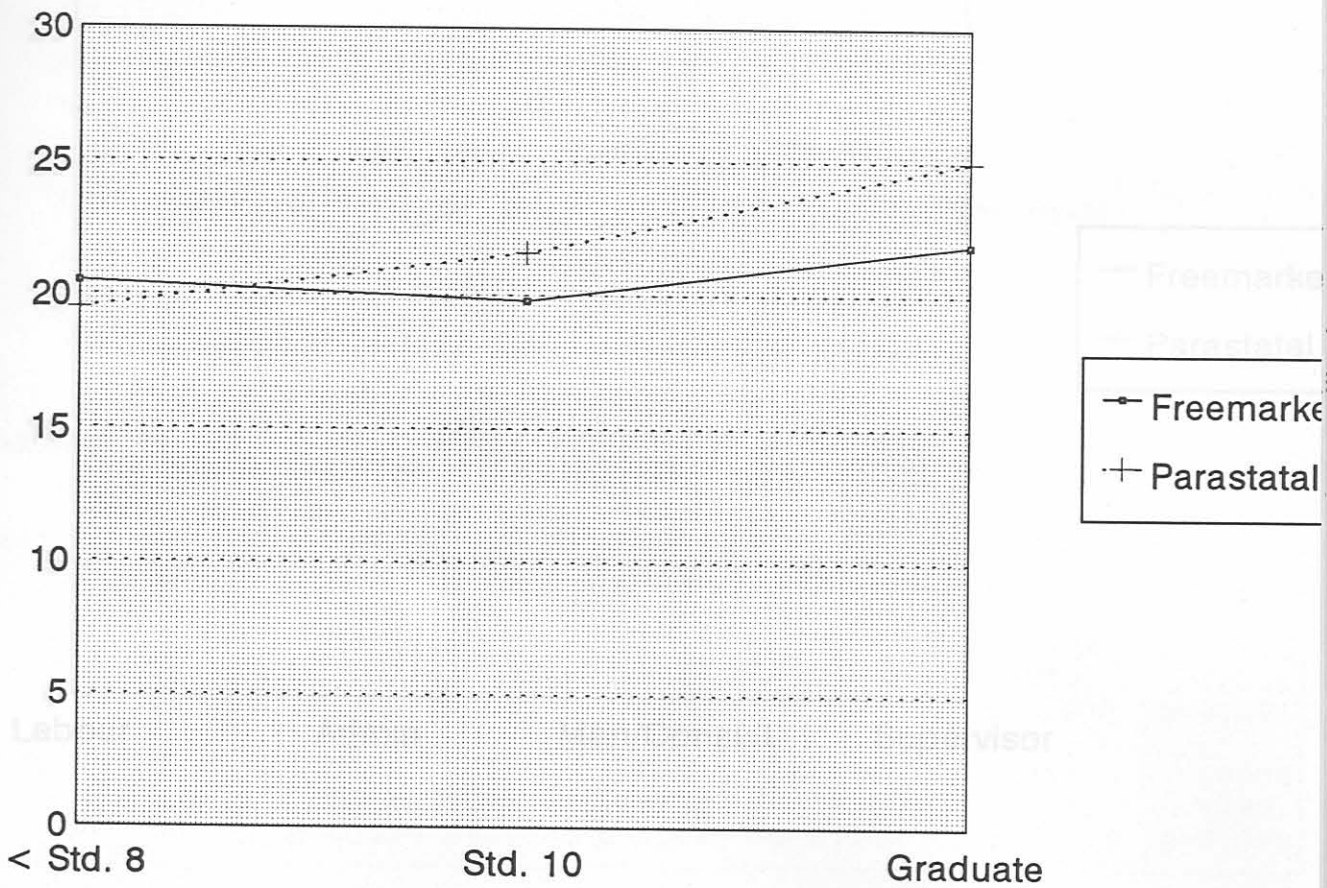
Graph 9.17: INTERACTION EFFECTS BETWEEN AGE GROUP BY OCCUPATIONAL LEVEL ON THE ROLE OF POWERFUL OTHERS.



Administrative staff as well as managers/consultants in the age group 26 to 30 tended to be less aware of the role of powerful others. Labourers and administrative staff in the age categories less than 25 years or older than 45 years, tended towards more awareness of the role of powerful others. Graph 9.17 reveals to quite an extent, a congruity between the scores of the different age groups.

The two-way interaction between educational qualifications by economic sector employed in, is presented in Graph 9.18.

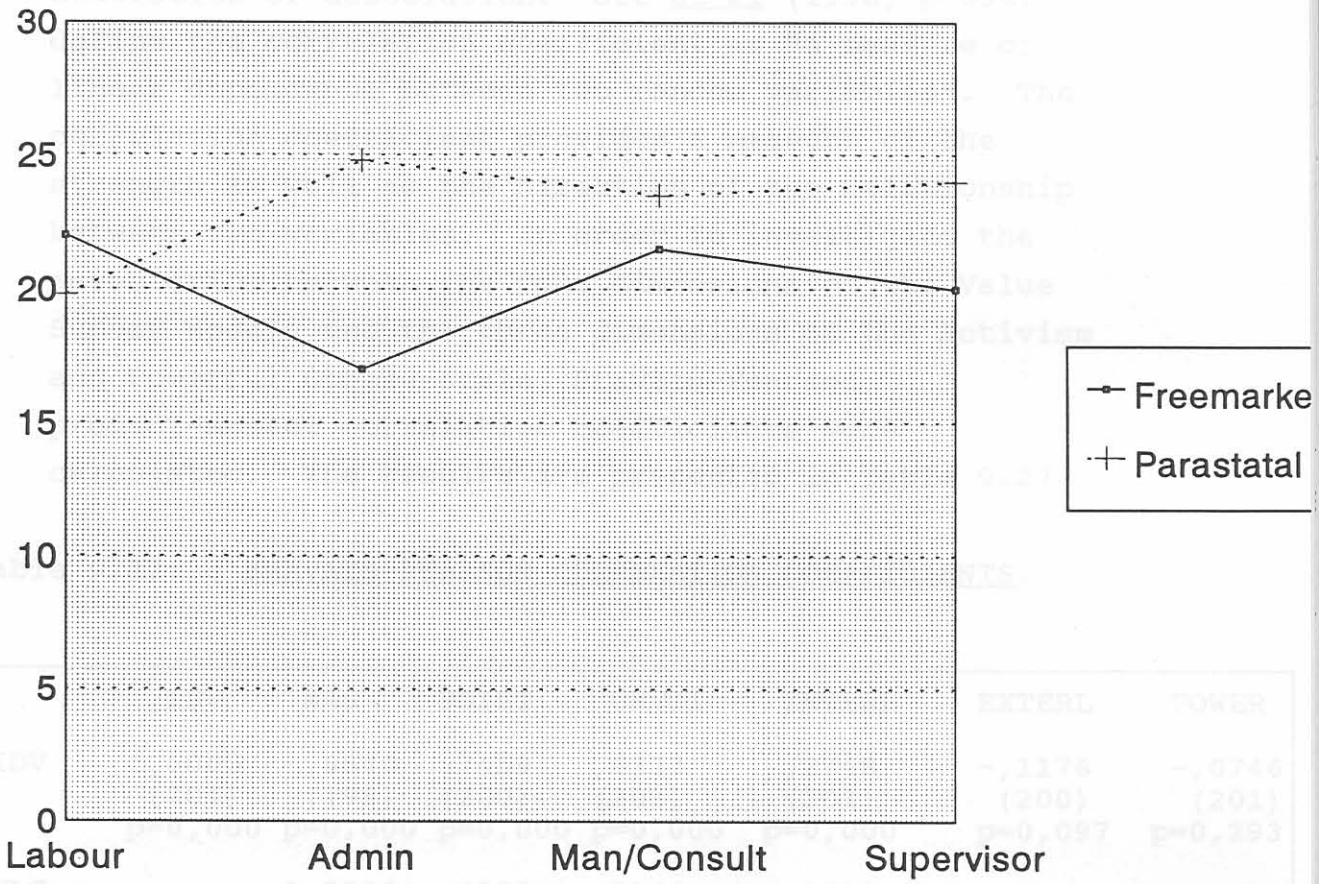
Graph 9.18: INTERACTION EFFECTS BETWEEN EDUCATIONAL QUALIFICATIONS BY ECONOMIC SECTOR ON ROLE OF POWERFUL OTHERS.



With the attainment of higher educational qualifications, subjects tended to be less aware of the role of powerful others and the reasoning holds for both the parastatal and freemarket environments, perhaps more so in the parastatal environment than in the freemarket sector.

Lastly the two-way interaction between occupational level (career level) by sector of the economy employed in, is presented in Graph 9.19.

Graph 9.19: INTERACTION EFFECTS BETWEEN OCCUPATIONAL LEVEL BY SECTOR OF THE ECONOMY ON THE INFLUENCE OF POWERFUL OTHERS.



In both the parastatal and freemarket spheres awareness of the role of powerful others concurred among labourers and managers/consultants. Administrative staff and supervisors in the parastatal environment were less sensitive to powerful others than their counterparts in the freemarket sector. Supervisors and administrative staff in the freemarket environment tended towards being sensitive to the role and influence of powerful others.

9.3 STATISTICS OF ASSOCIATION

Methods of correlation of which the Bravais-Pearson product-moment correlation is the most common, are statistics of association. Ott et al (1990, p 696) define the correlation coefficient as "a measure of linear dependence between two random variables". The correlation coefficient provides a measure of the strength as well as the direction of the relationship between two variables. In order to investigate the association between the four dimensions of the Value Survey Module and the three dimensions of the Activism and Powerful Others-scale, Bravais-Pearson product-moment correlation coefficients were calculated. The results are presented in Table 9.27

Table 9.27: BRAVAIS-PEARSON CORRELATION COEFFICIENTS.

	IDV	MAS	PDIST	UNVOI	INTERL	EXTERL	POWER
IDV	1,0000	,8840	,7459	,6333	,2748	-,1176	-,0746
	(207)	(198)	(200)	(205)	(201)	(200)	(201)
	p=0,000	p=0,000	p=0,000	p=0,000	p=0,000	p=0,097	p=0,293
MAS		1,0000	,6958	,7946	,2088	-,0168	,0639
		(201)	(193)	(199)	(195)	(194)	(195)
		p=0,000	p=0,000	p=0,000	p=0,003	p=0,816	p=0,375

Table 9.27 (continued)

PDIST	1,0000	,5488	,2058	-,0742	,0058
	(201)	(200)	(197)	(195)	(196)
	p=0,000	p=0,000	p=0,004	p=0,302	p=0,935
UNVOI		1,0000	,1528	,1625	,2865
		(208)	(203)	(202)	(203)
		p=0,000	p=0,030	p=0,021	p=0,000
INTERL			1,0000	-,2210	-,0720
			(205)	(201)	(202)
			p=0,000	p=0,002	p=0,309
EXTERL				1,0000	,5687
				(204)	(201)
				p=0,000	p=0,000
POWER					1,0000
					(205)
					p=0,000

Table 9.27 shows low but significant correlations between internality on the one hand and individualism, power distance, uncertainty avoidance and masculinity on the other hand. Correlations between externality and powerful others and individualism, power distance and masculinity are insignificant. However, there is a slight but highly significant correlation between externality and powerful others on the one hand and uncertainty avoidance on the other. The significant correlations are all positively related.

Although Hofstede's four value dimensions are mutually high and significantly correlated, these value dimensions show a low correlation with the three subscales of Levenson's Activism and Powerful Others-scale. Internality correlates weak but significantly with individualism, power distance, uncertainty avoidance and masculinity. The correlation of 0,2865 (p = 0,000) between powerful others and uncertainty avoidance is quite conspicious.

9.4 DISCRIMINANT ANALYSIS

A discriminant analysis was conducted to investigate the extent to which work values and locus of control predict group membership among subjects working in the private and parastatal sectors of the mining industry. The standardized canonical discriminant function coefficients are used to compile value profiles for the two organizations. The results of the discriminant analysis conducted with the Wilks selection method are presented in Tables 9.28 to 9.31. The Wilks selection method is a stepwise selection method which selects the variable with the largest acceptable value (selection criterion) as the first variable to be included in the analysis.

Table 9.28: DISCRIMINANT ANALYSIS: SUMMARY TABLE OF VARIABLES SELECTED.

Step	Variable entered	Variable removed	Wilks Lambda	Signif.
1	Individualism	-	0,99317	0,2673
2	Masculinity	-	0,89652	0,0001
3	Power Distance	-	0,88676	0,0001
4	Uncertainty Avoidance	-	0,87558	0,0001

According to Table 9.28 the 4 value dimensions of individualism, masculinity, power distance and uncertainty avoidance best predict group membership in both the freemarket and a parastatal organizations. The classification function coefficients according to Fisher's linear discriminant functions, are presented in Table 9.29.

Table 9.29: DISCRIMINANT ANALYSIS: CLASSIFICATION FUNCTION COEFFICIENTS.

Variables	Freemarket	Parastatal
Individualism	1,504	-0,663
Masculinity	- 6,757	-4,570
Power Distance	6,268	6,866
Uncertainty Avoidance	8,323	7,681
(Constant)	-12,537	-12,497

The accompaning canonical discriminant functions are presented in Table 9.30.

Table 9.30: DISCRIMINANT ANALYSIS: CANONICAL DISCRIMINANT FUNCTIONS.

Funct.	Eigen-value	Canonical correlation	Wilks Lambda	Chi-square	Signifi-cance
1	0,1421	0,353	0,876	23,65	0,0001*

p=0,05

An analysis of Table 9.30 reveals that although the eigenvalue is small[1], the canonical discriminant function contributes significantly to group differences (p=0,0001). The Wilks Lambda (transformed to a chi-square value of 23,65) is only a test of the null hypothesis (H_o) that the population means are equal and as such provides little information about the effectiveness of the discriminant function in the classification (Norusis, 1984, p 90).

The standardized canonical discriminant function coefficients used to compile the profiles, are presented in Table 9.31.

---

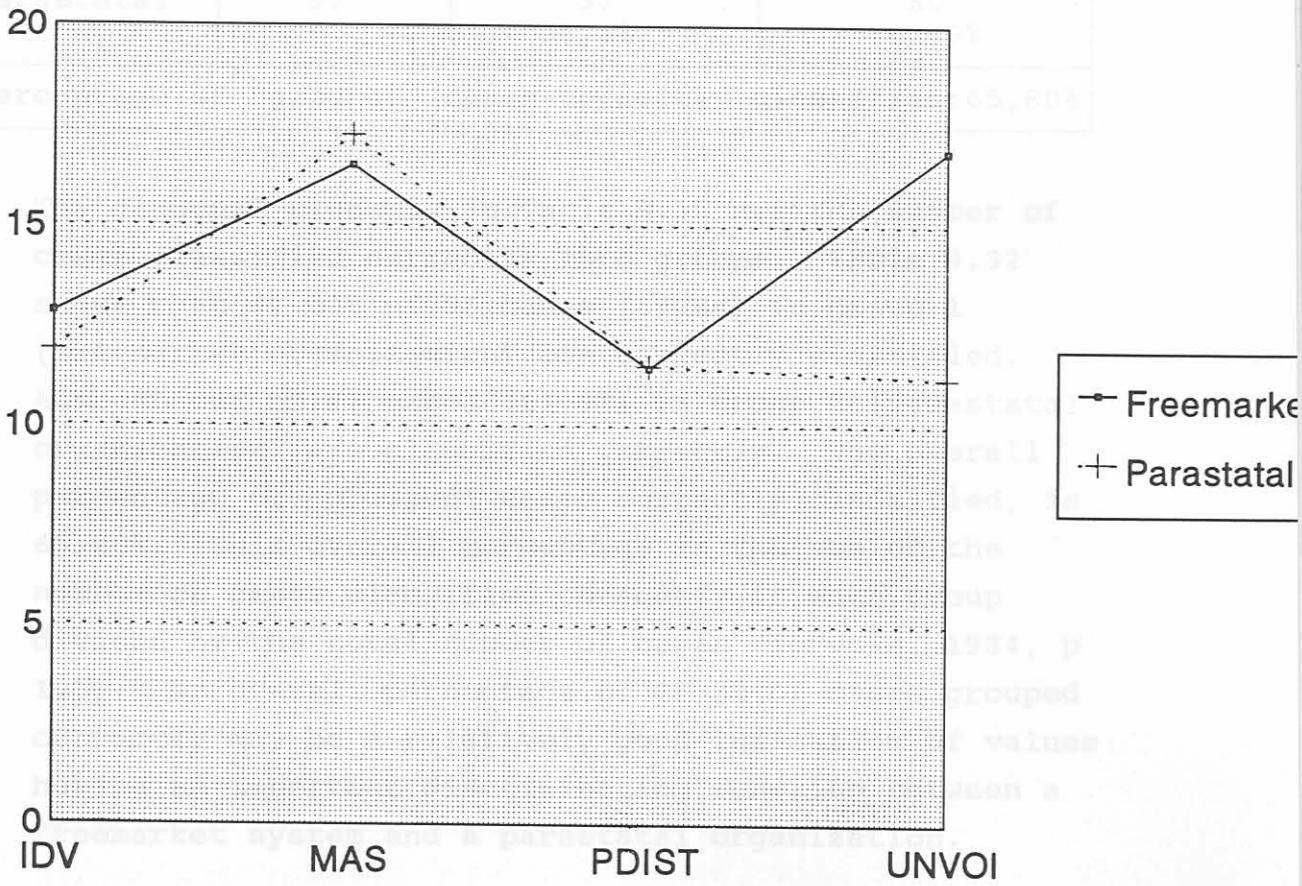
[1] Large eigenvalues are associated with good functions.

Table 9.31: DISCRIMINANT ANALYSIS: STANDARDIZED CANONICAL DISCRIMINANT FUNCTION.

Variables	Function 1
Individualism	2,506
Masculinity	-2,545
Power Distance	-0,490
Uncertainty Avoidance	0,559

To compile the profiles, the mean scores of the two groups on the four variables in Table 9.31 are presented graphically. The group profiles are presented in Graph 9.20.

Graph 9.20: GROUP VALUE PROFILES: FREEMARKET AND PARASTATAL ORGANIZATIONS.



An analysis of Graph 9.20 reveals that the parastatal organization was more inclined to individualism but displayed lower masculinity and greater power distance than the freemarket organization. However, regarding uncertainty avoidance, the freemarket organization is more inclined to face risk and uncertainty.

The classification results of the discriminant analysis are presented in Table 9.32.

Table 9.32: DISCRIMINANT ANALYSIS: CLASSIFICATION TABLE.

Actual group membership	No of cases	Predicted group membership	
		Freemarket	Parastatal
Freemarket	96	67 69,8%	29 30,2%
Parastatal	97	37 38,1%	60 61,9%
Percentage of "grouped" cases correctly classified:65,80%			

The diagonal elements in Table 9.32 are the number of cases classified correctly into groups. Table 9.32 shows that 67 out of 96 cases (69,8%) in group 1 (freemarket organization) are correctly classified. Also 60 out of 97 cases (61,9%) in group 2 (parastatal organization) are classified correctly. The overall percentage of "grouped" cases correctly classified, is 65,80%. This overall percentage is the sum of the number of cases classified correctly in each group divided by the total number of cases (Norusis, 1984, p 103). An overall percentage of 65,8% of cases grouped correctly may be a relatively good indication of values having an important discriminating function between a freemarket system and a parastatal organization.

9.5 SUMMARY

The result of the data analysis by means of statistical techniques are presented in this chapter. Descriptive statistics for all seven dependent variables across the independent variables showed that the distribution was to a smaller or larger extent skewed and that the peak of the distribution is not mesokurtic. The somewhat large standard deviations confirm that the distribution was skewed. The standard error indicated a low to moderate variability among the sample means implying that there was a reasonable possibility that inferences about the population mean from the sample mean, will not be in error. Bravais-Pearson product-moment correlation coefficients between the four value dimensions and the three dimensions of the Locus of Control-scale were also calculated, denoting small but significant correlations between internality and the four value dimensions, and between uncertainty avoidance and externality and powerful others. The profile analysis produced obvious differences in the value profiles of the freemarket and parastatal organizations. The classification table for the discriminant function analysis indicated that 65% of the "grouped cases" were correctly classified. An analysis of variance proved that the main independent variables, viz language, religion, country of origin, ethnicity, qualifications, years of formal schooling received, income, career level, age and economic sector employed in and their two-way interactions had some significant influences on the dependent variables, viz power distance, uncertainty avoidance, masculinity, individualism, internality, externality and powerful others. Conclusions drawn from these findings and recommendations for practical policy, will be discussed in Chapter 10.