

Cognadev Technical Report Series

9

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Cognitive Processing Attributes, Value Orientations, and Trait Emotional Intelligence

Investigating the relationship between:

- Cognadev's Cognitive Process Profile (CPP)
- Cognadev's Values Orientations (VO)
- Bar-On's Emotional Quotient Inventory (EQi)



Executive Summary

The psychometric findings based upon analyses of 195 employees across a wide spectrum of work roles at a mass media entertainment and internet company in Africa indicate that:

- In terms of cognitive capability, the majority of the sample feels comfortable at SST Diagnostic and Tactical Strategy levels.
- A fair proportion of the sample also shows the potential for effectiveness in Parallel Processing roles.
- In terms of Emotional Intelligence, it seems that most composite EQi scores agree amongst one-another with coefficients exceeding 0.90. The low average discrepancies between variables may render the EQ results meaningless especially if the reliability of the composite scores is not perfect.
- As in a number of comparable studies, Emotional Intelligence and Cognitive scores seem unrelated.
- In terms of Value Orientations, the sample showed a strong preference for a "Blue" worldview, and a number also embraced "Orange" values.
- Correlations between the Value Orientations and the Emotional Intelligence results of the sample indicate that those with an external versus an internal locus of control (as measured by the Spiral Dynamics orientations), tend to respond differently to self-report questionnaires, calling into question the validity of the EQ measurement approach.

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1. Introduction

The following sample largely contains the assessment results of a relatively diverse sample of employees from an African mass media entertainment and internet company.

The purpose of the assessment exercise was the personal development of individual employees. The assessments focused on the cognitive, emotional intelligence and values profiles of the individuals involved. For purposes of cognitive assessment, the CPP was used; emotional intelligence was assessed using the Baron EQi and values were measured by means of the Value Orientations (VO) instruments. Integrative reports were compiled and all participants received in depth individualised feedback on their holistic psychological profile.

A total of 195 employees were assessed. Of these, most were from South Africa (n = 105). The remainder were from mainly from Nigeria (n = 44), with a few cases from each of Uganda, Ghana, Kenya, Mozambique, Zambia, and Angola.

The roles involved included:

- Executive roles: General Manager, Chief Operational Officer
- Managerial roles: Human Resources; Public Relations; Learning and Development; Workforce; Branch; Churn and Retention; Escalation; Facilities; Field Support; Office; Governance; Operations; Payment; Projects; Regional Accounts; Regional/Area Sales; Marketing; Finance; Tax; Dealer Support; Call Centre; and Service Support Managers
- Technical-specialist roles: Technical Architect; IT Administrator; Financial Accountant; Financial Analyst; Legal Counsel; Anti-piracy Specialist; Business Analysts; Senior Business Analyst; Configuration Analysts; System Support Analyst
- Operational roles: Decoder repair; QA; QA Supervisor, Marketing assistant; Franchise Supervisor.

The organisational culture within which these employees operate can be described as relatively well structured, hierarchically organised and traditional on the one hand as well as commercially and technologically driven, on the other. The value orientations of the population involved can be described as a seemingly paradoxical combination of somewhat authoritarian and conventional personal and family values and materialistic inclinations.

1.1 Descriptive Statistics

1.1.1 Sample demographics

A more detailed breakdown of the sample follows:

Table 1: Gender frequencies

Frequency table: gender (Technical Report #9, CPP, VO, EQi data.sta)				
Category	Count	Cumulative Count	Percent	Cumulative Percent
Males	111	111	56.92	56.92
Females	82	193	42.05	98.97
Missing	2	195	1.03	100.00

Table 2: Ethnicity frequencies

Category	Frequency table: ethnicity (Technical Report #9, CPP, VO, EQi data.sta)			
	Count	Cumulative Count	Percent	Cumulative Percent
Other	8	8	4.10	4.10
Indian	19	27	9.74	13.85
Afro-Caribbean	14	41	7.18	21.03
Black African	126	167	64.62	85.64
BlackOther	1	168	0.51	86.15
BrancoEuropeu	1	169	0.51	86.67
Outro	2	171	1.03	87.69
NegroAfricano	1	172	0.51	88.21
Indiano	1	173	0.51	88.72
White European	16	189	8.21	96.92
Chinese	3	192	1.54	98.46
Missing	3	195	1.54	100.00

Table 3: Age at CPP Assessment

Variable	Descriptive Statistics (Technical Report #9, CPP, VO, EQi data.sta)					
	Valid N	Mean	Median	Minimum	Maximum	Std.Dev.
Age at Assessment	184	34.4	34	22	64	6.70

1.2 EQi Descriptive Statistics

Table 4: EQi Variables [standardized scores using mean=100, SD = 15)

Variable	Descriptive Statistics (Technical Report #9, CPP, VO, EQi data.sta)					
	Valid N	Mean	Median	Minimum	Maximum	Std.Dev.
Total EQi	195	105.21	107	73.0	132	12.81
EQi-Self-Perception Composite	195	105.97	108	62.0	127	12.53
EQi-Self-Regard	193	108.93	113	69.0	123	11.90
EQi-Self-Actualisation	195	106.44	112	64.0	123	13.88
EQi-Emotional Self-Awareness	195	102.69	103	60.0	126	13.20
EQi-Self-Expression Composite	195	105.29	105	69.0	132	12.56
EQi-Emotional Expression	195	103.13	104	68.0	126	12.76
EQi-Assertiveness	195	103.38	102	61.0	130	13.45
EQi-Independence	195	105.62	109	61.0	126	12.57
EQi-Interpersonal Composite	195	102.03	102	65.0	130	13.08
EQi-Interpersonal Relationships	195	103.73	106	55.0	123	13.37
EQi-Empathy	195	98.33	99	57.0	125	13.10
EQi-Social Responsibility	194	104.18	103	69.0	125	12.74
EQi-Decision Making Composite	194	105.02	106	66.0	130	13.26
EQi-Problem Solving	195	106.03	111	69.0	123	13.46
EQi-Reality Testing	195	103.11	102	66.0	129	13.73
EQi-Impulse Control	194	104.03	105	68.0	127	12.42
EQi-Stress Management Composite	193	103.47	105	75.0	129	12.07
EQi-Flexibility	195	101.96	103	74.0	131	12.69
EQi-Stress Tolerance	194	101.67	102	58.0	124	13.01
EQi-Optimism	195	106.07	110	60.0	123	12.90



1.3 CPP Variable Descriptive Statistics

Table 5: Descriptive statistics of CPP Processing scores

CPP Processing Scores	Descriptive Statistics (Technical Report #9, CPP, VO, EQi data.sta)					
	Valid N	Mean	Median	Minimum	Maximum	Std.Dev.
T-score_3: Discrimination	193	46.41	45	17	90	15.28
T-score_8: Analytical identification of relationships	193	58.15	61	5	100	25.10
T-score_10: Rule orientation	193	50.76	50	18	91	14.80
T-score_13: External ordering and categorizing	193	43.38	43	19	73	9.46
T-score_15: Quick insight learning	193	58.65	57	31	87	13.60
T-score_19: Integrate discrepant information	193	48.26	49	22	72	12.26
T-score_20: Complexity	193	52.17	51	18	85	16.12
T-score_26: Follows arguments through	193	58.31	60	9	97	21.20
T-score_27: Generating abstract unusual concept	193	53.72	55	12	90	16.66
T-score_31: Relying on own memory	193	47.34	46	28	71	9.42
T-score_32: Memory strategies	193	55.83	54	28	85	12.78
T-score_43: Exploring	193	49.82	49	28	72	9.88
T-score_45: Quick disclosure	193	51.51	52	13	91	16.39
T-score_46: Making assumptions	193	46.22	46	18	84	12.84
T-score_48: Quick insight	193	47.88	49	23	74	10.26
T-score_52: Gradual improvement learning	193	55.59	56	28	80	11.41
T-score_54: Judgement to clarify fuzzy information	193	42.78	44	7	74	16.19

Table 6: Descriptive statistics of CPP Processing Styles – Scores [0-100]

Variable	Descriptive Statistics (Technical Report #9, CPP, VO, EQi data.sta)					
	Valid N	Mean	Median	Minimum	Maximum	Std.Dev.
T-score_61: CPP: Explorative style	193	62.56	64	30	79	7.14
T-score_74: CPP: Reflective style	193	59.44	59	26	81	10.98
T-score_62: CPP: Analytical style	193	55.27	57	18	87	17.24
T-score_72: CPP: Learning style	193	55.28	56	29	80	11.08
T-score_63: CPP: Structured style	193	52.85	55	21	76	12.39
T-score_67: CPP: Logical style	193	53.99	55	15	92	18.55
T-score_73: CPP: Quick insight style	193	52.64	53	26	78	11.38
T-score_64: CPP: Holistic style	193	50.17	51	22	78	12.50
T-score_65: CPP: Intuitive style	193	50.77	51	38	62	5.31
T-score_69: CPP: Random style	193	50.78	51	21	79	12.96
T-score_70: CPP: Integrative style	193	49.78	50	25	76	11.31
T-score_66: CPP: Memory style	193	49.05	48	28	81	11.38
T-score_75: CPP: Metaphoric style	193	46.68	47	26	66	9.07
T-score_71: CPP: Systems style	193	45.40	46	20	68	10.90
T-score_68: CPP: Impulsive style	193	44.09	44	27	72	9.19

* sorted by median processing score

Table 7: Descriptive statistics of CPP Processing Styles – Ranks [14=most preferred, 1 = least preferred]

Variable	Descriptive Statistics (Technical Report #9, CPP, VO, EQi data.sta)						
	Valid N	Mean	Median	Minimum	Maximum	Lower Quartile	Upper Quartile
CPP Style-Rank_Explorative	193	11.45	13	2	14	10	14
CPP Style-Rank_Analytical	193	8.73	11	1	14	5	13
CPP Style-Rank_Reflective	193	11.07	11	3	14	10	13
CPP Style-Rank_Learning	193	9.04	9	2	14	8	11
CPP Style-Rank_Logical	193	8.07	9	1	14	3	13
CPP Style-Rank_Structured	193	7.97	8	2	14	6	10
CPP Style-Rank_Quick Insight	193	7.43	7	2	14	6	9
CPP Style-Rank_Random	193	7.46	7	1	14	2	13
CPP Style-Rank_Holistic	193	5.94	6	1	12	4	8
CPP Style-Rank_Integrative	193	5.65	6	1	12	4	7
CPP Style-Rank_Intuitive	193	6.61	6	3	12	4	9
CPP Style-Rank_Memory	193	5.52	5	1	14	3	8
CPP Style-Rank_Metaphoric	193	4.99	4	1	14	3	7
CPP Style-Rank_Impulsive	193	5.07	2	1	14	1	11

* sorted by median processing score

1.4 CPP Levels of Work Frequencies

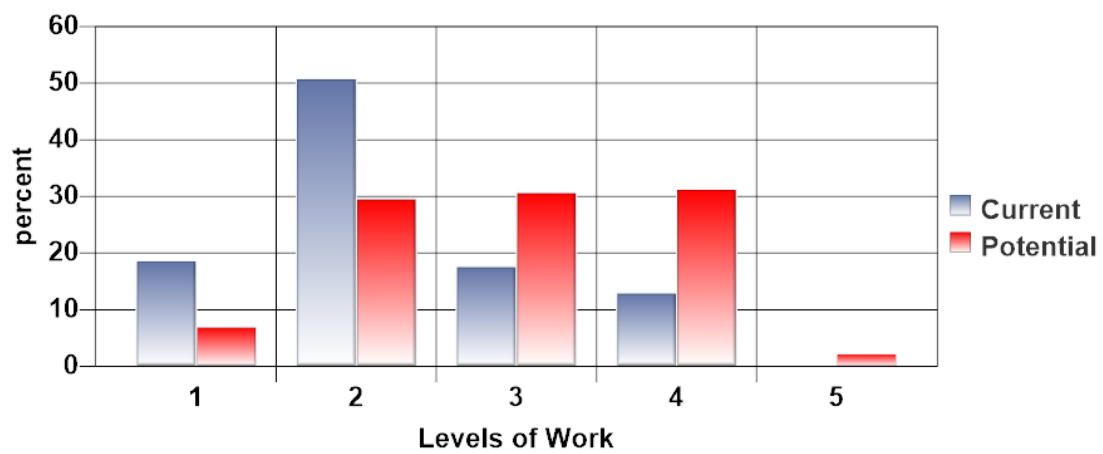
Table 8: Frequencies of CPP Current level of work

Category	CPP Current Level of Work (Technical Report #9, CPP, VO, EQi data.sta)			
	Count	Cumulative Count	Percent	Cumulative Percent
Pure Operational	36	36	18.46	18.46
Diagnostic Accumulation	98	134	50.26	68.72
Tactical/Strategic	34	168	17.44	86.15
Parallel Processing	25	193	12.82	98.97
Missing	2	195	1.03	100.00

Table 9: Frequencies of CPP Potential level of work

Category	CPP Potential Level of Work (Technical Report #9, CPP, VO, EQi data.sta)			
	Count	Cumulative Count	Percent	Cumulative Percent
Pure Operational	11	11	5.64	5.64
Diagnostic Accumulation	53	64	27.18	32.82
Tactical/Strategic	55	119	28.21	61.03
Parallel Processing	56	175	28.72	89.74
Pure Strategic	4	179	2.05	91.79
Missing	16	195	8.21	100.00

Figure 1: Percentage of cases at each CPP Current and Potential Level of Work



2. The Relationships between EQi scores

Sometimes, it is important to know whether observations are not only in agreement to one another, but whether they share a directional relation, and how strong such a relation is. That is, observations on one attribute tend to increase as observations on another increase or as observations on one attribute increase, they decrease on the other (the **monotonicity** principle).

The Pearson correlation and intra-class coefficients provide such information. Coefficients of agreements based upon absolute or squared discrepancies do not.

As Barrett¹ has shown, monotonicity and agreement are independent from one another. Sometimes it is theoretically important that two variables' magnitudes covary; this is the essence of the definition of monotonicity. The Pearson correlation indexes this monotonicity by first transforming the raw data, standardizing each variable by its respective mean and standard deviation, then computing the covariance between the two transformed variables. Absolute magnitude information is lost in order to enable this scale-free computation of monotonicity.

But, on other occasions, it is as important to know just how similar the magnitudes of two variables are to one another, independent of whether their values covary monotonically.

For example, the recorded temperature for two objects over time may be almost exactly equal to one another (to within $\pm .1$ °C) across say 20 time periods (*allowing for random observation and instrument error*). Because the error is random around the same temperature, the correlation between the two sets of observations would be expected to be zero (no monotonicity). But, an agreement index which is sensitive only to magnitude discrepancy would show that the similarity of observations is almost identical, given the range of variation across which the temperature could have been able to fluctuate.

For assessing agreement, the Gower² index of agreement is highly recommended.

Relative to the *maximum possible* absolute (unsigned) discrepancy between two pairs of observations, the Gower discrepancy coefficient indicates the % average absolute discrepancy between all pairs of observations. When expressed as a similarity coefficient (*by subtracting it from 1*), it indicates the % average similarity between all pairs of observations. So, a Gower similarity coefficient of 0.90 indicates that relative to the maximum possible absolute (unsigned) discrepancy between them, the observations agree on average to within 90% of each other's values.

So, when looking at the relationships between attributes, it is always advisable to compute estimates of both monotonicity and agreement.

¹ Barrett, P.T. (2010) *Test reliability and validity: The inappropriate use of the Pearson and other variance ratio coefficients for indexing reliability and validity*. Technical Whitepaper #9, <http://www.pbarrett.net/techpapers.html>

² Gower, J. C., 1971. *A general coefficient of similarity and some of its properties*. *Biometrics* 27: 857-874.

Table 10: The Pearson correlations between Total and Composite EQi score

	EQi total and composite scale scores - Pearson Correlations (n=192 casewise)					
	1 Total EQi	2 Self-Perception Composite	3 Self-Expression Composite	4 Interpersonal Composite	5 Decision Making Composite	6 Stress Management Composite
Total EQi	1.00	0.89	0.83	0.79	0.84	0.87
Self-Perception Composite	0.89	1.00	0.67	0.68	0.70	0.71
Self-Expression Composite	0.83	0.67	1.00	0.55	0.64	0.67
Interpersonal Composite	0.79	0.68	0.55	1.00	0.51	0.60
Decision Making Composite	0.84	0.70	0.64	0.51	1.00	0.70
Stress Management Composite	0.87	0.71	0.67	0.60	0.70	1.00

Table 11: Gower agreement (similarities) between Total and Composite EQi score

	EQi total and composite scale scores - Gower magnitude agreement indices					
	1 Total EQi	2 Self-Perception Composite	3 Self-Expression Composite	4 Interpersonal Composite	5 Decision Making Composite	6 Stress Management Composite
Total EQi	1.00	0.95	0.94	0.92	0.94	0.94
Self-Perception Composite	0.95	1.00	0.91	0.90	0.92	0.92
Self-Expression Composite	0.94	0.91	1.00	0.89	0.91	0.91
Interpersonal Composite	0.92	0.90	0.89	1.00	0.89	0.90
Decision Making Composite	0.94	0.92	0.91	0.89	1.00	0.91
Stress Management Composite	0.94	0.92	0.91	0.90	0.91	1.00

As can be seen from Table 11, the Gower indices are indication that most composite EQi scores agree amongst one-another with coefficients exceeding 0.90.

A Gower similarity coefficient of 0.90 indicates that relative to the maximum possible absolute (unsigned) discrepancy between them, the observations agree on average to within 90% of each other's values.

The minimum and maximum possible range of scores on each variable was specified as between ± 3 SDs (55 to 145). So the Gower index of 0.90 would indicate an average discrepancy of ± 9 between one variable and another's scores, relative to the maximum possible/observable discrepancy between the two variables.

For a Gower index of 0.94, this would indicate an average discrepancy of ± 5 between one variable and another's scores. That discrepancy may not be meaningful, especially if the reliability of the composite scores is not perfect.

3. The Relationships between EQi scores & CPP Processing Scores

Table 12: Pearson correlations between EQi scores and CPP Processing scores

Variable	Correlations (Technical Report #9, CPP, VO, EQi data.sta) Marked correlations are significant at $p < .05000$ N=190 (Casewise deletion of missing data)					
	Total EQi	Self-Perception Composite	Self-Expression Composite	Interpersonal Composite	Decision Making Composite	Stress Management Composite
T-score_3: Discrimination	0.06	0.03	0.02	0.04	0.03	0.12
T-score_8: Analytical identification of relations	0.07	0.05	0.05	-0.00	0.09	0.12
T-score_10: Rule orientation	-0.03	-0.03	-0.03	-0.05	-0.01	-0.01
T-score_13: External ordering and categorizing	-0.04	-0.06	-0.02	-0.08	0.00	0.01
T-score_15: Quick insight learning	0.07	0.05	0.04	0.04	0.06	0.11
T-score_19: Integrate discrepant information	0.08	0.05	0.05	0.04	0.05	0.15
T-score_20: Complexity	0.10	0.06	0.06	0.05	0.09	0.16
T-score_26: Follows arguments through	0.08	-0.00	0.05	0.04	0.07	0.16
T-score_27: Generating abstract unusual concept	0.07	-0.02	0.07	0.06	0.04	0.15
T-score_31: Relying on own memory	-0.05	-0.03	-0.02	-0.05	-0.03	-0.05
T-score_32: Memory strategies	-0.00	-0.00	0.01	-0.03	-0.02	0.03
T-score_43: Exploring	0.06	0.06	0.02	0.04	0.05	0.08
T-score_45: Quick disclosure	-0.06	-0.03	-0.03	-0.05	-0.05	-0.09
T-score_46: Making assumptions	-0.08	-0.01	-0.08	-0.05	-0.07	-0.12
T-score_48: Quick insight	0.09	0.08	0.07	0.03	0.08	0.14
T-score_52: Gradual improvement learning	-0.03	-0.00	-0.01	-0.08	-0.03	-0.00
T-score_54: Judgement to clarify fuzzy information	0.11	0.07	0.07	0.06	0.10	0.15

As might be expected from correlating what is essentially a series of self-report personality attributes with a performance-based information/cognitive processing assessment^{3 4}, there are no relationships of any practically relevant magnitude, as all correlations are below the recommended minimum practical effect size of 0.2, as set out in Ferguson's⁵ recent article.

³ Joseph, D.L., Jin, J., Newman, D.A., & O'Boyle, E.H. (2015). Why does self-reported emotional intelligence predict job performance? A meta-analytic investigation of mixed EI. *Journal of Applied Psychology*, 100, 2, 298-342.

⁴ Antonakis, J., Ashkanasy, N.M. & Dasborough, M. (2010). Does leadership need emotional intelligence? *The Leadership Quarterly*, 20(2), 247-261.

⁵ Ferguson, C.J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice*, 40, 5, 532-538.

3.1 The Relationships between EQi scores and CPP Processing-Style Scores

Table 13: Pearson correlations between EQi scores and CPP Processing-Style scores

Variable	Correlations (Technical Report #9, CPP, VO, EQi data.sta) Marked correlations are significant at $p < .05000$ N=190 (Casewise deletion of missing data)					
	Total EQi	Self-Perception Composite	Self-Expression Composite	Interpersonal Composite	Decision Making Composite	Stress Management Composite
T-score_61: CPP: Explorative style	0.03	0.01	0.03	-0.00	0.03	0.06
T-score_62: CPP: Analytical style	0.08	0.05	0.05	0.01	0.08	0.12
T-score_63: CPP: Structured style	0.04	0.01	0.02	-0.02	0.04	0.09
T-score_64: CPP: Holistic style	0.07	0.02	0.05	0.03	0.05	0.14
T-score_65: CPP: Intuitive style	0.08	0.04	0.05	0.04	0.04	0.14
T-score_66: CPP: Memory style	0.03	0.02	0.03	-0.00	0.04	0.06
T-score_67: CPP: Logical style	0.06	0.00	0.03	0.03	0.06	0.13
T-score_68: CPP: Impulsive style	-0.08	-0.05	-0.04	-0.03	-0.08	-0.13
T-score_69: CPP: Random style	-0.07	-0.02	-0.04	-0.03	-0.07	-0.13
T-score_70: CPP: Integrative style	0.07	0.03	0.04	0.03	0.05	0.13
T-score_71: CPP: Systems style	0.08	0.06	0.04	0.03	0.06	0.13
T-score_72: CPP: Learning style	0.04	0.03	0.03	-0.00	0.03	0.08
T-score_73: CPP: Quick insight style	0.07	0.04	0.05	0.02	0.06	0.13
T-score_74: CPP: Reflective style	0.08	0.03	0.03	0.05	0.07	0.13
T-score_75: CPP: Metaphoric style	0.05	-0.03	0.03	0.04	0.02	0.14

All correlations are statistically non-significant.

3.2 The Relationships between EQi scores and CPP Ranked Processing-Styles

Given the styles are ranks, a Goodman-Kruskal gamma correlation was used to index the monotonic relationship between all ranked styles and EQi scores.

Table 14: Gamma correlations between EQi scores and CPP Ranked Processing-Styles

Variable	Gamma Correlations (Technical Report #9, CPP, VO, EQi data.sta) Marked correlations are significant at $p < .05000$ N=190 (Casewise deletion of missing data)					
	Total EQi	Self-Perception Composite	Self-Expression Composite	Interpersonal Composite	Decision Making Composite	Stress Management Composite
CPP Style-Rank_Memory	-0.02	-0.02	-0.00	-0.01	0.00	-0.03
CPP Style-Rank_Learning	-0.03	-0.02	-0.02	-0.05	-0.02	-0.03
CPP Style-Rank_Impulsive	-0.00	0.02	-0.03	0.02	0.03	-0.06
CPP Style-Rank_Quick Insight	-0.01	-0.01	0.01	-0.03	-0.01	0.04
CPP Style-Rank_Holistic	0.04	-0.02	0.03	0.02	0.03	0.09
CPP Style-Rank_Integrative	0.04	0.00	0.00	0.05	0.00	0.09
CPP Style-Rank_Random	-0.01	0.04	-0.02	-0.01	-0.00	-0.08
CPP Style-Rank_Intuitive	-0.01	0.02	-0.01	0.02	-0.00	-0.05
CPP Style-Rank_Logical	0.01	-0.05	0.01	0.02	-0.01	0.06
CPP Style-Rank_Analytical	0.06	0.07	0.06	0.01	0.05	0.08
CPP Style-Rank_Structured	-0.02	-0.01	0.01	-0.03	-0.03	-0.01
CPP Style-Rank_Metaphoric	0.02	-0.01	0.02	0.06	-0.02	0.02
CPP Style-Rank_Reflective	0.01	0.02	-0.01	0.02	-0.03	0.01
CPP Style-Rank_Explorative	-0.04	-0.02	-0.01	-0.02	-0.07	-0.03

All correlations are statistically non-significant.

3.3 The Relationships between EQi scores and CPP Levels of Work

Again, given the Levels of Work are ordered-class attributes, a Goodman-Kruskal gamma correlation was used to index the monotonic relationship between the Levels of Work classifications and EQi scores.

Table 15: Gamma correlations between EQi scores and CPP Ranked Processing-Styles

Variable	Gamma Correlations (Technical Report #9, CPP, VO, EQi data.sta) MD pairwise deleted Marked correlations are significant at $p < .05000$	
	Current Level of Work	Potential Level of Work
Total EQi	0.06	0.07
EQi-Self-Perception Composite	0.00	0.02
EQi-Self-Expression Composite	0.03	0.02
EQi-Interpersonal Composite	0.05	0.06
EQi-Decision Making Composite	0.05	0.04
EQi-Stress Management Composite	0.12	0.13

Table 16: Pairwise gamma sample sizes between EQi scores and CPP Ranked Processing-Styles

Variable	Gamma Correlation. CPP Levels of Work, Pairwise sample sizes MD pairwise deleted Marked correlations are significant at $p < .05000$	
	Current Level of Work	Potential Level of Work
Total EQi	193	179
EQi-Self-Perception Composite	193	179
EQi-Self-Expression Composite	193	179
EQi-Interpersonal Composite	193	179
EQi-Decision Making Composite	192	178
EQi-Stress Management Composite	191	177

There is no substantive correlation between the EQi composite scores and the CPP Levels of Work. Again this is to be expected given the statements/references in Antonakis et al (2009):

"You stated that "it is now widely accepted that...a leader who can manage his/her emotions and have empathy for others will be more effective in the workplace." Two issues are important to note here. First, it is well established that emotional stability, as measured by personality tests does correlate with leadership in business settings (Judge, Bono, Ilies, & Gerhardt, 2002). We have no evidence that emotional management, as measured by EI ability tests, matters. Second, agreeability (which includes empathy), as measured by personality tests is unrelated to leadership in business, government or military settings (Judge et al., 2002); however, it is positively related to leadership in student samples (this finding demonstrates that the correlates of leadership are not the same in student and business samples, as I stated previously). The evidence overwhelmingly suggests that individuals who are agreeable or high in affiliation do not make good leaders (probably because they are unable to take a stand on difficulty matters, are submissive, and put individual interests ahead of organizational interests). If empathy is related to EI, as you suggest, then here is more evidence that EI does not matter for leadership." p. 257

Whereas we might expect the Information-processing, cognitive style, and performance related attributes which are constitutive of the higher Levels of Work in the CPP to be related to aspects of leadership (*from consideration of the reasoning components at least*), there is no apparent relationship between such leadership-related characteristics and self-reported 'trait-based' emotional intelligence as assessed by Bar-On's EQi. Hence, from these evidence-based reasons alone, there can be no relationship between the CPP and the EQi.

The problem with all such self-report emotional "intelligence" trait-based assessments is that their variance is almost completely accounted for by conventional cognitive ability and personality assessments.

A good example is in the article by Akhtar et al⁶, where contrary to the somewhat exaggerated claims of the authors, their trait emotional intelligence assessment accounted for only 1% additional variation in the outcome variable, once the influence of cognitive ability and personality score variation was partialled out prior to entering trait EI into the prediction equation.

Similarly, in the study published by Boyatzis, Good, & Massa (2012)⁷, using the Emotional and Social Competency Inventory (ESCI) administered to a sample of financial service sales executives, showed that ESCI ratings "as seen by others" predicted leadership effectiveness above the impact of general intelligence (*g*) and personality by just 3%.

As Barrett (2016)⁸ showed, this trivial magnitude effect size has no discernible impact on the actual predicted outcome scores using just personality and ability scores as predictors.

⁶ Akhtar, R., Boustani, L., Tsivrikos, D., & Chamorro-Premuzic, T. (2015). *The engageable personality: Personality and trait EI as predictors of work engagement*. *Personality and Individual Differences*, 73, 44-49.

⁷ Boyatzis, R. E., Good, D., & Massa, R. (2012). *Emotional, social and cognitive intelligence as predictors of sales leadership performance*. *Journal of Leadership & Organizational Studies*, 19, 191-201.

⁸ Barrett, P. (2016). *Hierarchical Multiple Linear Regression and the correct interpretation of the magnitude of a Deviation R-square (ΔR^2)*. A Cognadev Technical Report series whitepaper, downloaded from: http://www.pbarrett.net/cognadev/techseries/Cognadev_Technical_Report_6_Deviation_R-Square_17_June_16.pdf



4. The Relationships between EQi scores and Values Orientations

The most prevalent frequencies of accepted and rejected orientations in this sample of data are presented below in the two tables.

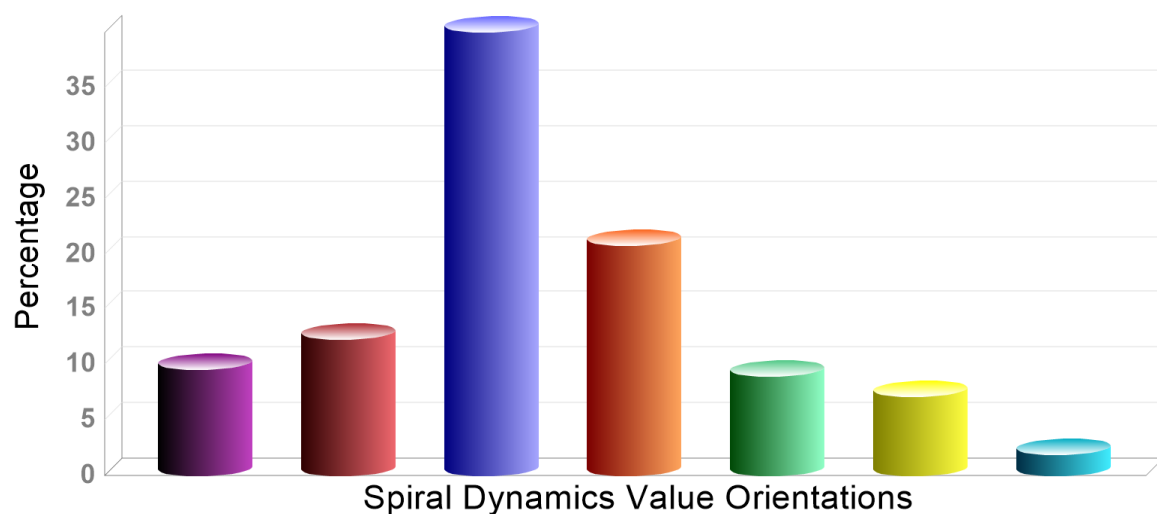
Table 17: The most frequently occurring Accepted Orientation sequences

Sequence	Count	%
Blue	35	18.04
Blue, Orange	25	12.89
Orange	22	11.34
Blue, Red	22	11.34
Blue, Purple	20	10.31
Blue, Green	9	4.64
Green	8	4.12
Yellow	5	2.58
Red, Orange	4	2.06
Yellow, Green	4	2.06
Purple	4	2.06
Blue, Yellow	3	1.55

* Total n = 194, showing the most prevalent selected accepted orientations (n=161 cases)

If we tally the numbers of cases who accept each of the colour orientations in each of three possible preference categories, and express these counts as a percentage of all colour allocations, we can plot the pattern of Accepted Value aggregate choices in Figure 2.

Figure 2: The percentage frequencies of Accepted Spiral Dynamic Values Orientations {aggregate percentages}



The prevalence of the Blue value system of the Spiral Dynamics model, as accepted by approximately 40% of the sample makes sense given the cultural and organisational value systems of the population in question. "Blue" values are associated with a need for structure, stability and predictability, combined with an avoidance of fundamental change, uncertainty and chaos. Such an approach is associated with a respect of power structures - positional power in particular; the pursuit of employment stability; and a preference for rule-based functioning. A Blue orientation is likely to contribute to the organisational specific competencies of: Relationship focus, Results driven, Team player, and Courageous.

An acceptance of the Orange orientation of the Spiral Dynamics model by just over a fifth (21%) of the sample, indicates a somewhat flexible, technical and materialistic approach which is in line with the organisational competencies of Interpersonal savvy, Agility, Energy and Change Orientation.

Table 18: The most frequently occurring Rejected Orientation sequences

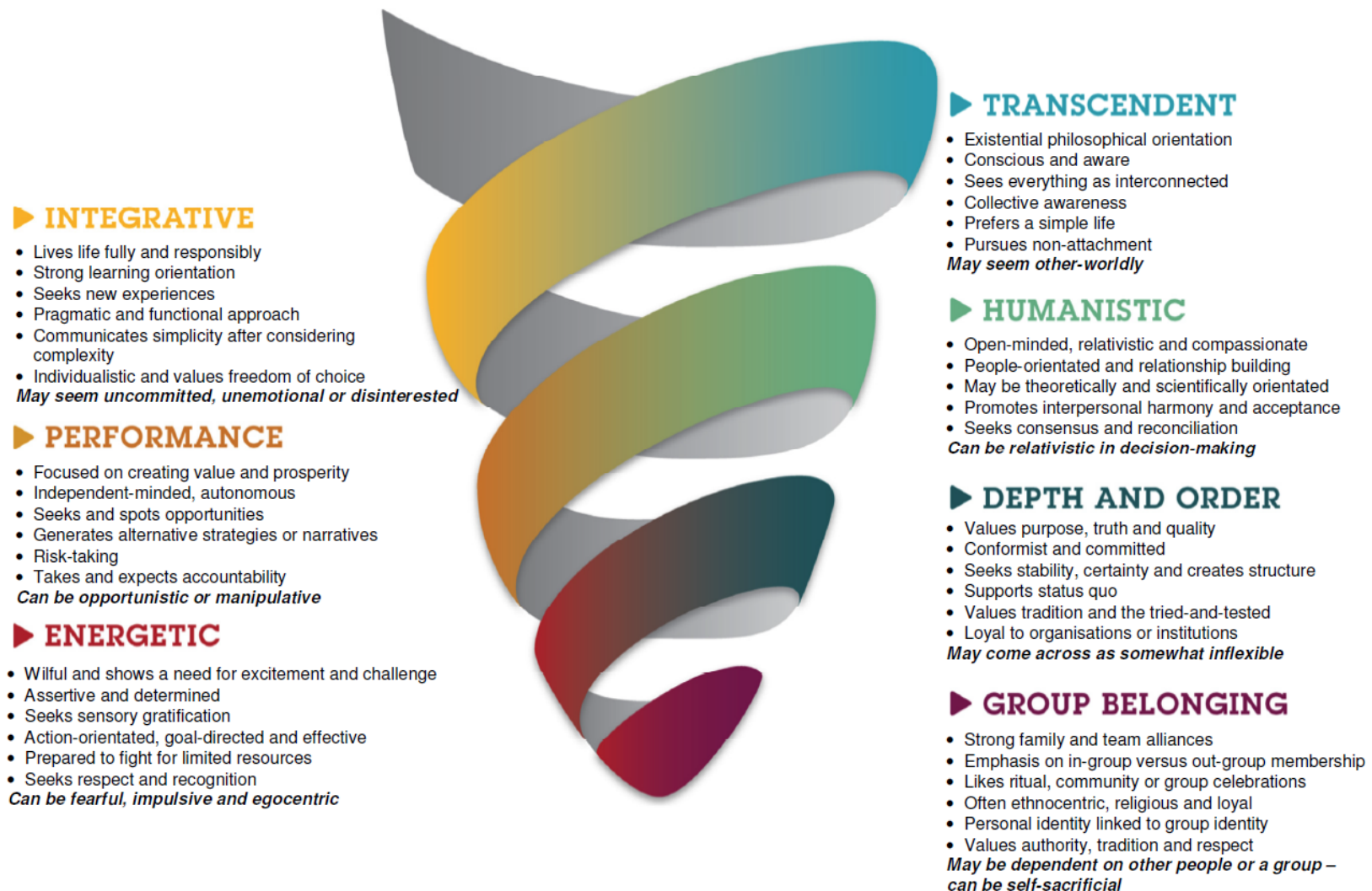
Sequence	Count	%
Turquoise	74	38.14
Red	23	11.86
Yellow, Turquoise	21	10.82
Purple	19	9.79
Yellow	15	7.73
Purple, Turquoise	12	6.19
Red, Purple	7	3.61
Green, Turquoise	6	3.09
Red, Turquoise	3	1.55
Orange, Turquoise	2	1.03
Purple, Yellow	2	1.03

* Total n = 194, showing the most prevalent selected accepted orientations (n=184 cases)

The rejection of the Turquoise and Yellow values of the Spiral Dynamics model by almost half the sample can be understood in terms of the transcendent and integrative nature of Yellow and Turquoise orientations which do not fit into the reality focused and tangible approach of this sample. It may affect the learning orientation, agility and open mindedness of those involved.

As a reference for interpretation of the Values Orientations, Figure 3 (taken from the VO report) describes each orientation:

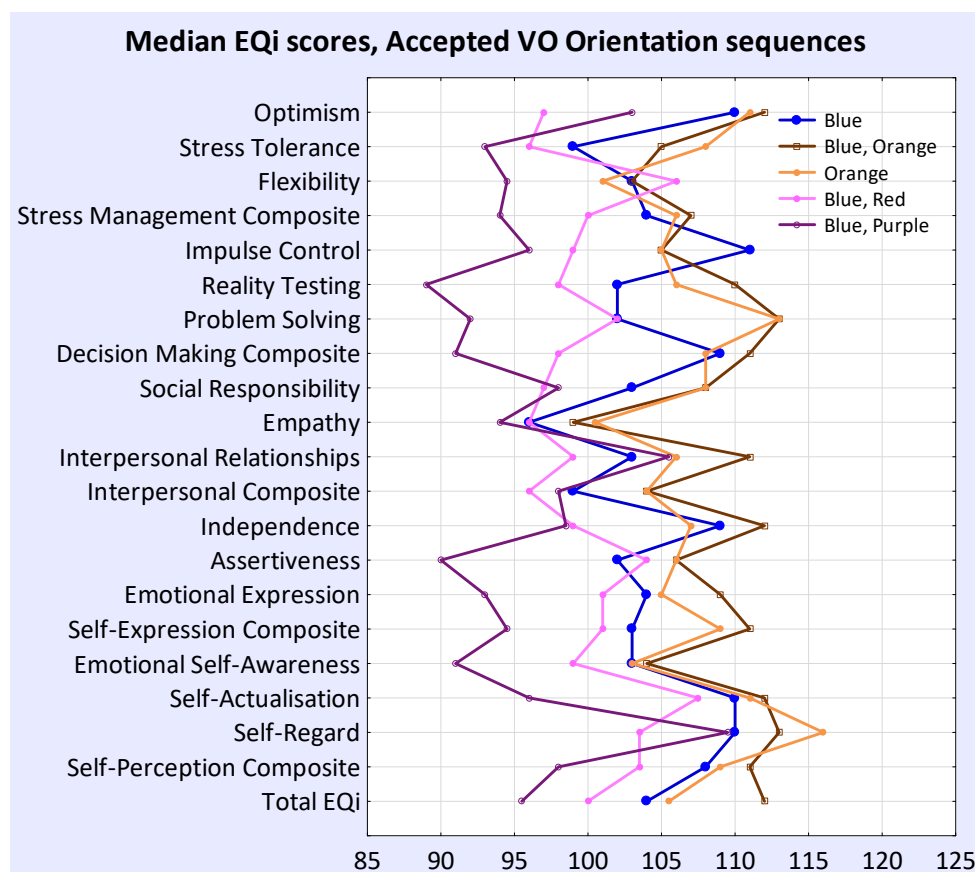
Figure 3: The Spiral Dynamics model and orientation descriptions



4.1 Median EQi score-profiles for the most-prevalent Values Orientation sequences

Using the top 5 orientations/sequences for the accepted and rejected orientations, we can plot the median EQi score for all EQi attributes as a profile for each group of individuals with that sequence

Figure 4: Median EQi scores for the most prevalent Accepted values orientations



The patterns revealed by this graphic representation of the relationship between the Values and the Emotional Intelligence constructs, indicate that those showing the Purple-Blue, followed by Red-Blue and by Blue VO orientations, generally allocated the lowest scores to themselves on most of the EQ constructs. The Spiral Dynamics (SD) model, which indicates ever increasing levels of awareness or consciousness, describes the Purple, Red and Blue value orientations as having an external locus of control; a tangible-reality focus; and fear as a primary emotional driver. Purple is associated with fear of the unseen spiritual world and fear of the outgroup; Red is characterised by fear of failure and fear of losing face; and Blue is typically known for fear of change and chaos.

As one moves up to higher and more integrative levels of awareness on the SD model, the fear motive is replaced by a sense of personal empowerment and an internal locus of control. The Orange SD system is resilient, and focuses on people and perceptions. Other than Purple, Blue and Red systems associated with a scarcity mentality, Orange regards the world as a place of abundance and feel empowered to deal with it. No wonder then, that those showing Blue-Orange or Orange values in this sample allocated the highest EQ scores to themselves. It should be pointed out that those who show a dual (or more)

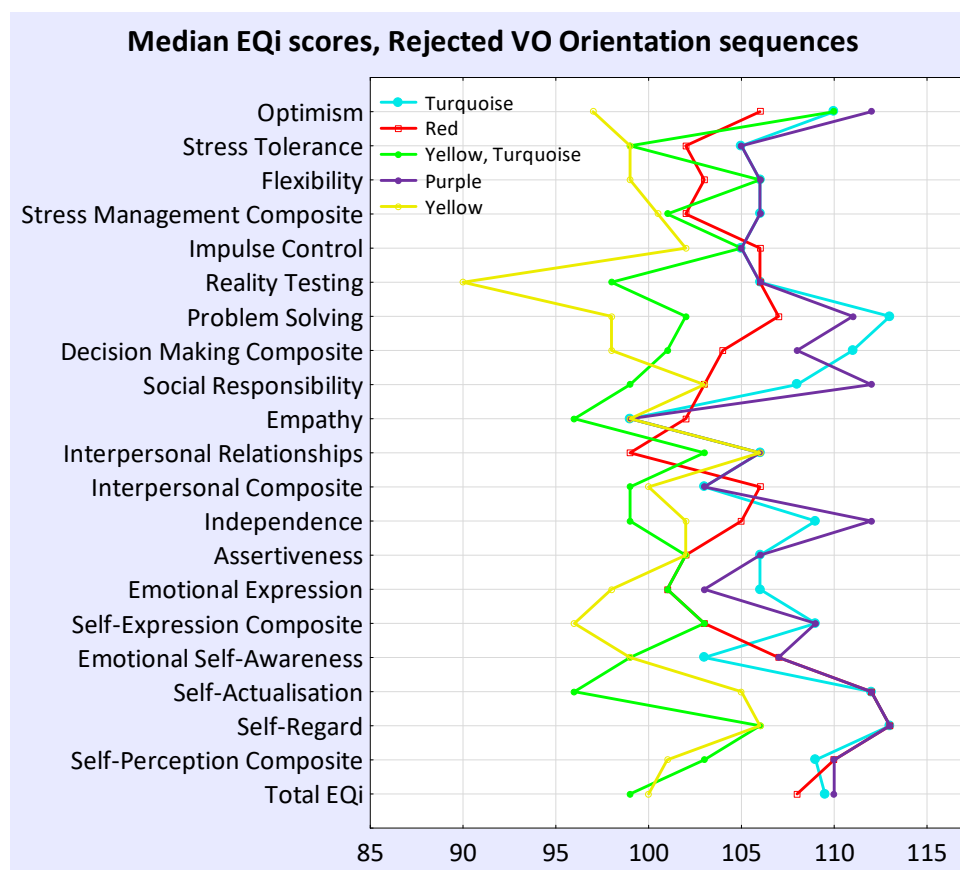
value orientation are mostly driven from the highest level unless challenged by threatening circumstances. In the case of the Blue-Orange combination, Orange reasoning is therefore likely to prevail under normal circumstances.

Table 19: Gower agreement indices between the 5 Accepted VO orientation profiles

	Accepted Orientations Gower Similarities - INCLUDES joint absences (0) in any pairwise comparison				
	1 Blue	2 Blue, Orange	3 Orange	4 Blue, Red	5 Blue, Purple
Blue	1.00	0.83	0.87	0.82	0.67
Blue, Orange		1.00	0.92	0.68	0.53
Orange			1.00	0.73	0.59
Blue, Red				1.00	0.77
Blue, Purple					1.00

The largest discrepancies between groups are associated with the {Blue, Purple} accepted orientation group and {Blue, Orange} and {Orange} groups. This is highlighted in Table 9, where the Gower agreement indices for these profile groups are highlighted in red.

Figure 5: Median EQi scores for the most prevalent Rejected values orientations



Here, it seems that those who rejected the spiritually oriented Purple and Turquoise values, regard themselves as best skilled in terms of interpersonal relationships and problem solving. Those who rejected the intellectually inclined, open-minded and learning oriented Green and Yellow values allocated lower EQ scores to themselves. This may be related to an external locus of control of those rejecting Yellow and Green values.

Table 20: Gower agreement indices between the 5 Rejected VO orientation profiles

	Rejected Gower Similarities - INCLUDES joint absences (0) in any pairwise comparison				
	1 Turquoise	2 Red	3 Yellow, Turquoise	4 Purple	5 Yellow
Turquoise	1.00	0.85	0.74	0.95	0.68
Red		1.00	0.79	0.86	0.75
Yellow, Turquoise			1.00	0.72	0.85
Purple				1.00	0.67

The largest discrepancies between groups are associated with the {Yellow} Rejected orientation group and {Purple} groups. This is highlighted in Table 10, where the Gower agreement indices for these profile groups are highlighted in red.

Those who reject the Purple Orientation have much larger EQi scores overall than those who reject the Yellow Orientation. This makes a great deal of sense given the meaning associated with each of these orientations (from Figure 1).