

Relationships between OPQ and Enneagram Types

Research Report

Version 1.3

June 2005

Anna Brown and Dave Bartram
SHL Head Office, Research Division

Copyright © 2005 by SHL Group plc
The Pavilion, 1 Atwell Place
Thames Ditton, Surrey, KT7 0NE

For general distribution

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except under the terms of the Copyright, Designs and Patents Act 1988, or under the terms of a licence issued by the Copyright Licensing Agency Ltd., 90 Tottenham Court Road, London W1P 0LP, UK, without the permission of the publisher.



Contents

Executive Summary	3
Introduction	4
Method	6
Sample	6
Instrument	8
Results	8
Average OPQ profiles by type	8
Proportion of agreement between hypothesised and actual scores.....	10
Average Big 5 and Great 8 profiles	15
Discriminant analysis.....	18
Cross-Validation	21
Distances to Group Centroids	22
Conclusions	23
References.....	24
Annex A. Average OPQ profiles by Type.....	25

Summary

This report summarises the results of research carried out to explore relationships between personality traits measured by OPQ32 and Enneagram Types. The Enneagram is a typology that features 9 Personality Types. It takes individual differences into account and maps out the basic motivations of each personality orientation. The results show a strong relationship between patterns of OPQ32 scale scores and Types. These patterns are meaningfully related in terms of scale content to the definitions of type. On the basis of personality data, the best identified type was Type Eight and the least well identified type was Type Two. Interestingly, this result is also in line with Enneagram theory regarding differences in the ease with which people are able to identify their own type.

The present research was carried out in collaboration with the Enneagram Institute who provided the researchers with contact information of voluntary participants and their Enneagram Types. Participants' types were mainly established through training courses and interviews run by the Enneagram Institute. Enneagram Types of the participants were distributed more or less evenly, ranging from 16 people (type Eight) to 35 people (type Four).

The sample consisted of 241 voluntary participants from different countries who completed OPQ online. 27% of the participants were male, 73% female. Age was distributed almost normally ranging from 22 to 76 years with the average of 49.3 years. The participants were mainly white, with only few people of other ethnic origin.

Analysis of Variance of the OPQ scales by type confirmed that there are significant differences between people of different types for all but one OPQ scale. OPQ Forward Thinking was not significantly different for different Enneagram types while all other scales were.

Differences between Genders were also examined. Univariate ANOVA was run to see whether any scale differences could be attributable to Gender, Type or interaction between the two. For all scales but two (Behavioural and Forward Thinking) Enneagram type was a main effect. In addition, Gender was a main effect for 5 more scales. Effect of Age on OPQ traits was examined. Again, for all scales but one (Forward Thinking) Enneagram type was a main effect. Age was also a main effect for 7 more scales.

Hypotheses by Don Riso and Russ Hudson, predicting low/medium/high scoring Types for each OPQ scale, were tested. Two coefficients were used: composite proportion of agreement and linear weighted kappa. For most types there was much higher than chance expected proportion of agreement and high kappa.

Average Big 5 and Great 8 profiles, computed from OPQ scores, showed significant and meaningful differences between the types.

A number of classification analyses were examined (Multiple Discriminant Analysis, MDA and use of Mahalanobis distances). These resulted in a high level of correct classifications, typically around 75% (where chance level would be 11%), and provided the basis for interpretation of type differences in terms of the

Big Five personality factors. Many of the cases that were not correctly classified in terms of the closest predicted type had their type as the next closest predicted type.

While the present results are very promising, some further research is needed to map the location of the types in psychometric space. In particular, it is expected that better prediction of type will be achieved by adding measures of motivation and values to the OPQ. Indeed, types are defined in terms of underlying differences in basic fears and basic desires. These are likely to find expression in motivation and values as well as personality.

Introduction

The Enneagram (see Riso & Hudson, 1996) approach to understanding people (their behaviours, motivations, values, thinking styles, ways of problem solving, and so forth) provides a taxonomy of individual differences and maps out the basic motivations of each of nine different personality orientations.

The Enneagram theory follows assumptions below:

- No type is inherently better or worse than any other type.
- People do not change their basic personality type, although there is a wide spectrum of behaviours and motivations within each type which are called the "*Levels of Development*".
- Not everything in the description of basic types will apply to people all the time because they fluctuate through various healthy, average, and unhealthy Levels within types.
- No one is a pure personality type: everyone is a unique mixture of his or her basic type and usually one of the two types adjacent to it on the circumference of the Enneagram. One of the two types adjacent to the basic type is called *the Wing*. The basic type dominates the overall personality, while the wing complements it and adds important, sometimes contradictory, elements.
- The Enneagram is a 3 x 3 arrangement of nine personality types in three Triads. There are three types in the Instinctive Triad (Eight, Nine and One), three in the Feeling Triad (Two, Three and Four), and three in the Thinking Triad (Five, Six and Seven).

Table 1. Core Motivations and Basic Fears of the nine Enneagram types.

Type	Basic Desire	Basic Fear
One	To be good, to have integrity, to be in balance with everything	Of being corrupt, evil, defective (imbalanced)
Two	To be loved unconditionally	Of being unwanted, unworthy of being loved
Three	To feel valuable and worthwhile (not to dissappoint others)	Of being worthless
Four	To find themselves and their significance (to create an identity out of their inner experience)	That they have no identity or personal significance
Five	To be capable and competent (to have something to contribute)	Of being helpless, useless, incapable

Relationships between OPQ and Enneagram Types

Six	To find security and support (to belong somewhere)	Of being unable to survive on their own, of having no support
Seven	To be satisfied and content - to have their needs fulfilled	Of pain and deprivation
Eight	To protect themselves (to be in control of their own life and destiny)	Of being harmed or controlled by others
Nine	To have inner stability ("peace of mind")	Of loss and separation (impermanence)

Table 2. Short business portraits of the nine Enneagram types.

Type One The Reformer	Principled, purposeful, self-controlled & perfectionistic Dislike sloppiness and error, attracted to order and high standards for self and others
Type Two The Helper	Caring, generous, people-pleasing & intrusive Dislike solitude and impersonal dealings, attracted to service and making personal connections
Type Three The Achiever	Adaptable, self-developing, efficient & image-conscious Dislike ineffectiveness and lack of ambition, attracted to success and recognition
Type Four The Individualist	Intuitive, expressive, individualistic & temperamental Dislike uniformity and regulation, attracted to creativity and putting their personal mark on things
Type Five The Investigator	Perceptive, innovative, secretive & detached Dislike intrusions on their time and space, attracted to depth and learning
Type Six The Loyalist	Committed, responsible, anxious & suspicious Dislike unpredictability and rapid change, attracted to clear structures and foresight
Type Seven The Enthusiast	Spontaneous, versatile, talkative & scattered Dislike limitations and routines, attracted to new possibilities and excitement
Type Eight The Challenger	Self-confident, decisive, willful & confrontational Dislike indecisiveness and indirectness, attracted to strength and strategic action
Type Nine Peacemakers	Calm, reassuring, agreeable & complacent Dislike tension and conflict, attracted to harmony and stability

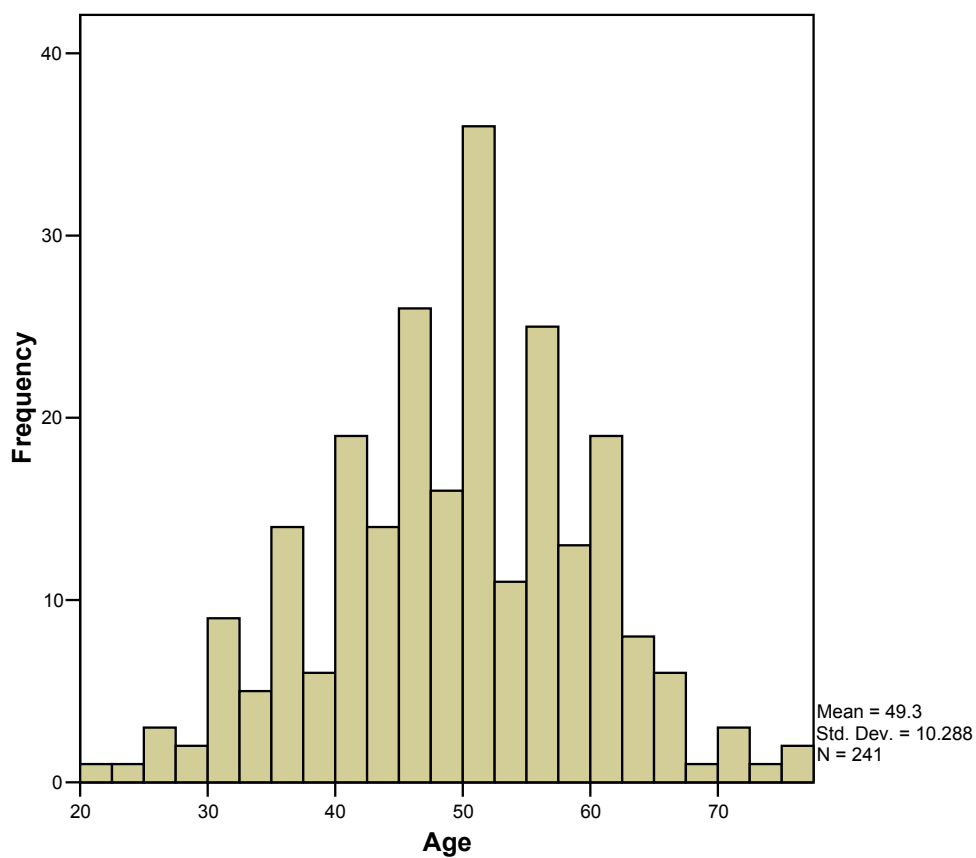
Method

Sample

The sample consisted of 241 voluntary participants from different countries (US, Australia, Mexico, Netherlands, UK etc.) who completed OPQ online. As an incentive to complete the questionnaire the participants received a Candidate OPQ report and some gifts from the Enneagram Institute.

27% of the participants were male, 73% female. Age was distributed almost normally ranging from 22 to 76 years with the average of 49.3 and SD 10.3 years.

Figure 1. Distribution of Age



The participants were mainly white, with only few people of other ethnic origin.

Table 3. Ethnic Origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asian	4	1.7	1.7	1.7
	Black	2	.8	.8	2.5
	Chinese	12	5.0	5.0	7.5
	Mixed	7	2.9	2.9	10.4
	White	216	89.6	89.6	100.0
	Total	241	100.0	100.0	

Relationships between OPQ and Enneagram Types

Enneagram Types of the participants were distributed more or less evenly, with the smallest group being Type Eight (N=16) and the biggest being Type Four (N=35).

Table 4. Enneagram Main Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Type	One	27	11.2	11.2	11.2
	Two	29	12.0	12.0	23.2
	Three	21	8.7	8.7	32.0
	Four	35	14.5	14.5	46.5
	Five	24	10.0	10.0	56.4
	Six	30	12.4	12.4	68.9
	Seven	25	10.4	10.4	79.3
	Eight	16	6.6	6.6	85.9
	Nine	34	14.1	14.1	100.0
	Total	241	100.0	100.0	

For 194 cases information on people's wings was available. It was clear, however, that number of respondents was not enough to perform any analysis on the Wing.

Table 5. Enneagram Main Type and Wing

Enneagram Main Type	Enneagram Wing	Number of Respondents
One	2	10
	9	10
	Total	20
Two	1	13
	3	13
		26
Three	2	8
	4	9
		17
Four	3	16
	5	12
		28
Five	4	18
	6	5
		23
Six	5	8
	7	12
		20
Seven	6	12
	8	9
		21
Eight	7	10
	9	1
		11
Nine	1	25
	8	3
	Total	28
		194

Instrument

The instrument used was OPQ32n (Normative) administered online unsupervised. The norm group used to produce feedback reports was OPQ32n 1999 General Population group (N=2028).

Results

Average OPQ profiles by type

Certain hypothesis can be made about OPQ profiles “typical” for people of each Enneagram type. For instance, *Threes* are supposed to be highly Competitive, Achieving and low Modest; *Fives* – Evaluative, Conceptual, Emotionally Controlled, low Outgoing and low Affiliative.

Analysis of Variance of the OPQ scales by type confirmed that there are significant differences between people of different types for all but one OPQ scale. Scale Forward Thinking was not significantly different for different Enneagram types while all other scales were significant.

Post Hoc tests revealed homogeneous subsets (groups for which scale means cannot be considered different) for each OPQ scale. The number of such groups was ranging from 2 to 5 depending on the scale. For instance, there were 2 homogeneous subsets for scale Outgoing with types Five, Nine, One and Four being low Outgoing and types Seven, Eight, Two, Three and Six being high.

Differences between Genders were also examined. Univariate ANOVA was run to see whether any scale differences could be attributable to Gender, Type or interaction between the two. Again, for all scales but two (Behavioural and Forward Thinking) Enneagram type was a main effect. In addition, Gender was a main effect for the following scales: Persuasive, Democratic, Data Rational, Worrying and Competitive.

On average, males were more Persuasive, more Democratic, more Data Rational, less Worrying and more Competitive than females.

Scales Persuasive and Worrying also had an interaction between Gender and Type (see Table). Females of type Two had opposite to all other types relationships to these traits: they were more Persuasive and less Worrying than males of type Two.

Table 6. Tests of Between-Subjects Effects (Gender)

Dependent Variable	Sig. Corrected Model	Sig. Gender	Sig. Enneagram Type	Sig. Gender * Enneagram Type
Persuasive	.000	.001	.000	.016
Controlling	.000	.058	.000	.197
Outspoken	.000	.460	.000	.458
Independent minded	.000	.874	.000	.350
Outgoing	.000	.447	.000	.638
Affiliative	.000	.090	.000	.362
Socially Confident	.000	.176	.000	.216

Relationships between OPQ and Enneagram Types

Modest	.000	.449	.000	.154
Democratic	.000	.031	.000	.185
Caring	.001	.283	.004	.653
Data Rational	.000	.022	.001	.491
Evaluative	.000	.326	.000	.667
Behavioural	.066	.429	.059	.784
Conventional	.000	.793	.000	.061
Conceptual	.002	.320	.001	.504
Innovative	.000	.243	.000	.177
Variety Seeking	.000	.138	.000	.085
Adaptable	.004	.351	.001	.423
Forward thinking	.468	.800	.184	.714
Detail Conscious	.000	.442	.000	.840
Conscientious	.000	.227	.000	.797
Rule Following	.000	.328	.000	.529
Relaxed	.000	.770	.000	.058
Worrying	.000	.011	.000	.043
Tough Minded	.000	.137	.000	.221
Optimistic	.000	.536	.000	.499
Trusting	.013	.093	.024	.741
Emotionally Controlled	.000	.899	.000	.450
Vigorous	.000	.516	.000	.822
Competitive	.000	.005	.000	.405
Achieving	.000	.173	.000	.432
Decisive	.000	.288	.000	.204

Effect of Age on OPQ traits was also examined. Univariate ANOVA showed that Age was a main effect for the following scales: Caring, Data Rational, Evaluative, Relaxed, Worrying, Optimistic and Trusting. Again, for all scales but one (Forward Thinking) Enneagram type was a main effect.

On average, older participants were more Caring, less Data Rational, less Evaluative, more Relaxed, less Worrying, more Optimistic and more Trusting than younger participants.

Table 7. Tests of Between-Subjects Effects (Age)

Dependent Variable	Sig. Corrected Model	Sig. Age	Sig. Enneagram Type
Persuasive	.000	.091	.000
Controlling	.000	.256	.000
Outspoken	.000	.670	.000
Independent minded	.000	.941	.000
Outgoing	.000	.837	.000
Affiliative	.000	.931	.000
Socially Confident	.000	.210	.000
Modest	.000	.504	.000
Democratic	.000	.778	.000
Caring	.000	.000	.000
Data Rational	.000	.000	.000
Evaluative	.000	.005	.000

Relationships between OPQ and Enneagram Types

Behavioural	.004	.092	.005
Conventional	.000	.495	.000
Conceptual	.000	.914	.000
Innovative	.000	.233	.000
Variety Seeking	.000	.068	.000
Adaptable	.001	.681	.000
Forward thinking	.221	.542	.196
Detail Conscious	.000	.582	.000
Conscientious	.000	.484	.000
Rule Following	.000	.729	.000
Relaxed	.000	.007	.000
Worrying	.000	.007	.000
Tough Minded	.000	.884	.000
Optimistic	.000	.000	.000
Trusting	.000	.000	.001
Emotionally Controlled	.000	.962	.000
Vigorous	.000	.091	.000
Competitive	.000	.190	.000
Achieving	.000	.886	.000
Decisive	.000	.239	.000

Profiles in Annex A are average OPQ profiles for the 9 Enneagram types. The sten averages by type are calculated from participants' sten scores (standardised on the whole sample).

Proportion of agreement between hypothesised and actual scores

Hypotheses on which OPQ scales are expected to be low/medium/high for each Type have been requested from Don Riso and Russ Hudson. This information is presented below. Every time 3 types were given as high/low, but it must be noted that the authors specified that in some cases there were only one/two types that were particularly high or low, and in some cases it was difficult to select types as there were potentially more than 3. It should also be noted that the Enneagram authors did not receive any formal OPQ training; their judgements were based solely on OPQ scale descriptions taken from the SHL Manual.

Table 8. Theoretically predicted High/Low scoring types by OPQ scale

Scale	LOW SCORING			HIGH SCORING		
1 PERSUASIVE	4	5	9	8	1	3
2 CONTROLLING	9	6	2	8	1	3
3 OUTSPOKEN	9	2	4	8	1	7
4 INDEPENDENT MINDED	9	6	2	8	5	4
5 OUTGOING	9	5	4	7	8	3
6 AFFILIATIVE	5	1	4	2	9	6
7 SOCIALLY CONFIDENT	4	5	6	8	7	3
8 MODEST	3	8	7	9	5	6
9 DEMOCRATIC	8	5	7	6	9	2
10 CARING	1	3	8	2	9	4
11 DATA RATIONAL	2	4	8	5	6	9
12 EVALUATIVE	2	9	7	1	5	6
13 BEHAVIOURAL	8	9	1	4	5	2
14 CONVENTIONAL	5	4	7	6	9	1

Relationships between OPQ and Enneagram Types

15	CONCEPTUAL	8	2	4	5	7	9
16	INNOVATIVE	6	9	2	5	4	7
17	VARIETY SEEKING	9	6	1	7	4	8
18	ADAPTABLE	7	8	1	3	2	9
19	FORWARD THINKING	7	4	8	5	3	6
20	DETAIL CONSCIOUS	7	4	8	1	6	5
21	CONSCIENTIOUS	7	5	4	1	6	3
22	RULE FOLLOWING	8	3	7	6	1	9
23	RELAXED	6	1	3	9	2	7
24	WORRYING	9	8	2	6	4	1
25	TOUGH MINDED	4	3	2	8	7	5
26	OPTIMISTIC	6	4	5	9	7	2
27	TRUSTING	4	5	8	9	7	2
28	EMOTIONALLY CONTROLLED	7	2	4	5	3	9
29	VIGOROUS	9	5	4	7	3	1
30	COMPETITIVE	9	2	4	3	8	6
31	ACHIEVING	9	6	2	3	1	8
32	DECISIVE	6	5	9	7	8	1

These hypotheses can be formally tested using actual average scale scores for each type. *Low scoring types* would be types with mean scale scores that are more than half Standard Deviation **below** mean score for the whole sample. Similarly, *High scoring types* would be types with mean scale scores that are more than half Standard Deviation **above** mean score for the whole sample. All remaining types will be *Medium scoring*.

Table below shows actual Low/Medium/High scoring types based on the above criteria.

Table 9. Actual Low/Medium/High scoring types by OPQ scale

Scale	Low		High		
1	PERSUASIVE	5	9	7	
2	CONTROLLING	9		1	3
3	OUTSPOKEN	9		1	8
4	INDEPENDENT MINDED	6	9	5	8
5	OUTGOING	5	9	2	7
6	AFFILIATIVE	1	5	2	
7	SOCIALLY CONFIDENT	5		3	7
8	MODEST	3	8	5	
9	DEMOCRATIC	5	8	6	
10	CARING	5		2	
11	DATA RATIONAL	4		1	
12	EVALUATIVE	2	3	9	1
13	BEHAVIOURAL	9			
14	CONVENTIONAL	7	8	1	6
15	CONCEPTUAL			4	5
16	INNOVATIVE	1	6	9	5
17	VARIETY SEEKING	1	6	9	3
18	ADAPTABLE	8		3	
19	FORWARD THINKING				
20	DETAIL CONSCIOUS	7		1	
21	CONSCIENTIOUS	7		1	
22	RULE FOLLOWING	8		1	6

Relationships between OPQ and Enneagram Types

23	RELAXED	1	6	9	
24	WORRYING	8		6	
25	TOUGH MINDED	4		8	9
26	OPTIMISTIC	6		7	
27	TRUSTING EMOTIONALLY	6			
28	CONTROLLED			5	9
29	VIGOROUS	9		8	
30	COMPETITIVE			3	8
31	ACHIEVING	9		3	8
32	DECISIVE	6	9	7	8

To estimate how close predicted and actual types were we used contingency tables built for each type. Each table contains 9 cells, where number of OPQ scales was entered for each combination of predicted and actual scores. For example, Type One was predicted to score Low on 6 OPQ scales and actually scored low on 3 of them, medium on the other 3 of them etc. This example contingency table looks as follows:

Table 10. Contingency table for Type One (Observed)

N of scales		Predicted			
		Low	Med	High	Total
Actual	Low	3	1	0	4
	Med	3	12	5	20
	High	0	1	7	8
	Total	6	14	12	32

Given Total number of OPQ scales, we can estimate how many scales would be in the same category by mere chance. The number in each cell will be the product of corresponding Totals in the same column and the same row divided by 32.

Table 11. Contingency table for Type One (Chance Expected)

N of scales		Predicted			
		Low	Med	High	Total
Actual	Low	0.75	1.75	1.5	4
	Med	3.75	8.75	7.5	20
	High	1.5	3.5	3	8
	Total	6	14	12	32

Then we calculate maximum possible number of scales falling in the same category, given Total numbers for each category for Predicted and Actual scales.

Relationships between OPQ and Enneagram Types

Table 12. Contingency table for Type One (Maximum Possible)

N of scales		Predicted			
		Low	Med	High	Total
Actual	Low	4	0	0	4
	Med	2	14	4	20
	High	0	0	8	8
	Total	6	14	12	32

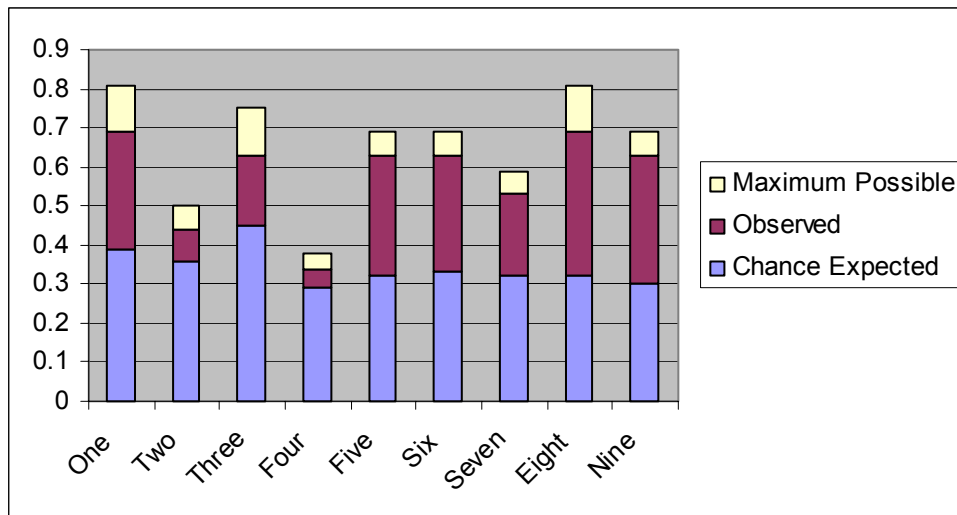
It is possible to measure the **proportion of agreement** between Predicted and Actual scores. In the example (Table 10), total number of agreed scales (in the diagonal cells) was $3+12+7=22$. There were 10 scales on which there was disagreement between the hypotheses and the data. The proportion of agreement for Type One is therefore $22/(22+10)=.69$. Similarly, the proportion of agreement to be expected by mere chance (Table 11) is $(0.75+8.75+3)/32=.39$; and the maximum possible proportion of agreement (Table 12), given the observed marginal totals, is $(4+14+8)/32=.81$.

It can be seen from the table below that all types except type Two and type Four show much higher than chance expected proportion of agreement. Low proportion of agreement for the types Two and Four can be explained by the fact that these types did not score low/high on very many scales therefore the maximum possible proportion of agreement was very low.

Table 13. Composite proportion of agreement by Type

Type	Maximum Possible	Chance Expected	Observed
One	0.81	0.39	0.69
Two	0.50	0.36	0.44
Three	0.75	0.45	0.63
Four	0.38	0.29	0.34
Five	0.69	0.32	0.63
Six	0.69	0.33	0.63
Seven	0.59	0.32	0.53
Eight	0.81	0.32	0.69
Nine	0.69	0.30	0.63

Figure 2. Cumulative composite proportion of agreement by Type



Because our 3 categories are ordinal - category Medium represents types scoring HIGHER than category Low; category High represents types that score HIGHER than category Medium - it is meaningful to take into account not only the absolute concordances (the diagonal cells), but also the relative concordances (all other cells). For example, if a predicted Low scoring type was in fact Medium scoring, this is not as bad disagreement as when predicted Low scoring type scored High. In taking relative concordances into account, each cell in a row of the matrix is weighted in accordance with how near it is to the cell in that row that includes the absolutely concordant items.

Linear weighted **Kappa** coefficient (Cohen, 1960; Fleiss et al, 1973) can be meaningfully used here. We will use the weight of 1 for absolutely concordant items, 0.5 for items in neighbouring categories and 0 for items in opposite categories.

This corresponds to the following weighting table:

	Low	Med	High
Low	1	0.5	0
Med	0.5	1	0.5
High	0	0.5	1

Let Proportion Observed ($P_{observed}$) be the weighted Sum of frequencies in the observed table; Proportion Expected ($P_{expected}$) be the weighted Sum of all frequencies in the Chance Expected table; and Proportion Maximum Possible (P_{max}) be the weighted Sum of all frequencies in the Maximum Possible table. Then Linear weighted kappa

$$kappa_{LW} = \frac{P_{observed} - P_{expected}}{P_{max} - P_{expected}}$$

The linear weighted kappa is **the observed concordance as proportion of maximum possible**. For example, for Type One weighted kappa would be $(27 - 20.75) / (29 - 20.75) = 0.76$. This means that agreement on this type was 76% of maximum possible. Greatest concordance was achieved for Types Nine, Five and Six and lowest for Type Four.

Relationships between OPQ and Enneagram Types

Table 14. Linear Weighted Kappa for the 9 Types

Type	LW Kappa
One	0.76
Two	0.65
Three	0.64
Four	0.43
Five	0.87
Six	0.87
Seven	0.83
Eight	0.82
Nine	0.90

Average Big 5 and Great 8 profiles

OPQ scales can be aggregated into the Big 5 Personality factors or the Great Eight Competency Factors using our current equations. Average Big 5 or Great 8 Profiles for the 9 Enneagram types then can be computed.

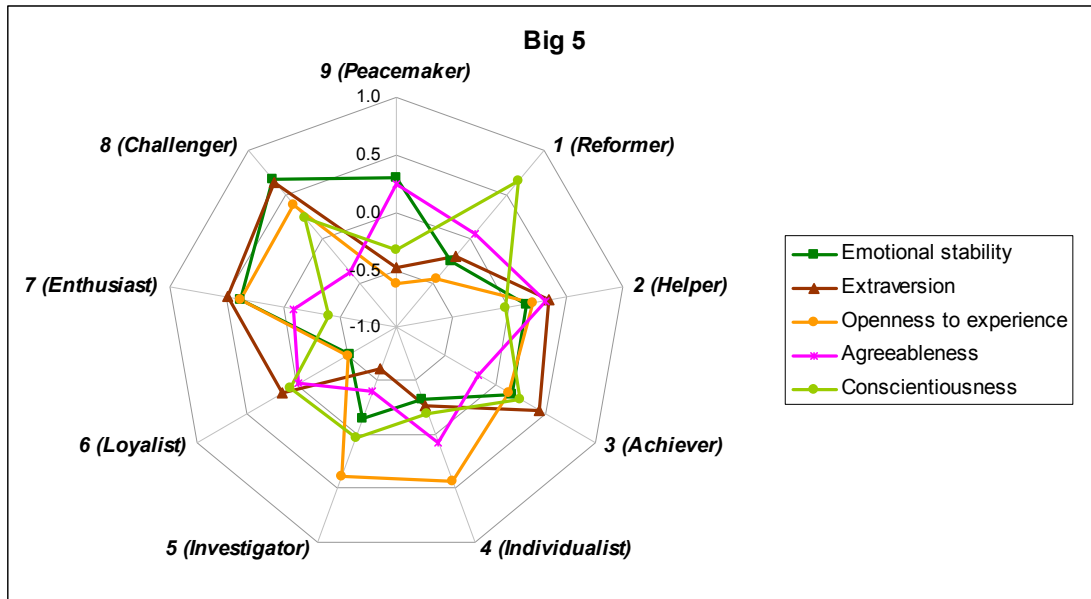
We computed average Big 5 profiles for the 9 types using a set of equations developed for the OPQ Construct Validity research. The equations include main scales identified for each of the Big 5 factors with double weights and some additional scales with single weights.

Table 15. Average Z scores on the Big 5 personality factors

Main Type	Mean				
	Emotional stability	Extraversion	Openness to Experience	Agreeableness	Conscientiousness
Nine	.31	-.48	-.62	.24	-.33
One	-.26	-.20	-.45	.07	.66
Two	.15	.34	.20	.32	-.04
Three	.16	.45	.13	-.17	.24
Four	-.33	-.27	.42	.08	-.21
Five	-.14	-.61	.39	-.40	.02
Six	-.53	.14	-.52	-.02	.07
Seven	.36	.49	.39	-.09	-.40
Eight	.68	.64	.39	-.38	.24

Relationships between OPQ and Enneagram Types

Figure 3. Diagram of average Big 5 profiles



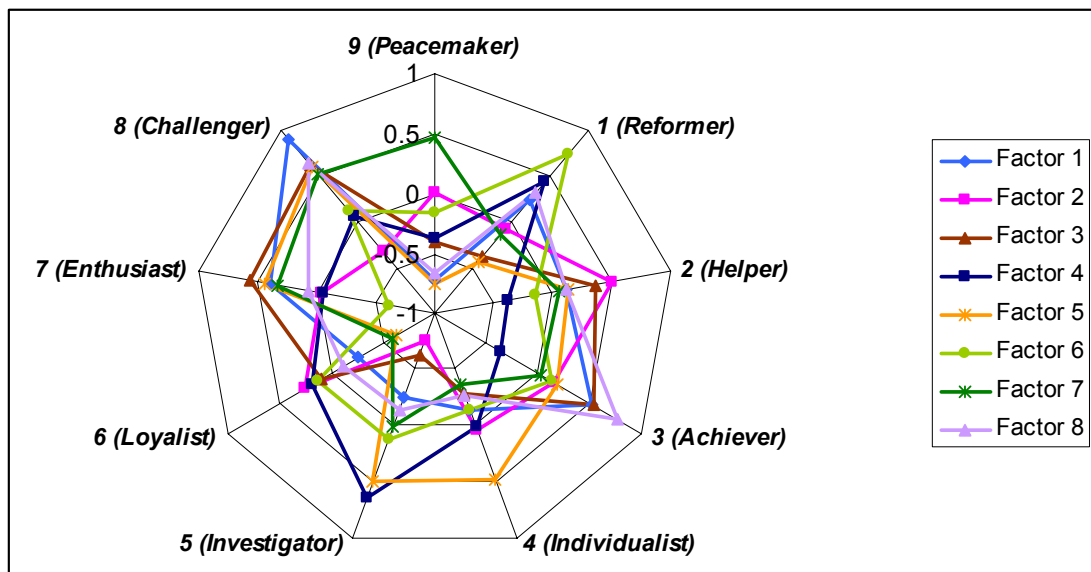
For computing average Great 8 profiles we used the Marker scales equations (Bartram, 2004).

Table 16. Average Great 8 profiles

Enneagram Main Type	Mean							
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Nine	-.72	.01	-.40	-.37	-.76	-.16	.47	-.67
One	.23	-.08	-.37	.43	-.43	.72	-.15	.31
Two	.11	.49	.36	-.38	.13	-.15	.05	.11
Three	.51	.14	.52	-.38	.17	.13	.02	.75
Four	-.15	.04	-.29	.00	.48	-.15	-.37	-.26
Five	-.25	-.76	-.63	.64	.50	.12	.00	-.15
Six	-.27	.25	.10	.18	-.64	.13	-.59	-.11
Seven	.39	-.04	.58	-.06	.44	-.62	.33	.07
Eight	.89	-.33	.62	.06	.60	.11	.51	.63

Relationships between OPQ and Enneagram Types

Figure 4. Diagram of average Great 8 profiles



Ones, on average show a good potential in Organising & Executing and Applying Expertise & Technology;
Twos – in Working with People;
Threes – in Leading & Deciding, Interacting & Presenting and Entrepreneurial & Commercial Thinking;
Fours – in Creating & Innovating;
Fives – in Applying Expertise & Technology and Creating & Innovating;
Sevens – in Interacting & Presenting;
Eights – in Adapting & Coping, Leading & Deciding, Interacting & Presenting, Creating & Innovating and Entrepreneurial & Commercial Thinking;
Nines, show a good potential in Adapting & Coping.

Sixes did not show any particularly high scores.

Discriminant analysis

Multiple Discriminant Analysis (MDA) is used to classify cases into more than two categories or groups, using as predictors a number of interval independent variables (Huberty, 1994). In our case interval variables used to classify cases into groups are the OPQ scales and categories are the 9 Enneagram Types.

There are several purposes of MDA, out of which the most important for us are:

- 1) To discard OPQ scales that are little related to group distinctions
- 2) To determine the most parsimonious way to distinguish between groups
- 3) To test theory by observing whether cases are classified as predicted.

First MDA was run on the whole dataset to see which OPQ scales can be discarded, how many discriminant functions are statistically significant and also to look at structure coefficients. Structure coefficients are the correlations between a given independent variable (OPQ scale) and the discriminant scores associated with a given discriminant function. They are used to tell how closely a variable is related to each function in MDA. Looking at all the structure coefficients for a function allows us to assign a label to the dimension it measures, much like factor loadings in factor analysis. A table of structure coefficients of each variable with each discriminant function is called a canonical structure matrix or factor structure matrix.

The first function normally maximizes the differences between the values of the dependent variable. The second function is orthogonal to it (uncorrelated with it) and maximizes the differences between values of the dependent variable, controlling for the first factor. And so on. Though mathematically different, each discriminant function is a dimension which differentiates a case into categories of the dependent based on its values on the independents. The first function will be the most powerful differentiating dimension, but later functions may also represent additional significant dimensions of differentiation.

The analysis showed that one OPQ scale can be clearly discarded from the analysis (scale Forward Thinking). Six out of 8 discriminant functions were statistically significant.

The structure matrix for MDA based on all cases (see the table below) shows that 4 out of 6 discriminant functions are close to the Big Five Personality factors:

1. Conscientiousness
2. Extraversion + Openness To Experience
3. Agreeableness
4. Emotional stability

Another 2 functions can be named:

5. Data Orientation
6. Competition

Relationships between OPQ and Enneagram Types

Table 17. Structure Matrix

Functions ->	1	2	3	4	5	6
Detail Conscious	.371(*)	-.154	-.026	-.064	-.026	.115
Conscientious	.368(*)	-.113	-.082	-.099	-.254	.141
Outgoing	-.002	.580(*)	.555	-.106	.161	-.196
Decisive	.056	.564(*)	-.044	.164	.040	-.126
Variety Seeking	-.214	.530(*)	-.152	.056	.086	.161
Conventional	.212	-.479(*)	.308	.012	-.075	-.096
Innovative	-.231	.469(*)	-.292	-.161	.206	.152
Controlling	.346	.458(*)	-.063	.022	-.153	.102
Rule Following	.217	-.437(*)	.277	-.011	-.053	-.100
Outspoken	.403	.425(*)	-.102	-.175	-.017	-.331
Achieving	.240	.401(*)	-.044	-.072	-.173	.341
Vigorous	.236	.360(*)	.172	.010	.031	-.020
Modest	.031	-.319(*)	-.158	.114	.148	-.065
Persuasive	-.033	.306(*)	.247	-.135	.049	-.011
Affiliative	-.094	.232	.569(*)	.008	-.018	.033
Independent minded	.020	.395	-.519(*)	.024	.032	-.065
Democratic	.016	-.293	.378(*)	-.210	-.190	-.011
Socially Confident	-.037	.305	.336(*)	.149	.005	.019
Conceptual	-.158	.102	-.309(*)	-.147	.161	-.108
Tough Minded	.041	-.001	-.046	.559(*)	.115	-.152
Worrying	.017	-.307	-.025	-.487(*)	.074	.150
Relaxed	-.261	.011	-.002	.438(*)	-.288	-.346
Emotionally Controlled	.114	-.279	-.168	.384(*)	.184	.343
Optimistic	-.101	.285	.130	.372(*)	-.183	-.040
Evaluative	.328	-.070	-.311	-.217	.456(*)	-.011
Caring	-.080	.046	.135	-.271	-.400(*)	-.097
Data Rational	.288	-.132	-.028	.118	.365(*)	.093
Competitive	.163	.201	.154	.126	.006	.443(*)
Forward thinking	.092	.051	-.119	.051	.031	.278(*)
Trusting	.002	.105	.023	.269	-.290	-.045
Behavioural	.028	.150	-.171	-.209	-.064	.100
Adaptable	-.239	.083	-.010	-.092	.005	.262

* Largest absolute correlation between each variable and any discriminant function

The above functions evaluated at group means indicate which functions are best to identify each Type. Type **One** can be best identified by high Conscientiousness; **Three** – high Competition and relatively high Extraversion and Openness to Experience; **Four** – relatively low Conscientiousness, Agreeableness and Emotional Stability; **Five** – low Agreeableness and high Data Orientation; **Six** – high Agreeableness and relatively low Emotional Stability; **Seven** – high Extraversion and Openness to Experience and relatively low Conscientiousness; **Eight** – very high Extraversion and Openness to Experience, high Conscientiousness and relatively high Emotional Stability; **Nine** – low Extraversion and Openness to Experience and high Emotional stability. Type Two proved to be hardest to predict by these functions as it is neither particularly high nor low on any of the 6 functions.

Relationships between OPQ and Enneagram Types

Table 18. Functions at Group Centroids

(Unstandardized canonical discriminant functions evaluated at group means)

Enneagram Main Type	Function					
	1	2	3	4	5	6
1	2.415	-.417	-.417	-.154	-.277	-.254
2	-.652	.670	.737	-.164	-.182	.000
3	.117	.964	.617	.304	-.584	1.350
4	-1.035	.033	-1.084	-1.067	-.546	-.186
5	-.075	-.369	-1.624	.441	1.033	.618
6	.580	-.851	1.219	-.939	.562	.070
7	-.808	1.189	.485	.230	.807	-.562
8	1.109	1.944	-.339	.953	-.292	-.617
9	-.756	-1.647	.310	1.072	-.383	-.235

And finally, below are results of classification using the discriminant functions. It can be seen that cases were correctly classified (75.5%), with the type Eight being “the easiest” to classify (94%), all other types having above 70% of cases correctly assigned and the Type Two having only 51% success rate.

Table 19. Classification Results (75.5% of original grouped cases correctly classified)

	Enneagram Type	Predicted Group Membership									Total
		1	2	3	4	5	6	7	8	9	
Count	1	23	0	0	1	0	1	1	0	1	27
	2	1	15	2	3	0	3	4	0	1	29
	3	0	0	15	2	1	0	0	2	1	21
	4	0	0	0	30	1	0	3	0	1	35
	5	1	1	0	2	18	0	0	0	2	24
	6	1	1	2	0	0	22	2	1	1	30
	7	0	2	1	3	1	0	18	0	0	25
	8	0	0	0	0	1	0	0	15	0	16
	9	1	2	1	1	1	2	0	0	26	34
%	1	85.2	.0	.0	.0	.0	3.7	3.7	.0	3.7	100.0
	2	3.4	51.7	6.9	10.3	.0	10.3	13.8	.0	3.4	100.0
	3	.0	.0	71.4	9.5	4.8	.0	.0	9.5	4.8	100.0
	4	.0	.0	.0	85.7	2.9	.0	8.6	.0	2.9	100.0
	5	4.2	4.2	.0	8.3	75.0	.0	.0	.0	8.3	100.0
	6	3.3	3.3	6.7	.0	.0	73.3	6.7	3.3	3.3	100.0
	7	.0	8.0	4.0	12.0	4.0	.0	72.0	.0	.0	100.0
	8	.0	.0	.0	.0	6.3	.0	.0	93.8	.0	100.0
	9	2.9	5.9	2.9	2.9	2.9	5.9	.0	.0	76.5	100.0

The nature of the misclassifications is also of interest, as it is not random. For example, Sevens tend to be misclassified as Fours or Twos, but never as Ones, Sixes, Eights, or Nines. Eights are only ever misclassified as Fives, whereas Twos may be misclassified as most other types apart from Eights or Fives.

Relationships between OPQ and Enneagram Types

Cross-Validation

To see whether the above results are stable we randomly selected 75% of cases, run MDA and then cross-validated the analysis on the remaining 25% of the sample.

Only 4 discriminant functions were statistically significant, with the following factor structure:

1. Conscientiousness + Data Rational
2. Openness to Experience + Democratic
3. Extraversion
4. Emotional Stability
- 5.

Table 20. Structure Matrix (calculation based on randomly selected 75% of cases)

	Function			
	1	2	3	4
Detail Conscious	.341(*)	.212	.066	-.086
Data Rational	.340(*)	.126	-.015	.065
Conscientious	.324(*)	.152	.069	-.094
Independent minded	.036	-.566(*)	-.096	-.205
Conventional	.228	.544(*)	-.001	.069
Innovative	-.282	-.518(*)	.095	-.168
Decisive	-.032	-.513(*)	.263	.117
Rule Following	.189	.504(*)	.002	.038
Variety Seeking	-.262	-.485(*)	.117	.047
Democratic	-.081	.472(*)	.110	.053
Outgoing	-.266	-.110	.676(*)	.211
Vigorous	.045	-.171	.444(*)	.071
Affiliative	-.299	.150	.418(*)	.305
Achieving	.118	-.281	.377(*)	-.038
Persuasive	-.217	-.084	.357(*)	.065
Controlling	.217	-.343	.344(*)	.026
Modest	.126	.163	-.296(*)	-.028
Worrying	-.009	.390	-.039	-.517(*)
Tough Minded	.104	-.142	-.216	.458(*)
Relaxed	-.139	-.138	-.304	.407(*)
Optimistic	-.089	-.232	.038	.356(*)
Socially Confident	-.134	-.067	.296	.334(*)
Competitive	.076	-.094	.277	.246
Caring	-.147	.064	.064	-.101
Evaluative	.311	-.009	.038	-.307
Trusting	.049	-.141	-.036	.191
Forward thinking	.081	-.080	.030	.028
Outspoken	.244	-.371	.421	-.146
Emotionally Controlled	.229	.102	-.270	.138

Relationships between OPQ and Enneagram Types

Conceptual	-.154	-.180	-.076	-.270
Adaptable	-.238	-.099	-.004	-.045
Behavioural	-.017	-.114	.038	-.188

* Largest absolute correlation between each variable and any discriminant function

76.5% of selected original grouped cases were correctly classified. 51.9% of unselected original grouped cases correctly classified.

Other attempts to randomly select 75% of cases and run the MDA on them with cross-validation on the remaining 25% showed slightly different results every time, with around 70-80% of selected original grouped cases correctly classified and around 40-50% of unselected original grouped cases correctly classified.

Discriminant functions' factor structure wasn't the same but few common themes appeared for every performed random selection: Emotional Stability, Conscientiousness, Competition (sometimes not within significant functions) and Openness to Experience. Scales related to Extraversion kept moving from function to function, sometimes grouping altogether, sometimes joining with some other functions.

Distances to Group Centroids

Another attempt was made to classify cases into groups by just estimating similarity or proximity between centres of the groups (Enneagram types) and individual cases.

Perhaps the simplest and most commonly employed method is that of correlation. Here, we correlate the case's scores with the mean scores for a selected group. The problem with this approach is that it incorporates only the group mean values into the computation leaving the variability within each measure and the correlations and variability between measures are not accounted for. In essence, correlation assumes that the measures in a profile are independent of each other. So does Euclidean Distance.

The Mahalanobis distance has the advantage of utilising group means and variances for each variable, and the correlations and covariance between measures. Mahalanobis distance is most commonly used as a multivariate outlier statistic. The metric essentially addresses the question of whether a particular case would be considered an outlier relative to a particular set of group data.

The following formula is used for calculating Mahalanobis Distance:

$$(X - Y)' S^{-1} (X - Y)$$

where:

X are the individual's scores on a number of measures, such as OPQ scales,
Y are the corresponding means from an appropriate group (appropriate Enneagram type),

S^{-1} is the inverse covariance matrix of OPQ scales.

We calculated Mahalanobis distances from each case to centres of the 9 Enneagram Types and then took the smallest obtained number as identification of

Relationships between OPQ and Enneagram Types

person's Type. 73% of cases were correctly assigned to their types just by using this simple procedure. Many cases had their type as the second smallest distance.

Because Mahalanobis distance is frequently used to identify outliers in samples, these results can help with providing a list of respondents who we might want to follow up with to check their type/wing.

Conclusions

The results of this study are very promising. We have found very strong associations between Enneagram personality type and OPQ32. At the scale level, all but one scale are significantly associated with differences between type and these effects are substantially greater than effects of age or gender on scale scores. In terms of overall scale patterns, it is possible to correctly classify around 70-75% of people in terms of their independently identified type. What is more, differences in the accuracy of identification and directions of misclassification are also consistent with the Enneagram theory (of Riso-Hudson).

The main weakness of the present study is that it only considers personality as a predictor of type. The Enneagram theory would suggest that both motivational traits and values should also be considered in producing a psychometrically robust measure. Future research should address this by considering a broader range of trait-based scales as predictors of type.

Finally, there appear to have been some imbalances in the distribution of people within the current sample. It would be desirable in any future work to sample a broader range of the population. It may be that the people who have an interest in the Enneagram, sufficient to have had their 'type' well-established, are not random sample of the general population.

The relationship between types and trait approaches is of interest if only because type approaches tend to focus on the whole person and look at predictions on a person by person basis rather than on a trait by trait basis. This requires a much closer consideration (if only implicitly) of trait interactions.

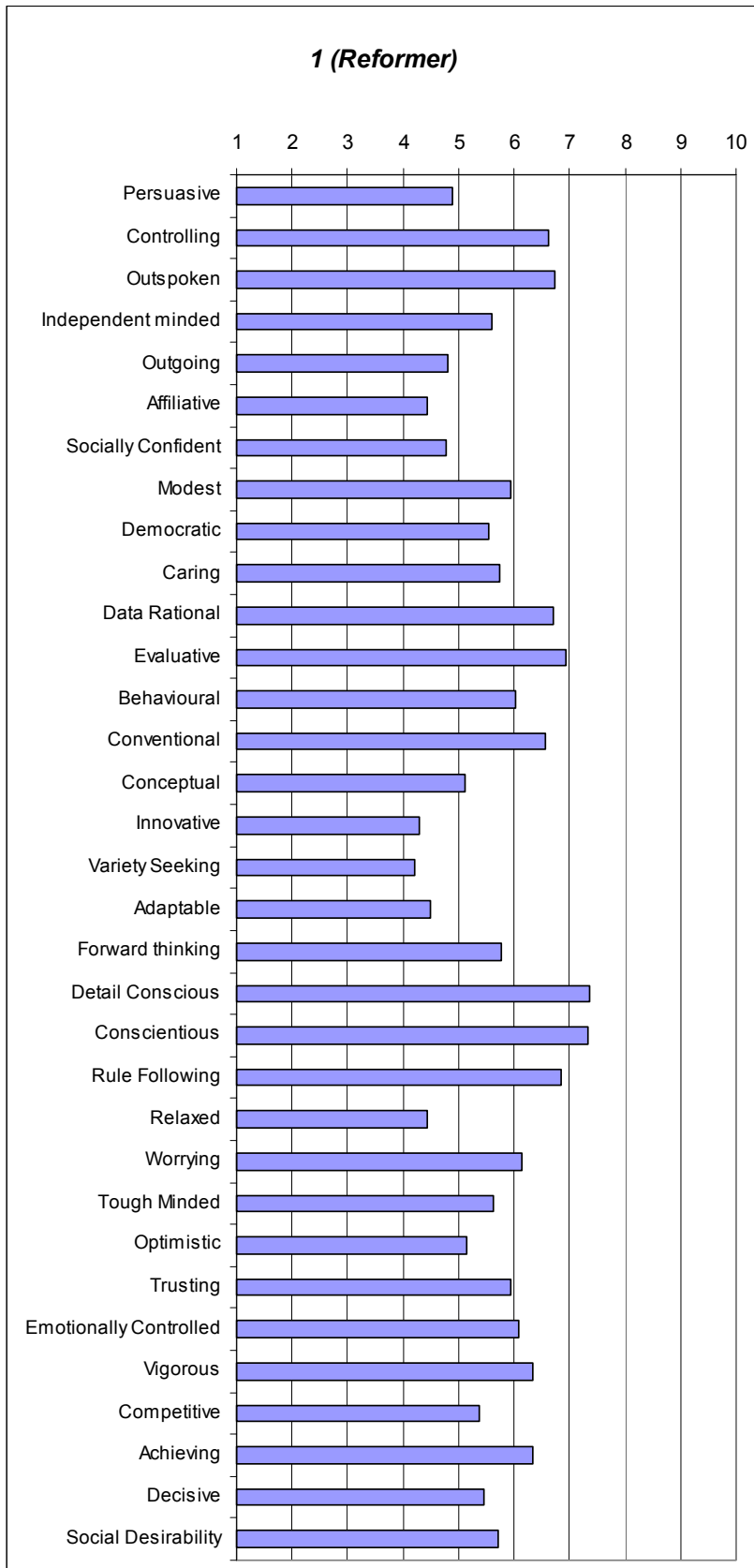
It is hoped that the present research will help contribute to the longer term understanding of personality and how trait and type approaches might complement each other in this pursuit.

References

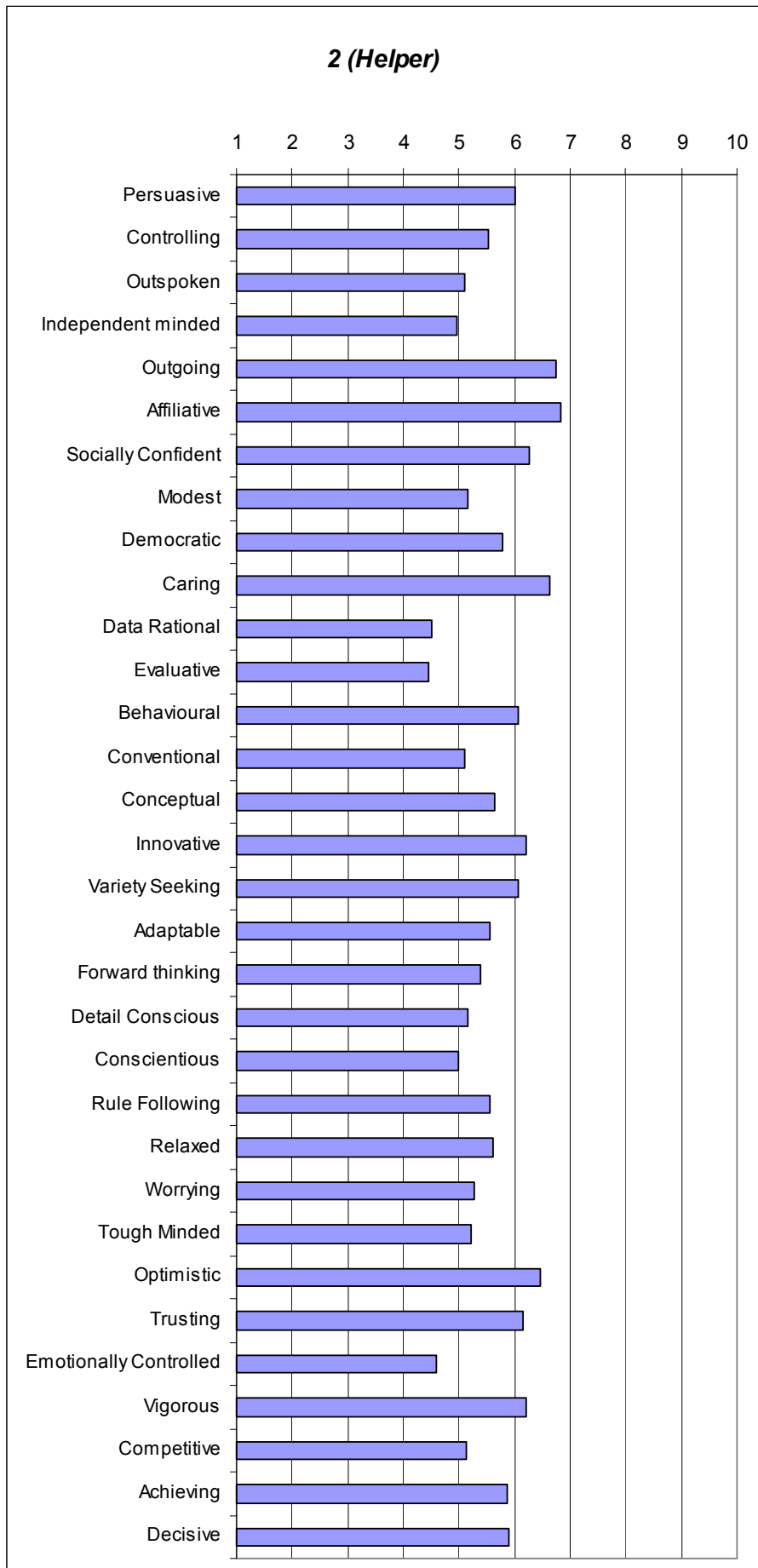
1. Bartram D., (2004). The Great Eight Competencies: A criterion-centric approach to validation. *In press*.
2. Cohen, J. (1960), "A Coefficient of Agreement for Nominal Scales," *Educational and Psychological Measurement*, 20, 37-46.
3. Fleiss, J.L. and Cohen, J. (1973), "The Equivalence of Weighted Kappa and the Intraclass Correlation Coefficient as Measures of Reliability," *Educational and Psychological Measurement*, 33, 613-619.
4. Huberty C.J., (1994). Applied Discriminant Analysis. *Wiley Series in Probability and Mathematical Statistics. Applied Probability and Statistics Section*. John Wiley & Sons
5. Riso D.R., Hudson R. (1996). Personality Types. *Houghton Mifflin, Boston, New York*.

Annex A. **Average OPQ Profiles by Riso-Hudson Type**

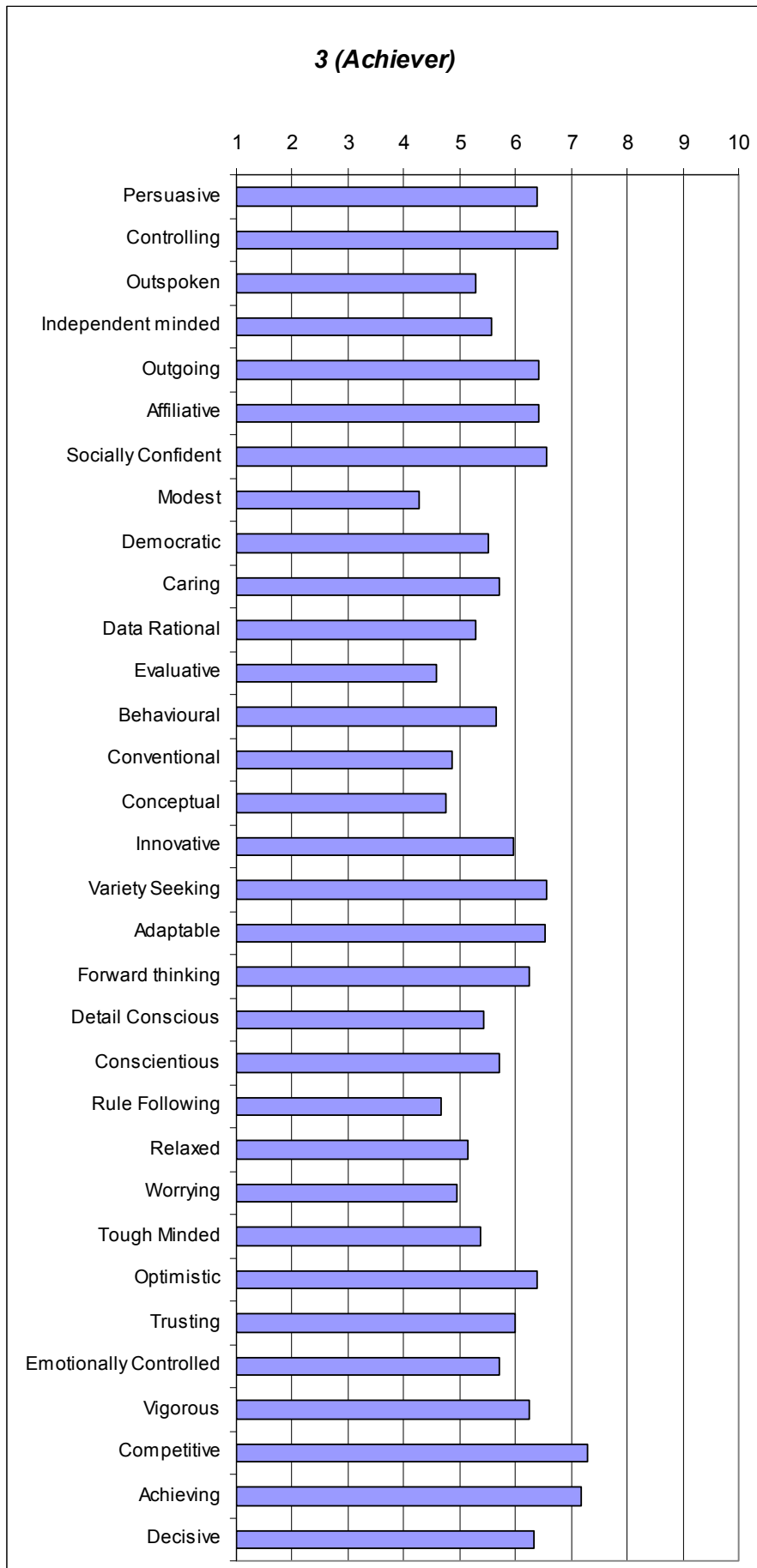
Relationships between OPQ and Enneagram Types



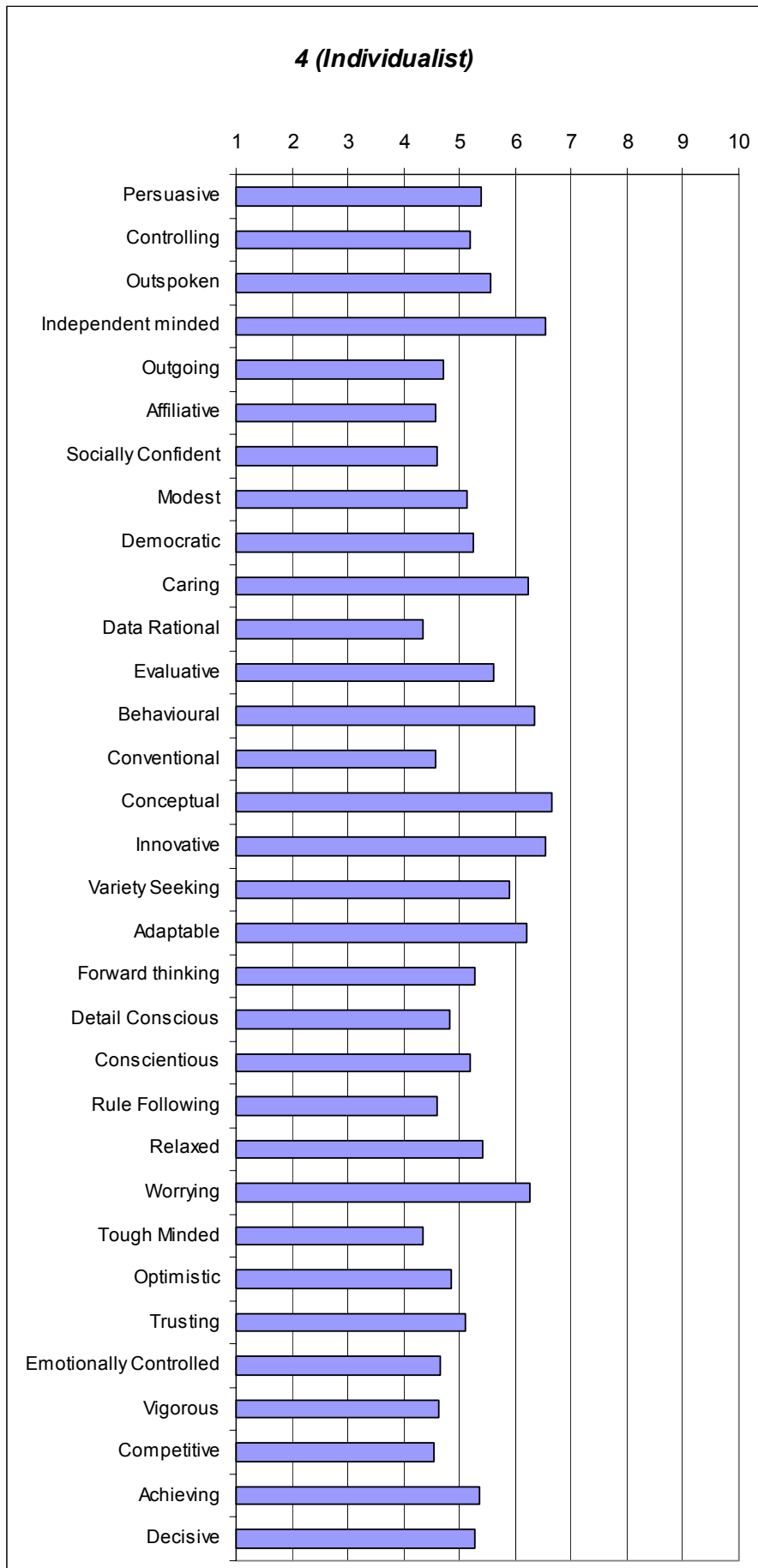
Relationships between OPQ and Enneagram Types



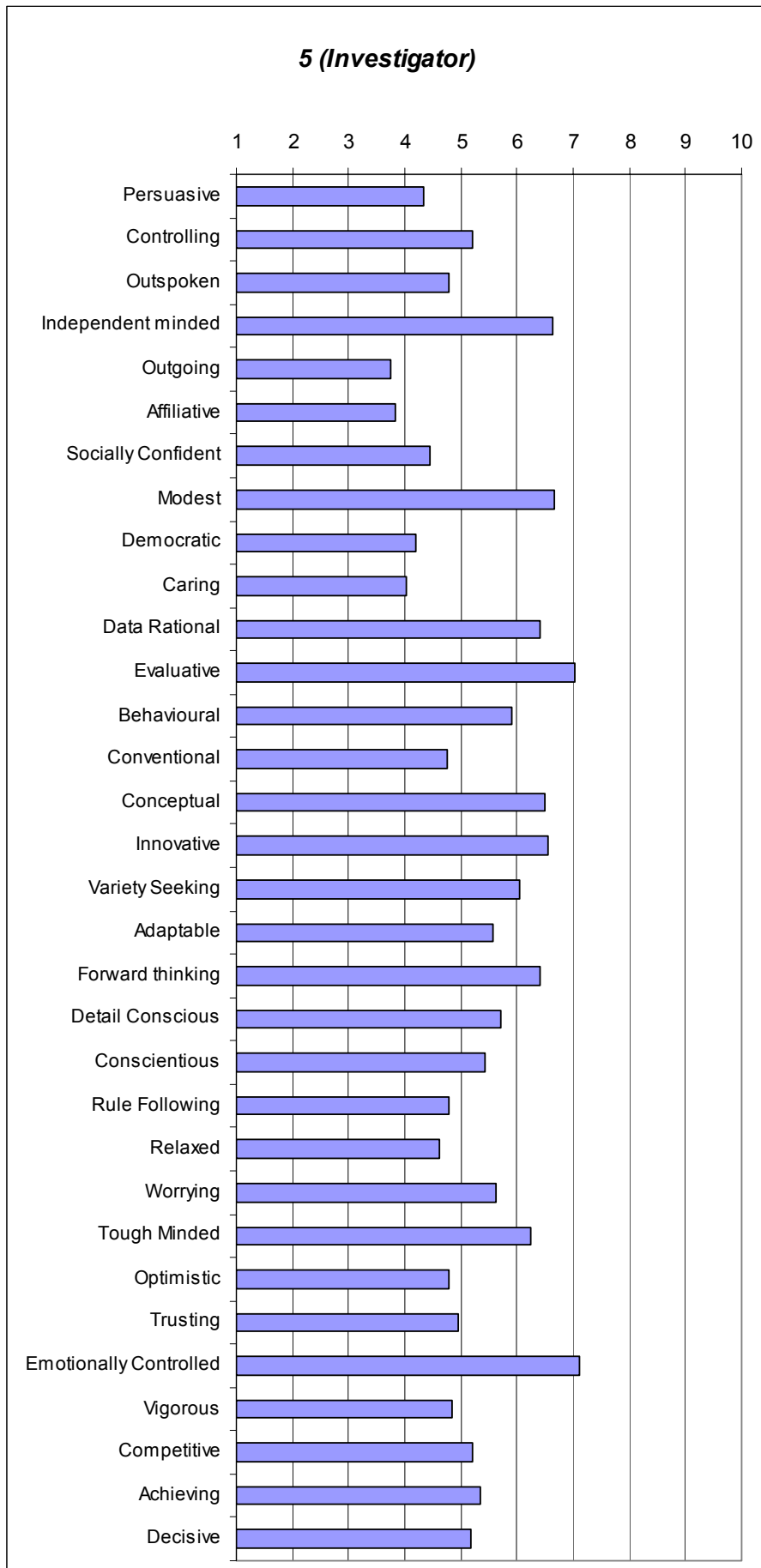
Relationships between OPQ and Enneagram Types



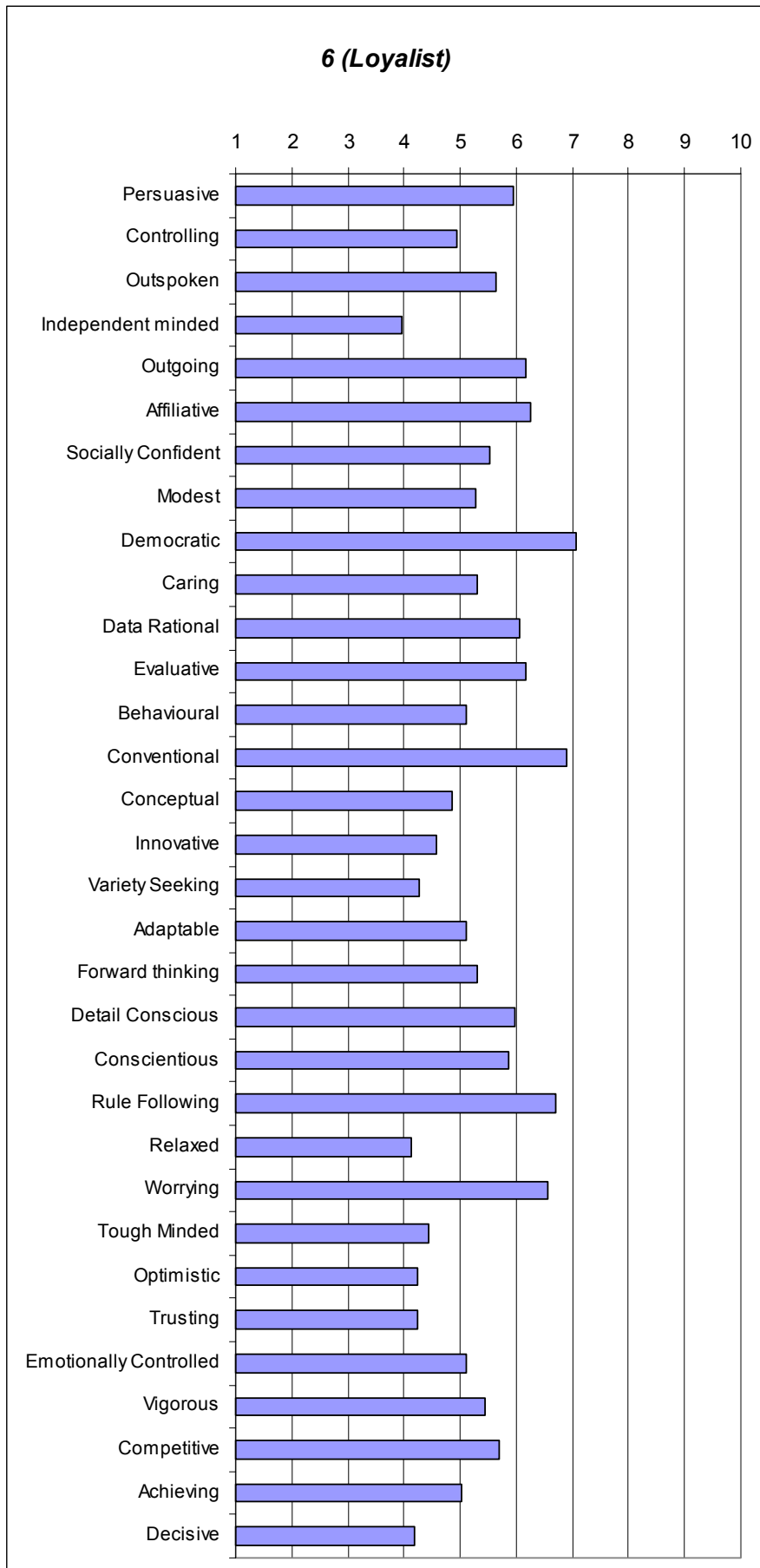
Relationships between OPQ and Enneagram Types



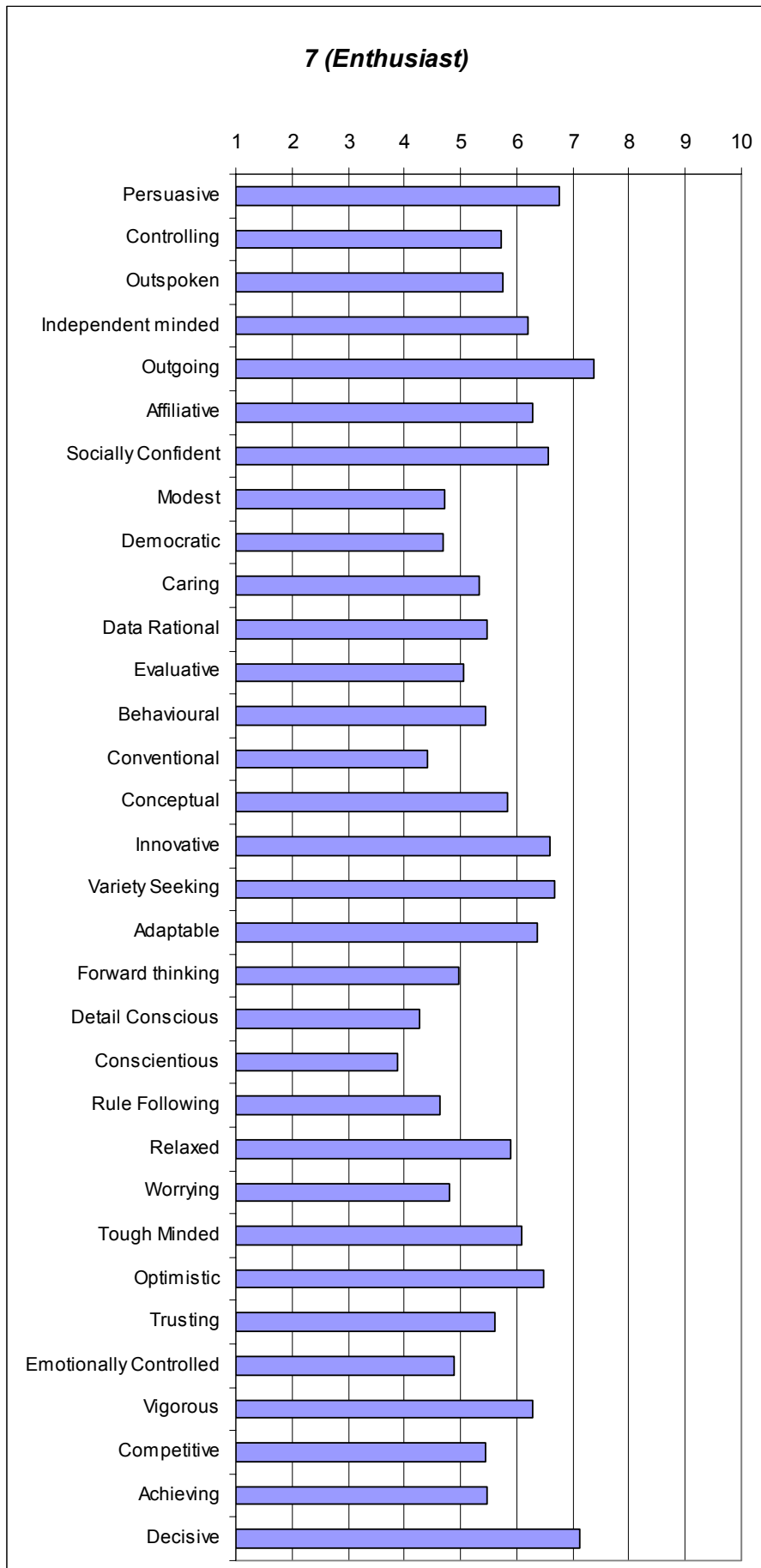
Relationships between OPQ and Enneagram Types



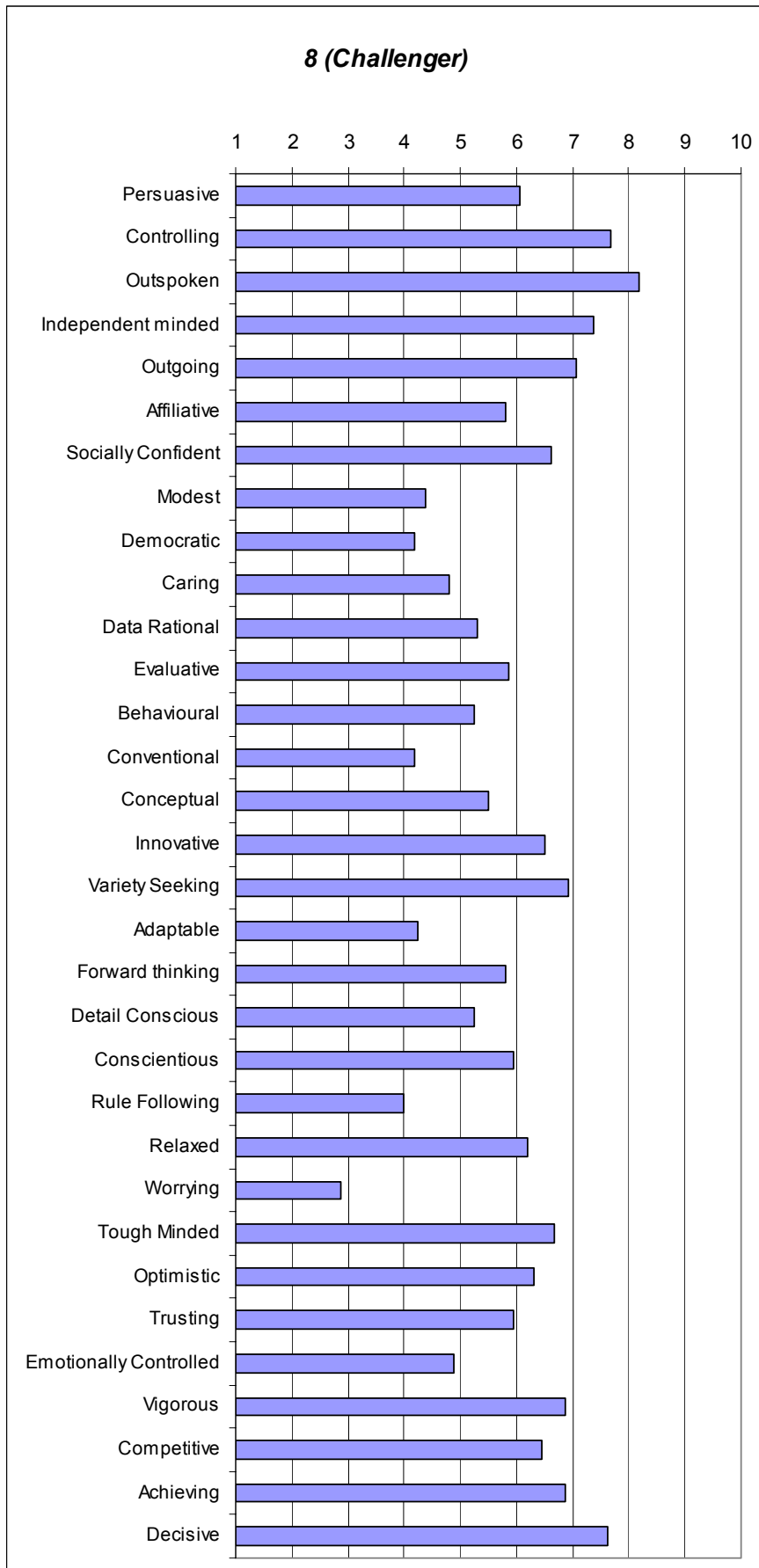
Relationships between OPQ and Enneagram Types



Relationships between OPQ and Enneagram Types



Relationships between OPQ and Enneagram Types



Relationships between OPQ and Enneagram Types

