



MiRo Stage 1 Technical Manual

Behavioural mode assessment

Version 2.1 2012



Exceptional people delivering exceptional results

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Introduction

Conception and inception

Unlike most psychometrics, MiRo was not a purely academic exercise that happened to have a commercial use, nor was it a child of psychotherapy or clinical psychology. MiRo was designed (beginning in 1998) by people in business, for people in business.

The two initial designers were an HR specialist and a psychotherapist. Both were trainers and consultants in the private and public sectors, both were qualified in, and regularly used, other mainstream psychometric tools but found that even the most tried and tested did not seem to meet the needs of their clients. MiRo was an answer to a number of persistently asked questions or areas of resistance to the tools on the market at that point in time.

MiRo is specifically interested in personality and behavioural type as defined by theorists such as Karl Jung and William Marsden, although it does not claim direct lineage from either (the question of theoretical background will be dealt with in section Development, page 4). Although we recognise that certain measures of ability, intelligence or skills are also useful in the workplace, MiRo does not report on these other areas.

The question of complexity

The mantra of early psychometrics required the most detailed description of human personality, intelligence, cognitive ability or some other psychological quality as illuminated by a test or 'metric'. Only later was the commercial value in applying of psychometrics recognised. Even so the notion of necessary - or even desirable - complexity has persisted. In practice however the layers of complexity in many commercially available psychometric tools serve simply to make them unwieldy and unfit for purpose. The problem of over complexity was the initial driving force behind the foundation of the MiRo system.

Initial market research found that many people's experience of psychometrics in the workplace was not a positive one. Most felt that they had not found the psychometrics useful or that it had improved their understanding of themselves, others, or their ability to do their job in any way. Some even felt that a type or result had been forced upon them or that they had been pigeonholed.

As a result of these findings, initial research was based around discovering what people would find useful. MiRo was an answer to the following question:

'When are psychometrics useful in the workplace and where do they improve people's performance?'

The answer came from on-going use of the most widely used tools on the market at that time. Concepts such as attitude (introversion / extroversion and by extension

judging / perceiving) were indeed useful in coaching or psychotherapeutic environments - they seemed to muddy the water for many in a working environment and, in some cases, were felt to fuel certain biases or prejudices.

The overlaying of various functional types (subtracting one score from another) and an integrated variance for diverse conditions (sets of words apparently referring to either 'true self' or 'work mask') was found also to be misleading and theoretically flawed as well as unnecessarily complex. Even if concepts such as 'true self' and 'work mask' are valid, the notion that subtracting one from the other can result in a 'self under pressure' score is spurious at best, possibly dangerously misleading at worst.

The question of correlation and disconnection

MiRo was also an attempt to solve another set of problems in the area of the correlation or disconnection between the various psychometrics available. It may seem perverse that the answer to a seemingly over diverse marketplace was seen to be yet another psychometric - but MiRo was conceived as an attempt to allow a workforce or team who had previous experience of other psychometrics to quickly understand a common language and a common set of ideas. As such MiRo explicitly refers to theoretical models from Jung and Marston, which have formed the basis of many other psychometrics, although it does not claim direct lineage from either tradition.

Correlation with other major psychometrics (see table overleaf)

With the above in mind, MiRo also attempts to bring together previously apparently conflicting models. The DISC model (Marston - Emotions of Normal People 1928) and all following psychometric tools based on it and neurological science (such as it was in 1928) and the other side of the schism was based on the Jungian notions of perception and judgment styles (those of attitude notwithstanding of course). The designers of the MiRo system were disposed to try to bridge this rift due to the intuitively obvious fact that both theoretical bases seemed to be describing the same set of phenomenon.

Simply by glancing back through history at early personality and behavioural typing systems such as; the North American Medicine Wheel (based on spirit animals) and the Greek - later medieval system - of the humours (based on the abundance or otherwise of various bodily fluids), it becomes plain that the same phenomena (namely functional type as defined by Jung) have been explained in any number of different ways. With current advances in neurology, hemispherical dominance, early brain development or genetic predisposition would seem to play a much greater role than previously imagined. Philosophers and physicists who have begun to ask some very thorny questions about free will in recent years might take another view yet again.

MBTI	Driving	Energising	Organising	Analysing
Intuitive / Thinking (NT)	*			
Intuitive Feeling (NF)		*		
Sensing Feeling (SF)			*	
Sensing Thinking (ST)				*

DISC	Driving	Energising	Organising	Analysing
Dominance	*			
Influence		*		
Steadiness			*	
Compliance				*

Insights	Driving	Energising	Organising	Analysing
Fiery red	*			
Sunshine yellow		*		
Earth green			*	
Cool blue				*

Belbin	Driving	Energising	Organising	Analysing
Shaper	*			
Resource investigator		*		
Monitor evaluator			*	
Team worker				*
Coordinator	*	*		
Plant	*	*		*
Implementor			*	*
Specialist			*	*
Completer finisher			*	*

Unlike other psychometrics, Belbin does not use a theoretical model but is based on empirical analysis of groups. Correlations are therefore approximations only.

One could reasonably expect as a result of this ever-changing understanding of the roots of personality or behavioural type that in a few years time yet another theory will become pre-eminent. It is well then that we treat them all as Jung entreated us to do (Jung - psychological types 1921) as metaphors or simply attempts to understand ungraspable and archetypal structures within the human psyche. In this spirit MiRo has drawn on both of the major traditions in 20th century typology but would just as happily use spirit animals or bodily fluids if it helped to elucidate the actual phenomena that we attempt to describe with the system. Validation is based in the main on 'Face Validity' and 'Criterion Validity' rather than 'Construct Validity' which by any means and given the above is a less than satisfactory measure of the reliability or usefulness of any psychometric tool (see Validity, page 6).

The question of cost

This may seem to be an afterthought with many tools on the market but it was thought to be a central factor in the design of the MiRo system. The usability and efficiency of use of the system was seen as a central factor and MiRo having always been an online assessment, does not require paper or indeed any physical object whatsoever if a client so desires. Initial introduction and information can be given to an end user electronically and the assessment itself can be carried out online. PDF reports are also produced online and can be delivered to the end user electronically. All of which and - given the ease with which the system is trained at practitioner level or understood at end user level - makes MiRo one of the most streamlined tools available. That is of course no accident and the psychometric system was designed in tandem with the delivery method from very early in its origin.

The question of flexibility

MiRo is also responsive to the needs of clients and end users - information can be adapted to their needs and additional products have been designed and delivered around the system when necessary. MiRo stage 2 also includes the concepts of introversion / extroversion and judging / perceiving and as such delivers additional richness and complexity where needed. MiRo also offers a number of graphic and statistical tools and reports. All these are dealt with elsewhere. This report concentrates only on the stage one questionnaire and report.

Development

Early research on the MiRo behavioural mode assessment tool started in 2001 with the creation of a questionnaire, which assessed people across two dichotomies and worked to try and ascertain if respondents dealt with tasks in one of four ways based on Jungian functional type descriptions. This rudimentary assessment had limited results but did help start the process. Eight years of research and development lead to the current MiRo behavioural mode assessment and involved many different business trainers, occupational psychologists, business consultants and psychometric practitioners. Most important was the participation of over 800 end users (BPS large sample size) in one form or another across many different professions and industry sectors. However any individual survey during that time would have been within the 150 to 300 range (BPS adequate sample size).

Some of the questions looked at during that development period were:

Agreement of results (criteria 1 and 2)

Using the current MiRo assessment tool, participants were asked the question "How accurate were the results?" and asked to score from 1 to 10 with 1 "Not at all accurate" and 10 "very accurate". 94% of the sample group scored the accuracy of their result at 8 or above. This could of course simply be the 'horoscope effect' so another control sample were asked to take an assessment but then given a dummy report showing opposite results to their own (i.e. Modal orders reversed) using the same questionnaire respondents gave significantly lower scores for accuracy, the mean score being 3 and 89% of the control sample returning accuracy ratings of 4 or less.

Consistency over time (criterion 3)

Another sample group was asked to take a second assessment six months after an initial one to ascertain consistency of results. In 74% of cases the leading and supporting modes remained unchanged in both type and order and in 91% of cases the behavioural mode which had been the leading mode in the initial result was either the leading or supporting mode in the second. This latter score

has been bettered in research samples since then and would seem to be routinely in excess of 95% consistent.

Correlations with other psychometric tools (criterion 4)

The two theoretical models referred to are Carl Jung's dichotomies of perception and judgment and William Marston's dichotomies of environmental and self perception. Marston's and Jung's ideas have formed the basis of a number of psychometric tools over the last 70 years, many of which have been consistently validated by research. The relation of theory to practice is not to be questioned here but consistency across tools based on the two theoretical approaches has almost never been tested (probably for commercial reasons). MiRo has attempted in some small part to address this question (having chosen to accept the legitimacy if not necessarily the scientific veracity of other tools) and to gain a picture of the correlation of MiRo with other similar psychometric assessments. To this end participants assessed since 2006 (who had previously been assessed with other psychometric tools using one of the two afore mentioned models) were asked how the MiRo tool compared with these other results. 85% of those who responded said that their previous result correlated with their MiRo result.

Development of the tool was conducted between 2001 and 2008 when the current version was instated and the first commercially available version of the tool went live.

Sample sizes, clusters and controls

This technical manual was produced in 2012 and uses as it's norm group all completed surveys taken through the main MiRo web site at www.miro-assessment.com since March 2010, when the data capture method was changed. Previous data is available but does not contain the same data fields as that captured after that date and so a simpler solution than attempting to marry up two slightly different data sets is just to treat data captured since then as the norm group. This comprises just under 6000 individuals in total and is more than adequate to make any statistical anomalies irrelevant and give a true background sample.

Face validity research is entirely based on questionnaires given to sample groups of between 150 and 300 individuals. This falls into the 'adequate' range as defined by the British Psychological Society (BPS). Criterion validity meanwhile was established using two methodologies, although both were centred on the correlation of the MiRo system against other established psychometrics. Initial surveys of simple correlation of scores or types one with another were based on sample sizes of approximately 200 individuals. The correlation of groups of scores within certain professional groups was carried out using a number of smaller sample groups but comprising some 3000 individuals when taken as a whole. Broader correlations are also shown across the whole norm group of 5787 individuals in total.

Theoretical background

Context

As already stated elsewhere MiRo did not grow from theory but from practice. As such any reference to theory is incidental in that construct validity is not claimed as far as any particular model is concerned but by proxy in so much as it correlates with other established psychometrics, in this case the MBTI.

Type vs trait

A question often asked of psychometrics of this kind is whether it refers to type or trait. Some will claim that what they measure is some intrinsic quality inherent in the person. This may be a structure within the psyche, a psychological 'handedness' or even something physical such as a particular set of neural pathways out performing another. These would all be seen as type indicators but given that these structures can only be observed through some kind of behaviour, even if that is answering questions or ticking boxes it is in fact traits that are being observed. A psychometric calling itself a trait indicator, similarly observes behaviour but stops short of saying that this indicates any particular personality type. A tendency to behave in a particular way is as we have just seen exactly as a personality type makes its self manifest.

MiRo does take the existential position that humans have free will, the possibility that I might choose courses of action which are uncomfortable or difficult in some way and that any freely taken choice is therefore authentic. Even if the structures referred to above do exist, if I freely and autonomously choose to act against them over a prolonged period of time, it can be safely said that I consistently exhibit a type of behaviour and so can be categorised as a behavioural type. The MiRo system asks respondents "what do you do?" and feeds back to them a description of what they are likely to do. At no point does it ask "but who are you really?" firstly because it does not seem to be a particularly useful question given the context and because it may not be a proper question in the first place given the position described above.

Philosophy

MiRo is 'person centred' and takes a certain philosophical position; given the nature of personality typing in general it is very hard to make claims of scientific proof for any theory so even the most tried and tested psychometric relating to personality type can only be based on conjecture.

Statistical correlations and trends can show that the phenomena are real enough but can cast no light on their source. Correlation is not causation. Tests for IQ for instance can reasonably accurately predict individual's ability to perform certain tasks, namely those requiring intelligence. Once measured or even observed however these are in themselves IQ tests of a kind so what we are in fact saying is

that people who do well on IQ tests tend to do well on other IQ tests. At least there is there some chance of an objective view here, while personality typing is much more fraught with potential issues.

If we are not measuring ability but preference, we can not ask the question "can this person do so and so?" or even "how well can this person do so and so?" only "how does this person do so and so?" Once again we find ourselves in a difficult position in that if we ask an individual a question such as "you are never late for appointments, true or false?" and use the response to predict whether or not they are likely to be late for their appointments then we should have a reasonably safe test, limited only by the persons self knowledge or honesty. That in turn is governed by a 'judging' preference or humour is possibly a mind projection fallacy or given that the test set out to prove the existence of a Judging preference as a structure within the psyche then it is probably a circular argument as well.

It is as well to view any of the available explanations or theories as metaphors or sets of language with which to talk about the phenomena being observed. This leads to the discussion regarding immutability.

As already outlined there is an observable consistency to MiRo results and someone returning a particular score now is very likely to return a very similar score later. This may or may not be due to some pre-existing tendency or likewise a tendency to make a particular kind of choice. It is a tendency nonetheless and the system only claims to measure the existence of a tendency. We do not hold that the existence of a tendency necessarily equates to any unchangeable state or for that matter any preferable state. If you make different choices tomorrow then so be it. We can show you that you have changed your tendency but cannot impose meaning on that finding. Meaning can only be applied by the person making the choices.

Outputs

Currently the stage one assessment produces the following outputs:

The individual report

A 12 page report including a graphic representation (Pie chart) of the relative weights of each behavioural mode, general description narrative report for leading (1st place), supporting (2nd place), supplementary (3rd place) and dormant (4th place) behavioural modes, some briefer descriptors of 'general attributes', some suggestions for development tasks, communication style and some other general information.

The team report

A report containing graphic information and general attributes regarding each individual team member, a general description of the team, some general attributes of the team as a whole, a description of some of the possible conflicts or creative tensions within the team and information pertaining to communication style, decision making style, relationship building style and dealing with change and some other general information.

Team maps

Graphic representation of groups of individuals in terms of leading and supporting modes.

Team charts

Graphic representation of all individuals in a selected group in pie chart form.

Further outputs and additions to the individual report will be available as of 2013 and MiRo stage 2 will also be produced but will use a longer questionnaire which will also measure Introversion and Extroversion.

Validity

Face validity

Face validity is the simplest form of validation in that it assesses whether or not the tool appears to measure what it claims to measure. This is usually achieved simply by asking people whether or not the results of their assessment seem to be correct. Plainly there are some potential issues with this approach in that many things seem to be correct which have absolutely no validity at all, horoscopes as a case in point. A better case for face validity can be made with the introduction of a control of some kind, in this case we have used a sample in which respondents were given reports who's modal order was the reverse of their own and similarly asked how accurate they thought the report was. Respondents were asked to rate the report 1 (not at all accurate) to 10 (very accurate). The first group (281 individuals) returning a geometric mean score of just under 80% accuracy and the later (150 individuals) returning less than 30% geometric mean accuracy score. The former is comparable to the accuracy claimed by the MBTI while we have been able to find no comparable study for the latter.

Respondents shown correct results

	Score	% Respondents	Score x frequency/100
Very accurate	10	6	0.6
	9	32	2.88
	8	31	2.48
	7	21	1.47
	6	5	0.3
	5	2	0.1
	4	0	0
	3	1	0.03
	2	2	0.04
Not at all accurate	1	0	0
Ave (GM)			7.9

Respondents shown reversed results

	Score	% Respondents	Score x frequency/100
Very accurate	10	0	0
	9	0	0
	8	0	0
	7	3	0.21
	6	5	0.3
	5	8	0.4
	4	16	0.64
	3	21	0.63
	2	27	0.54
Not at all accurate	1	20	0.2
Ave (GM)			2.92

Criterion validity

A way to achieve criterion validity is to show that a personality test can predict future performance or behaviour. Another way involves correlating test scores with another established test that also measures the same personality characteristic. The former is problematic outside of a laboratory and given that MiRo purports only to predict 'how' someone might do something rather than 'whether' they might do it or for that matter 'how well' they might do it there is a high level of subjectivity involved. There are plainly also problems of subjectivity and one has to stop short of asking respondents to score for criterion validity as this would seem to be little more than asking them whether or not they felt the report to be accurate (i.e. face validity). Asking this after the fact may be a possibility but this seems to tell us very little we did not already know. That leaves two possibilities. One would be that we construct a controlled experiment in which respondents are observed and assessed by a researcher then these observations and earlier self assigned scores compared. This is simply not practical outside of a laboratory and even then there are any number of potential issues.

We have chosen therefore to use the latter method and to correlate MiRo against an established psychometric, which is the MBTI. MBTI and its criterion and construct validity is not beyond question and the tool it's self is not without its critics of course but for the time being we will leave those

aside. They have been amply discussed elsewhere and for our purposes we will assume it to be sound. It is certainly established and very widely respected and although that is not, (we accept) proof of its worth in and of its self it is sufficient for our purposes and should it fall we will have to reconsider our position.

The initial area looked at by way of correlation with MBTI was across the norm group (5,787 individuals).

The Sixteen Types Population Breakdown

<i>ISTJ</i> 11–14%	<i>ISFJ</i> 9–14%	<i>INFJ</i> 1–3%	<i>INTJ</i> 2–4%
<i>ISTP</i> 4–6%	<i>ISFP</i> 5–9%	<i>INFP</i> 4–5%	<i>INTP</i> 1–3%
<i>ESTP</i> 4–5%	<i>EFSP</i> 4–9%	<i>ENFP</i> 6–8%	<i>ENTP</i> 2–5%
<i>ESTJ</i> 8–12%	<i>ESFJ</i> 9–13%	<i>ENFJ</i> 2–5%	<i>ENTJ</i> 2–5%

Estimated percentages of the 16 types of the general population (USA)

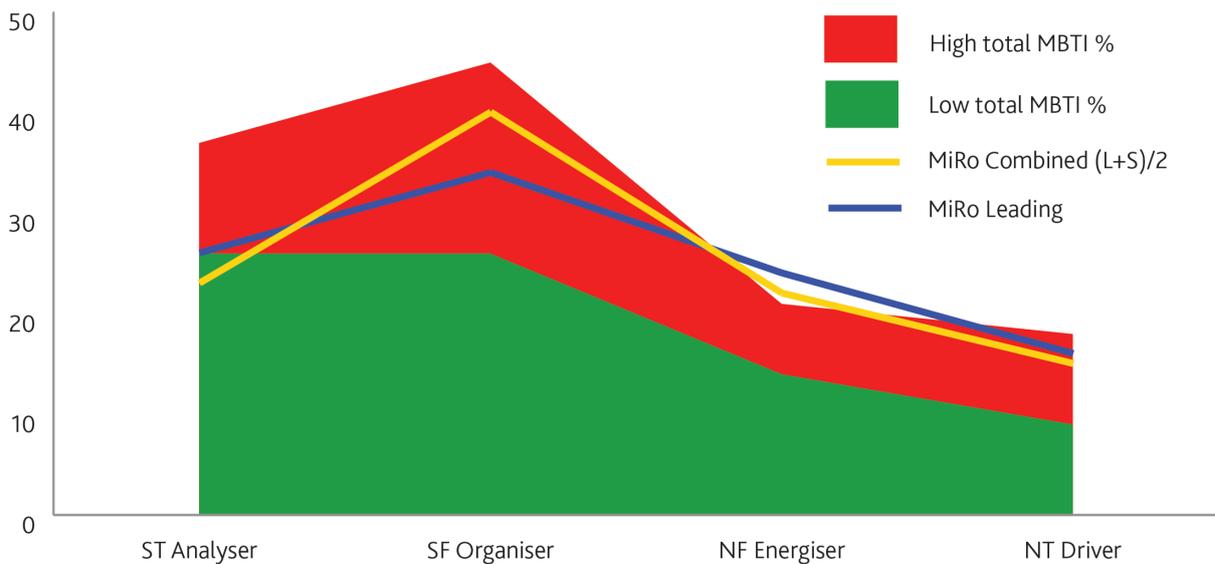
Incidence of type across MiRo norm group

	Analysing (ST)	Organising (SF)	Energising (NF)	Driving (NT)
MiRo leading	1,302	2,349	1,257	879
MiRo supporting	1,797	1,602	1,420	968
MiRo supplementary	1,438	1,223	1,793	1,333
MiRo dormant	1,449	619	1,306	2,413

Percentage incidence of type across MiRo norm group against MBTI

	ST Analyser	SF Organiser	NF Energiser	NT Driver
High total MBTI %	37	45	21	17
Low total MBTI %	27	27	13	7
MiRo combined (L+S)/2*	27	34	23	16
MiRo leading	22	41	22	15
MiRo supporting	31	28	25	17
MiRo supplementary	25	21	31	23
MiRo dormant	25	11	23	42

* MiRo combined (L+S)/2 = mean of leading and supporting percentage scores



The coloration between the MiRo norm group and the 'general population' or rather the very large norm group represented by the MBTI scores is extremely close. The averaged out leading and supporting scores (L+S/2) only falls outside of the expected range by 2% and on only one (functional type / mode score). This would suggest that MiRo is indeed measuring similar phenomena to the MBTI in that it achieves similar results or at least identifies similar proportions of each type across a large population.

MiRo does not claim to measure aptitude or ability but preference. It may well also measure the former qualities but as previously stated MiRo was designed to overcome some of the potential dangers of other psychometrics and the sense of being 'done to' or 'pigeonholed' that many people felt was the way with psychometrics in general.

For this reason it would be disingenuous to look to make claims for this type being better at this or that (see philosophy). We can however show that this or that type (or more properly and considering the existential point of view outlined earlier 'people preferring to use a particular mode of behaviour') are more likely to gravitate to a particular type of role. That they are likely to be better at that kind of role is probably a given. We will proceed then, with the following premise in mind. People are more likely to be good at the things they like and less likely to be good at the things they don't like.

The following case studies describe groups in a number of professions and professional roles and where possible these are benchmarked against the MBTI. All MBTI figures are derived from the atlas of type tables compiled by the Centre for Applications of Psychological Type 1995. Although the atlas contains examples from across the globe and from many different professions and professional groups it cannot cover all eventualities and is by definition US-centric as indeed is the MBTI it's self. We are not merely looking for

direct correlations between MiRo and MBTI and although many examples of this can be shown (many more than are printed here) it would be misleading to only show examples of this kind. As such we will show alongside these case studies where there is a marked disjunct between the MiRo scores and those derived from the MBTI. These are invariably not from exactly similar sample groups and are therefore useful adjuncts to the overall criterion validity if they can be interpreted in a manor consistent with our understanding of personality typing and it's application.

We also show one or two examples where no comparable MBTI survey is available. In these examples we seek to interpret the results of our survey in light of the performance of that group. Wherever possible that performance is measured in some concrete way; namely that this sales team sold more than that sales team, that staff turnover improved or some other empirical measure. Of course we are not working under laboratory conditions and can ultimately do no more than tell a story in many cases but hope that these are able to illustrate that the MiRo system does indeed refer to some real phenomena and that that in turn can predict the probable behaviour or understanding of a given group.

Sample Group 1

Project title: Olympic synchronised swimming team

Project I.D. 116

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	4	1	4	3
Aggregate	157	43	163	128
n = 2nd	0	8	3	1
Aggregate	0	282	107	31
n = 3rd	4	2	4	4
Aggregate	109	62	58	119
n = 4th	4	1	3	4
Aggregate	91	27	65	94
A1 as %	34.5	9.4	35.8	28.1
(A1+A2)/2 as %	17.2	35.7	29.6	17.5
All 1st + 2nd scores/2 for comparison				455.5

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	25.9	22.6	32.7	22.8
MBTI	12.91	6.00	41.93	38.71
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	12.9	16.6	-9.2	-15.9

*MiRo score = mean of A1 and (A1+A2)/2

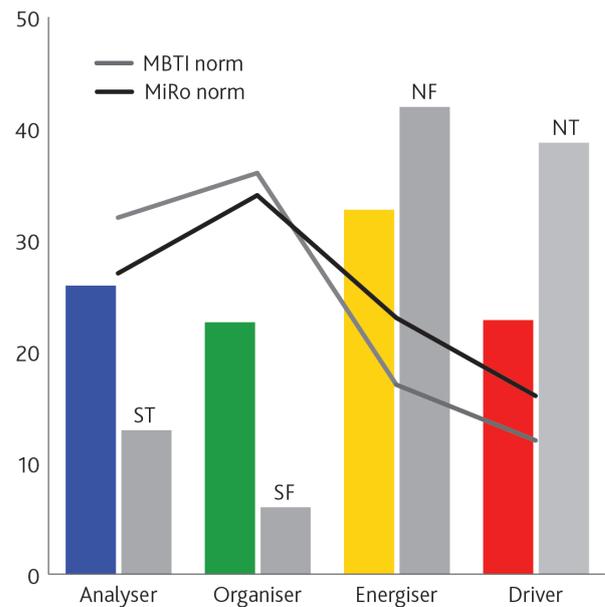
MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organisers	Energisers	Drivers
Aggregate	27	34	23	16

MBTI Survey title: Actors (and other performers) n=62

%	ISTJ	ISFJ	INFJ	INTJ
	4.84	1.16	1.61	9.68
%	INTP	ISFP	INFP	INTP
	0.00	0.00	11.29	8.06
%	ESTP	ESFP	ENFP	ENTP
	3.23	4.84	16.13	11.29
%	ESTJ	ESFJ	ENFJ	ENTJ
	4.84	0.00	12.90	9.68

Total % per functional type

	%	n
ST (Analyser)	12.91	0
SF (Organiser)	6.00	0
NF (Energiser)	41.93	0
NT (Driver)	38.71	0



Interpretation

Plainly a directly comparable group, namely another Olympic synchronised swimming team would be difficult to find (there are only 15 or so in the world) but they are essentially performers and as such exceed the norm group, as one would expect in the intuitive functional types. They are also a sports team however and as such would be expected to have higher sensing functions. The outline above is consistent with that pattern but was evident in this group in a number of ways. The team had traditionally valued the performing aspects of the group's culture and NF and NT personalities tended to dominate. This had been seen to cause conflict within the group and a lack of consistency of approach.

A new coach, using the MiRo results and working with the team initiated a cultural change by encouraging SF and

particularly ST personalities to take leadership roles. These were not necessarily the most talented or even the most motivated individuals but were able to introduce stability and consistency into the group.

Plainly there are other factors at work here too but the team were initially ranked 15th in the world and aimed to gain a 7th place at the recent Olympic games. The improved and more consistent and concentrated training regime and improved relations among the group members were both cited as contributing factors to the team's later success. They achieved a 5th at the Olympic games and a 5th place in the world rankings.

Sample Group 2

Project title: Medical company executives

Project I.D. 122

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	3	2	1	6
Aggregate	120	83	41	202
n = 2nd	3	2	5	1
Aggregate	98	75	175	35
n = 3rd	1	6	2	2
Aggregate	26	180	56	59
n = 4th	4	1	3	3
Aggregate	106	21	76	81
A1 as %	29.0	20.0	9.9	48.7
(A1+A2)/2 as %	26.3	19.1	26.1	28.6
All 1st + 2nd scores/2 for comparison				414.5

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	27.6	19.5	18.0	38.7
MBTI	36.44	16.94	9.32	37.28
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	-8.8	2.6	8.7	1.4
*MiRo score = mean of A1 and (A1+A2)/2				
MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organiser	Energiser	Driver
Aggregate	27	34	23	16

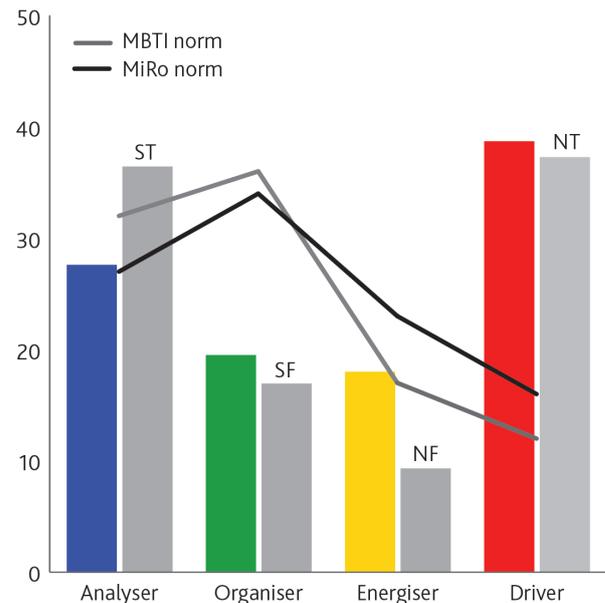
MBTI Survey title: Chief executives (Japan)

Total number in survey: 118

%	ISTJ	ISFJ	INFJ	INTJ
	5.93	4.24	1.69	16.10
%	INTP	ISFP	INFP	INTP
	0.85	1.69	0.00	2.54
%	ESTP	ESFP	ENFP	ENTP
	8.47	5.93	4.24	2.54
%	ESTJ	ESFJ	ENFJ	ENTJ
	21.19	5.08	3.39	16.10

Total % per functional type

	%	n
ST (Analyser)	36.44	42.9992
SF (Organiser)	16.94	19.9892
NF (Energiser)	9.32	10.9976
NT (Driver)	37.28	43.9904
Total number in survey		118



Interpretation

Here there is very little to interpret in that the survey samples are of very similar groups, namely chief executives in Japanese companies and senior executives of a UK based medical equipment design and manufacturing company. Both samples are significantly lower than the norm group in SF types and significantly higher than the norm in NT types as seems predictable in terms of the expected attributes of those types. Where the samples differ is in the levels of ST types. Given that the MiRo group is broadly consistent with similar UK based groups the anomaly is most likely explicable in terms of cultural differences between the UK and Japan.

There are no controlled criterion by which the effectiveness or otherwise of this group make up can be assessed. It can only be stated that the company in question was a highly profitable and stable one with a reputation for producing high quality and innovative products. One would need a failing company in the same sector, identical in every way but the personality types of its top executives to make any kind of exact comparison. What can be said however is the make up of this group is exactly consistent with what would be expected of a successful executive team in this sector.

Sample Group 3

Project title: UK snack food manufacturing Co. Mngrs

Project I.D. 194

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	3	1	2	4
Aggregate	127	45	76	122
n = 2nd	4	1	2	3
Aggregate	129	32	72	102
n = 3rd	3	5	2	0
Aggregate	89	140	84	0
n = 4th	0	3	3	3
Aggregate	0	59	91	72
A1 as %	36.0	12.8	21.6	34.6
(A1+A2)/2 as %	36.3	10.9	21.0	31.8
All 1st + 2nd scores/2 for comparison				352.5

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	36.2	11.8	21.3	33.2
MBTI	52.77	14.73	10.01	22.49
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	-16.6	-2.9	11.3	10.7
*MiRo score = mean of A1 and (A1+A2)/2				
MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organiser	Energiser	Driver
Aggregate	27	34	23	16

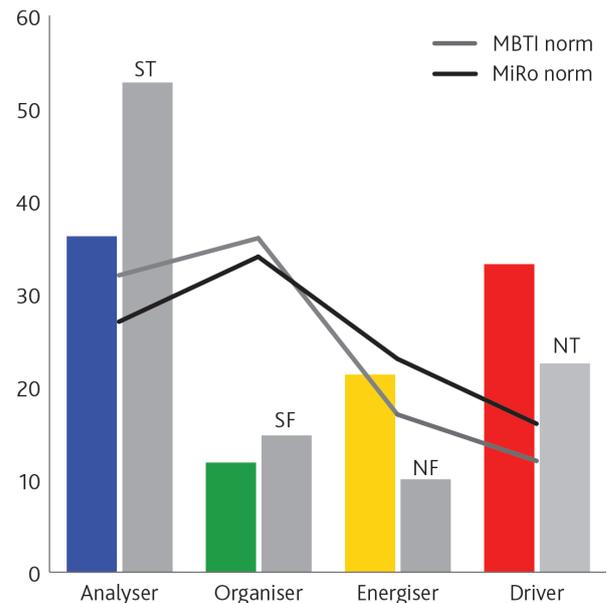
MBTI Survey title: Managers (England)

Total number in survey: 849

%	<i>ISTJ</i> 23.79	<i>ISFJ</i> 6.48	<i>INFJ</i> 2.36	<i>INTJ</i> 6.48
%	<i>INTP</i> 4.36	<i>ISFP</i> 1.18	<i>INFP</i> 3.06	<i>INTP</i> 2.94
%	<i>ESTP</i> 3.89	<i>ESFP</i> 1.18	<i>ENFP</i> 2.94	<i>ENTP</i> 4.24
%	<i>ESTJ</i> 20.73	<i>ESFJ</i> 5.89	<i>ENFJ</i> 1.65	<i>ENTJ</i> 8.83

Total % per functional type

	%	n
ST (Analyser)	52.77	448
SF (Organiser)	14.73	125
NF (Energiser)	10.01	85
NT (Driver)	22.49	191
Total number in survey		849



Interpretation

Once again the results of the survey among the 'top managers' of the UK snack foods manufacturer are broadly consistent with what would be expected of a group of this kind in the UK but there are significant departures with the MBTI control in a couple of areas. This is a group of only 10 individuals so this is of course to be expected but the question remains of its significance and whether or not some observable result can be discerned. In this case the management group had probably been more consistent with

the control in the past but a number of changes had been made in the year preceding the survey. Over the coming year the reasons for this became clear as the company was sold off to a multi-national. The team presided of this transition much more smoothly than would have been likely with a more stability oriented analyser (ST) heavy team. The team's proclivities toward change, innovation and risk saw it through this period of transition and ultimately saw most of the firm's production moved overseas.

Sample Group 4

Project title: Prisons curriculum development team

Project I.D.: 209

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	6	7	6	2
Aggregate	290	294	248	98
n = 2nd	3	8	5	4
Aggregate	191	317	185	143
n = 3rd	8	3	2	8
Aggregate	215	79	59	253
n = 4th	3	3	8	7
Aggregate	70	72	175	142
A1 as %	32.8	33.3	28.1	11.1
(A1+A2)/2 as %	27.2	34.6	24.5	13.6
All 1st + 2nd scores/2 for comparison				846

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	30.0	33.9	26.3	12.4
MBTI	23.80	27.04	30.96	18.19
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	6.2	6.9	-4.7	-5.8
*MiRo score = mean of A1 and (A1+A2)/2				
MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organiser	Energiser	Driver
Aggregate	27	34	23	16

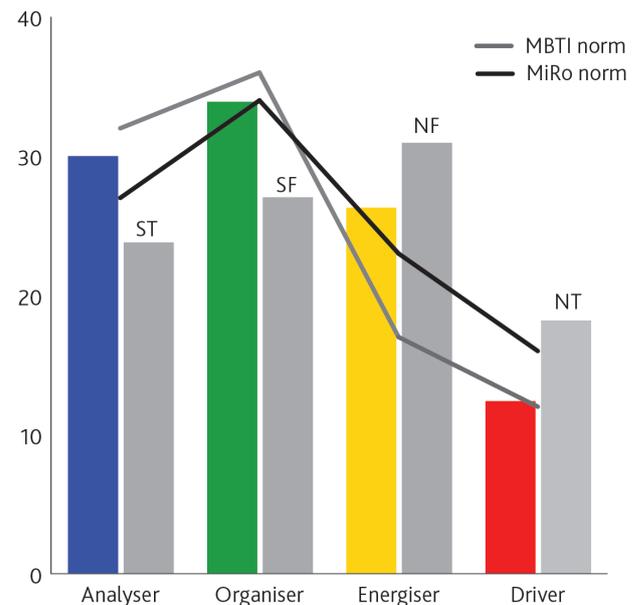
MBTI Survey title: Teachers

Total number in survey: 16,676

%	ISTJ	ISFJ	INFJ	INTJ
%	11.26	11.10	6.13	5.22
%	INTP	ISFP	INFP	INTP
%	2.01	3.29	7.13	3.35
%	ESTP	ESFP	ENFP	ENTP
%	1.52	3.40	10.01	3.64
%	ESTJ	ESFJ	ENFJ	ENTJ
%	9.01	9.25	7.69	5.98

Total % per functional type

	%	n
ST (Analyser)	23.80	3969
SF (Organiser)	27.04	4509
NF (Energiser)	30.96	5163
NT (Driver)	18.19	3033
Total number in survey	16,676	



Interpretation

This is a little difficult to interpret in that what the figures seem to show in this case is that the two groups are broadly similar. The MiRo group (some 20 individuals) who were mainly teachers by profession but engaged in non teaching activities does seem to be different from teachers as a whole in that it shows a slight bias in favour of Organiser (SF) types and away from Driver (NT) types. Given the nature and context of the work however this seemed to be a functional

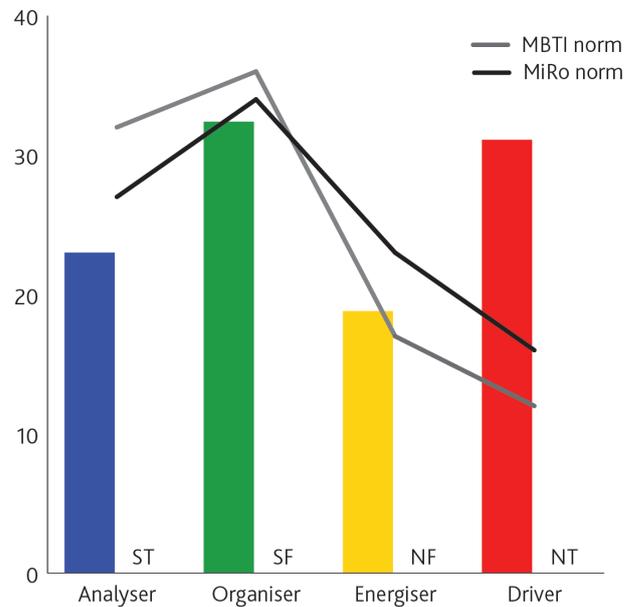
adaptation of the group. Much of the work of the group was concerned with very basics skills development and engaging people who had previously not engaged with education in any meaningful way. The profile of the group is consistent with this more supportive function as opposed to the generally more competitive and results based function of the control group.

Sample Group 5

Project title: Board of UK Sporting Governing Body

Project I.D. 265

	ST	SF	NF	NT
	Analysers	Organisers	Energisers	Drivers
n = 1st	1	2	1	2
Aggregate	42	94	48	88
n = 2nd	3	1	1	1
Aggregate	100	37	41	42
n = 3rd	1	1	3	0
Aggregate	23	54	83	0
n = 4th	1	1	1	3
Aggregate	13	18	26	59
A1 as %	17.1	38.2	19.5	35.8
(A1+A2)/2 as %	28.9	26.6	18.1	26.4
All 1st + 2nd scores/2 for comparison				246



Comparison

	ST	SF	NF	NT
	Analysers	Organisers	Energisers	Drivers
MiRo*	23.0	32.4	18.8	31.1
MBTI	0.00	0.00	0.00	0.00
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	23.0	32.4	18.8	31.1

*MiRo score = mean of A1 and (A1+A2)/2

MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organisers	Energisers	Drivers
Aggregate	27	34	23	16

Interpretation

This is a very small group (only 6 people) and no comparable survey was available in terms of a similar group assessed with the MBTI. The board had hitherto been considered highly 'traditional' in outlook and had made a number of decisions, which had seen as counterproductive. As a result two new members had been co-opted onto the board in order to oversee the negotiation of a new TV deal. This immediately changed the balance of the group, hence the high levels of

the Driving (NT) mode, within the group. These two new members and the existing drivers within the group became a dominant force as a result and steered the group through the next few months, during which time the board negotiated a very lucrative deal with a major TV network, which in turn secured the future of the national team in their sport, who went on to rank number 1 in the world for some time after that deal was done.

Sample Group 6

Project title: Nursing staff in a major hospital

Project I.D. 401

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	4	7	1	0
Aggregate	173	295	45	0
n = 2nd	6	4	0	2
Aggregate	212	156	0	68
n = 3rd	1	0	7	4
Aggregate	33	0	199	110
n = 4th	1	1	4	6
Aggregate	18	27	86	116
A1 as %	36.5	62.2	9.5	0.0
(A1+A2)/2 as %	40.6	47.5	4.7	7.2
All 1st + 2nd scores/2 for comparison				474.5

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	38.5	54.8	7.1	3.6
MBTI	24.61	49.24	18.85	7.31
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	13.9	5.6	-11.7	-3.7
*MiRo score = mean of A1 and (A1+A2)/2				
MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organisers	Energisers	Drivers
Aggregate	27	34	23	16

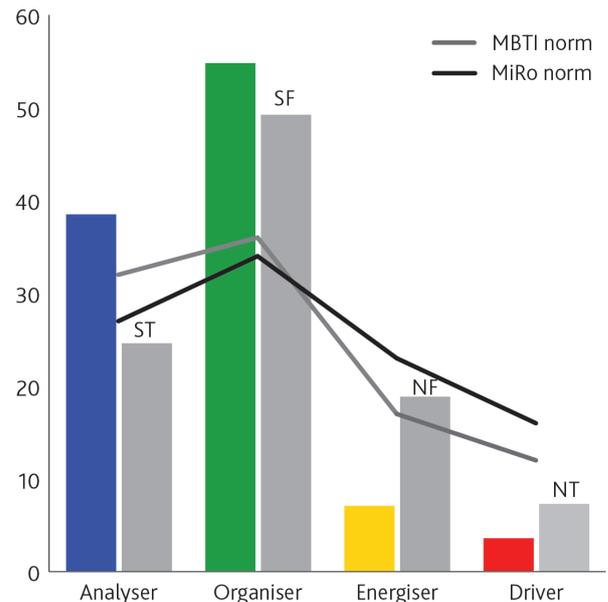
MBTI Survey title: Licenced practical nurses

Total number in survey: 260

%	ISTJ 9.23	ISFJ 22.31	INFJ 3.46	INTJ 1.54
%	INTP 3.46	ISFP 8.08	INFP 3.46	INTP 1.54
%	ESTP 1.92	ESFP 3.85	ENFP 8.08	ENTP 2.31
%	ESTJ 10.00	ESFJ 15.00	ENFJ 3.85	ENTJ 1.92

Total % per functional type

	%	n
ST (Analyser)	24.61	63.986
SF (Organiser)	49.24	128.024
NF (Energiser)	18.85	49.01
NT (Driver)	7.31	19.006
Total number in survey		260



Interpretation

The predominance of Organising (SF) types in nursing is almost a truism of psychometrics so there is little remarkable in the above correlation. More notable however is the balance toward Thinking in the UK sample and iNtuition in the US sample. This is not simply a statistical anomaly but a trend seen across most helping professions between the two countries and in nursing in particular. Moreover, recent changes in the training of nurses in the UK are likely to see

the bias emphasised still further. This is not the place for a discussion on the relative merits of the two approaches but one that is significant and observable through the use of psychometrics nonetheless. MiRo is first and foremost a tool to encourage discussion and greater understanding. How that is employed by those that gain the understanding is beyond the scope of psychometrics in general and this report especially to deal with.

Sample Group 7

Project title: Financial supervision commission

Project I.D.: 498

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	13	11	7	4
Aggregate	567	481	275	182
n = 2nd	13	10	4	8
Aggregate	472	372	133	290
n = 3rd	4	11	10	10
Aggregate	116	328	325	263
n = 4th	4	3	14	13
Aggregate	94	68	270	252
A1 as %	40.9	34.7	19.8	13.1
(A1+A2)/2 as %	37.5	30.8	14.7	17.0
All 1st + 2nd scores/2 for comparison 1,386				

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	39.2	32.7	17.3	15.1
MBTI	39.34	22.96	17.80	19.91
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	-0.1	9.8	-0.5	-4.8
*MiRo score = mean of A1 and (A1+A2)/2				
MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organiser	Energiser	Driver
Aggregate	27	34	23	16

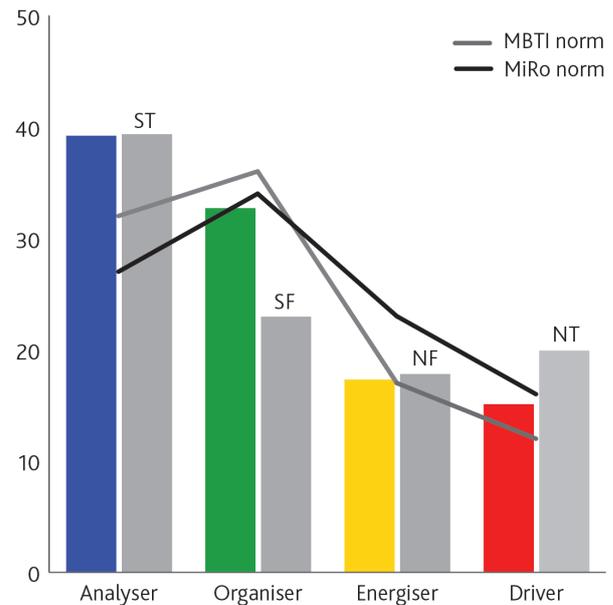
MBTI Survey title: Accountants

Total number in survey: 427

%	ISTJ 20.14	ISFJ 9.84	INFJ 3.51	INTJ 4.22
%	INTP 4.68	ISFP 3.98	INFP 3.98	INTP 4.45
%	ESTP 2.11	ESFP 1.41	ENFP 6.09	ENTP 3.98
%	ESTJ 12.41	ESFJ 7.73	ENFJ 4.22	ENTJ 7.26

Total % per functional type

	%	n
ST (Analyser)	39.34	167.9818
SF (Organiser)	22.96	98.0392
NF (Energiser)	17.80	76.006
NT (Driver)	19.91	85.0157
Total number in survey		427



Interpretation

Here too there is a broad similarity between the MiRo assessed group and the MBTI control group. The slight bias in favour of Organising (SF) types is also in line with the group's functional bias. The financial supervision commission was indeed made up largely of accountants or financial specialists but also contained a number of administrators and other functionaries with less technical roles. The group oversaw and investigated some very complex financial procedures and ultimately produced a report based on their findings. Similar

commissions had been organised in the past in which there had been a heavier bias in favour of legal professionals (often Driving NT types) and this group had been set up in this way in reaction to those earlier groups lack of success or rather high levels of perceived hostility. This group was seen to be more co-operative and fact oriented in its approach and as a result its findings were implemented more readily.

Sample Group 8

Project title: Care home managers

Project I.D.: 573

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	57	168	55	84
Aggregate	2302	8203	2329	2199
n = 2nd	120	85	96	63
Aggregate	4503	3027	3391	1496
n = 3rd	92	56	124	92
Aggregate	2724	1462	3607	2462
n = 4th	95	55	89	125
Aggregate	1827	643	1958	3450
A1 as %	16.8	59.8	17.0	16.0
(A1+A2)/2 as %	24.8	40.9	20.8	13.5
All 1st + 2nd scores/2 for comparison	13,725			

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	20.8	50.3	18.9	14.7
MBTI	39.41	18.57	17.54	24.49
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	-18.6	31.8	1.4	-9.7

*MiRo score = mean of A1 and (A1+A2)/2

MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analyser	Organiser	Energiser	Driver
Aggregate	27	34	23	16

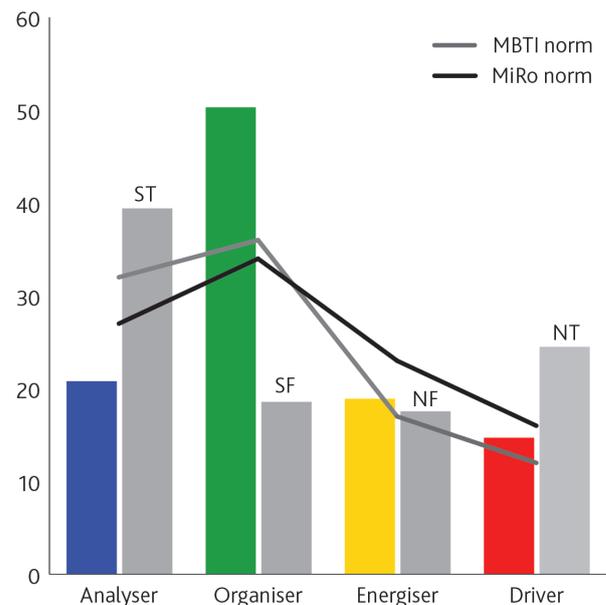
MBTI Survey title: Administrators: Mngrs and Supervisors

Total number in survey: 3,678

%	ISTJ 15.88	ISFJ 6.12	INFJ 2.69	INTJ 5.38
%	INTP 3.05	ISFP 2.80	INFP 4.30	INTP 4.05
%	ESTP 2.94	ESFP 3.07	ENFP 6.44	ENTP 4.92
%	ESTJ 17.54	ESFJ 6.58	ENFJ 4.11	ENTJ 10.14

Total % per functional type

	%	n
ST (Analyser)	39.41	1449.4998
SF (Organiser)	18.57	683.0046
NF (Energiser)	17.54	645.1212
NT (Driver)	24.49	900.7422
Total number in survey	3,678	



Interpretation

Here there is plainly a very marked difference between the MiRo sample and the MBTI control sample. Given that the MiRo sample is the largest that we will look at (some 364 individuals). This can only be interpreted as a cultural choice of some kind within the organisation. This was indeed borne out by investigation. The consultancy that carried out the assessments had in fact been called in to help managers to take on the culture that the company as a whole hoped to engender. They had however taken on care homes previously owned by local authorities and promoted existing care staff to management positions. Standards of patient care were high but managers had failed on the whole to prioritise

effective budgeting and the stringent quality and efficiency standards imposed by the service agreements taken on by the company, who were in turn trying to do more with fewer resources. The company it would seem had the wrong people in the wrong jobs and this was seen sited as a contributing factor to the company going bust within a year of the survey being conducted. Of course, once again there were many other contributing factors but it may be that cultural change can only be achieved with a change of personal when on a scale of this magnitude and in this case it would seem that the mistake had been made at the very beginning and the seeds of the companies failure sown at that point.

Sample Group 9

Project title: City occupational therapy team (UK)

Project I.D. 579

	ST Analyser	SF Organiser	NF Energiser	NT Driver
n = 1st	0	11	3	0
Aggregate	0	463	124	0
n = 2nd	5	3	5	0
Aggregate	178	118	210	0
n = 3rd	7	0	3	4
Aggregate	204	0	85	119
n = 4th	2	0	2	10
Aggregate	51	0	47	193
A1 as %	0.0	84.7	22.7	0.0
(A1+A2)/2 as %	16.3	53.2	30.6	0.0
All 1st + 2nd scores/2 for comparison				546.5

Comparison

	ST Analyser	SF Organiser	NF Energiser	NT Driver
MiRo*	8.1	68.9	26.6	0.0
MBTI	17.78	31.35	28.85	22.11
MBTI norm	32	36	17	12
MiRo norm	27	34	23	16
Dif %	-9.6	37.6	-2.2	-22.1
*MiRo score = mean of A1 and (A1+A2)/2				
MBTI Norm	ST	SF	NF	NT
Upper	37	45	21	17
Lower	27	27	13	7
mean norm	32	36	17	12
MiRo norm	Analysers	Organiser	Energiser	Driver
Aggregate	27	34	23	16

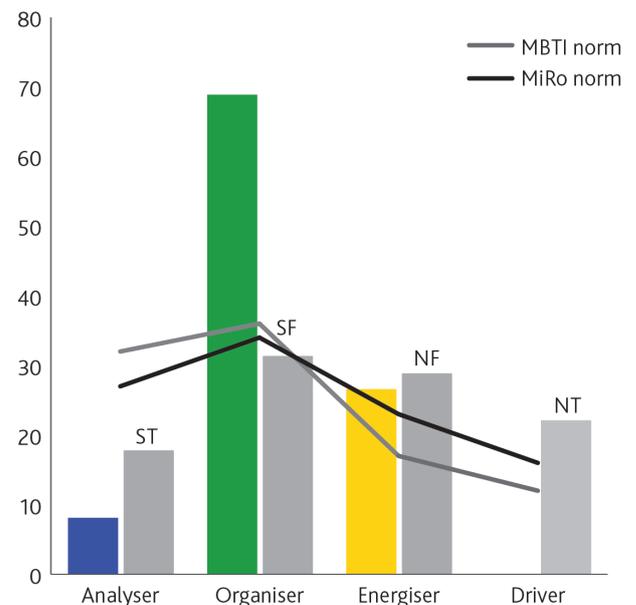
MBTI Survey title: Occupational therapists (US)

Total number in survey: 118

%	<i>ISTJ</i> 8.47	<i>ISFJ</i> 15.25	<i>INFJ</i> 7.63	<i>INTJ</i> 4.24
%	<i>INTP</i> 2.54	<i>ISFP</i> 3.39	<i>INFP</i> 5.97	<i>INTP</i> 4.24
%	<i>ESTP</i> 1.69	<i>ESFP</i> 1.69	<i>ENFP</i> 11.86	<i>ENTP</i> 4.24
%	<i>ESTJ</i> 5.08	<i>ESFJ</i> 11.02	<i>ENFJ</i> 3.39	<i>ENTJ</i> 9.39

Total % per functional type

	%	n
ST (Analyser)	17.78	20.9804
SF (Organiser)	31.35	36.993
NF (Energiser)	28.85	34.043
NT (Driver)	22.11	26.0898
Total number in survey	118	



Interpretation

Here once again the US and OK biases are evident. This is repeatable across many helping professions and may be explained in the case by the differing emphases in healthcare in the UK and the US. Occupational therapy (OT) here has traditionally been seen as a palliative in nature; while in the US the profession is principally seen as rehabilitative. This has largely been due to the different ways in which OT services have been funded, namely with on-going local authority or NHS funding in the UK and privately or by insurance

companies in the US. The survey above was conducted as finances were being withdrawn and OT's were being asked to help clients find new ways of coping with less support. The low levels of Driving (NT) behaviour within the group and indeed across the service was indicative of the high levels of anxiety about change and fear of conflict that was expressed. Extensive training and support programmes were put in place to help OT's through the transition period and to help them to take on the new role and working culture.

Conclusion

The real test of criterion validity is purely whether or not the tool in question does something useful. By comparing the results of MiRo based surveys with those of the MBTI we prove merely that the MiRo tool can predict similar things to the MBTI. That the MBTI can do something useful we will take as a given. Where something more interesting is being shown is where a discrepancy is in evidence. Where something out of the ordinary or unexpected is indicated can this be used in some meaningful way to predict an outcome or suggest a course of action? Any such claim is open to criticism of course but outside of a laboratory the primacy of personality or behavioural type in any system is impossible to prove. Some might (and with good grounds) claim that similar criticism is justified even in a laboratory.

Personality typing, psychometrics in general and MiRo no less are only components among any number of factors predicting and influencing the outcome of any group of events. The above sample groups and many more like them seem to point to MiRo's predictive facility and in the hands of a skilled practitioner or consultant to its power to suggest necessary action. It is as well to remember however that neither MiRo nor any other psychometric actually does the work. It is the practitioner, manager, consultant or worker behind it that can effect change and no psychometric can ever be better than the person using it.

Construct Validity

We will only give a brief note on the matter of construct validity, as it will not be dealt with in this report. As previously stated MiRo does not necessarily favour one construct or theoretical model over another but does acknowledge the phenomena that they describe as being real and their elucidation as useful. In fact the phrase construct validity may in its self constitute an oxymoron. There has been ample time given to the Jungian construct elsewhere and indeed some to the Marsden construct. More recently systems science (Walter Lowen 1940) has attempted an explanation. More recently still and perhaps and most plausibly yet lateralisation of brain function has been cited as the root of personality type. Even here though even its most passionate proponents have ventured that even now we may be referring to reality only through metaphor (The Master And His Emissary – Ian McGillchrist 2009).

We might just as well claim construct validity in terms of medicine wheels and humours as Jungian psychic structures, neural pathways or brain lateralisation. For the purposes of this report we have taken as our benchmark the MBTI and so by proxy the construct validity claimed by that instrument.

Practitioner accreditation

Practitioner accreditation is overseen by MiRo Psychometrics Ltd although training is carried out by that organisation

as well as a number of its agents. Practitioners must demonstrate a minimum standard in terms of understanding of the tool and its deployment. As well as adhering to good business practice practitioners are also expected to adhere to set of ethical principals as outlined below.

1. The MiRo system should only be used with the consent of the "participant", that is to say the person taking the assessment. The participant retains control over the distribution of the assessment results, i.e. if the participant chooses not to share their results then this must be honoured by the MiRo Practitioner regardless of who is paying for the assessment.
2. The participant, (NB the person taking the assessment) is the client and the MiRo system may only be used to serve the participant.
3. It is not unknown for employers to use psychometric assessments to deselect people from their current roles. MiRo is **not to be** used in this manner. It should only be used for the purposes of team, self and career development and a full, fair and consistent recruitment and selection process.
4. The MiRo system is not in any way a tool for diagnosing emotional or psychological issues and MiRo Psychometrics Limited does not in any way qualify the practitioner to do so.
5. MiRo is an assessment of preference behaviour and it should be remembered at all times that the best judge of self is the participant, therefore no practitioner should force a result on any individual.
6. All Behavioural Modes are valid and although MiRo Psychometrics Limited accepts that certain modes will suit certain roles better than others it does not in any way accept that one Mode is either stronger or weaker than another.
7. Practitioners should always keep in mind their own Leading and Supporting Mode and the ways in which these may create biases and affect their training and coaching sessions.
8. Practitioners need to remind clients not to stereotype NB. Because someone leads with Analysing Mode it does not follow that they should always be expected to attend to details.
9. Practitioners should keep in mind that the MiRo system does not in any way measure individual ability or IQ.
10. MiRo practitioners are not psychotherapists but must take a similar attitude in that the purpose of their endeavour should be that their participants become the person that they really are. The practitioner should not presume to fix or alter anyone to become what someone else thinks they should be.

MiRo Psychometrics Ltd reserves the right to bar anyone from using the system or selling its products if we have any cause to believe that it is not being used in a legal or ethical manner.

Practitioner trainers, super-users and future developments

MiRo has formed partnerships with a number of other organisations in order to deliver the best possible service to its clients. As a result many practitioners are now trained by practitioner trainers acting as agents for MiRo psychometrics. These individuals and the accreditation process is overseen and monitored by MiRo Psychometrics at all times. Trainers are expected to show and maintain a minimum standard of professionalism and rigour in the training process and exams are moderated by MiRo psychometrics. Super-users are organisations that operate MiRo under their own brand or as part of a larger offering. In these circumstances the organisation itself takes on the responsibilities normally assigned to the MiRo practitioner and is expected to adhere to the same business and ethical standards as the individual practitioner. That said an individual practitioner is always assigned to any report received by and end user so it is that individual who is ultimately responsible for the relationship with that client.

MiRo Psychometrics has recently created an extensive team report, which will be dealt with elsewhere and is currently developing an enhanced sage 1 report and a stage 2 report, which will include the aspects of personality defined as introversion and extroversion by Jung. The resulting reports will be more directly analogous to the MBTI and will be dealt with in depth in a later technical report.



Contact us

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