

# PSYCHE

The Newsletter of  
The Psychometrics Forum



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## **Contents:** page

**A Few Words from your Editor** 3

### **Reviews from The Psychometrics Forum Event – 11<sup>th</sup> May 2011**

**Out There and in Here** 4  
Review of Professor Colin DeYoung's Session

Dr. Hugh McCredie

**Integrating the individual and the Organisation: Neuro-Behavioural Modelling within a Whole Systems Framework** 6  
Review of Professor Paul Brown's Session

Nicholas Bennett & Harpal Dhatt

### **Reviews from The Psychometrics Forum Event – 23<sup>rd</sup> June 2011**

**Leadership: What You Do and What You Are** 7  
Review of the Saville Consulting Session

David Roberts

**Wave Professional Styles Assessment Tool in Coaching** 9

Ann Rodrigues

**My Experience at the Psychometrics Forum** 10

Tom Harris

## **Copy Deadlines**

Winter	9 <sup>th</sup> January	Copy due 16 <sup>th</sup> December
Spring	2 <sup>nd</sup> April	Copy due 16 <sup>th</sup> March

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## A Few Words from your Editor

**Adrian Starkey** - Chartered Occupational Psychologist

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This edition contains reflections on the past two TPF events, with reviews of the final two presentations from the Neuro-science: Brain & Personality event back in May in which speakers explored our current understanding of the intersection between neuroscience and psychometrics. In our last edition we featured David Roberts' review of Rita Carter's session. This time it is over to TPF committee members Nicholas Bennett and Harpal Dhatt to review Paul Brown's session on 'Neuro-behavioural Modelling' and TPF Vice-Chair Hugh McCredie, whose pulse was set racing by Colin DeYoung's live video presentation from the University of Minnesota. Colin's session examined the possible structural and neurochemical relationships between the brain and the Big 5 personality factors.

We also hear from David Roberts and Ann Rodrigues who review a presentation made by Peter Saville and colleagues at our June event at which Saville Consulting showcased their (at that time) soon to be released Leadership report under the banner of 'Personality, Leadership & Organisational Effectiveness'. In a first (we believe) for Psyche, a work experience student Tom Harris has penned a piece, sharing his reflections on hearing both Peter Saville & Bob Hogan address the June Forum event.

Finally a last minute plug for the forthcoming TPF '**New Frontiers**' event on **Wednesday 23<sup>rd</sup> November**. Hugh McCredie & Nicholas Bennett will be co-chairing what promises to be a lively and provocative day featuring:

**Dr Tomas Chamorro-Premuzic** - Goldsmiths, University of London □  
Assessing Entrepreneurial Potential

**Dr Steve Woods** - Aston Business School □  
Ethnic differences in cognitive ability test performance

**Dr Alan Bourne** - Talent Q □  
Getting bang for your buck: enhancing the predictive validity of personality assessment by setting thresholds

**Dr Steve Blinkhorn** - Psychometric Research & Development Ltd. □  
Hard Times - or what the Dickens is Item Response Theory (IRT) for?

The timing of this final session is open-ended and after the initial presentation Steve is prepared to discuss a wide range of psychometric issues of interest to those attending.

As ever bookings can be made via our administrator Caro [admin@psychometricsforum.org](mailto:admin@psychometricsforum.org)  
Or tel 01962 880920.

Finally the committee will be meeting in mid December to review the year and look to the year ahead. If you have any suggestions for speakers that you would like to see present next year please let one of us know and we will see what we can do to make it happen.....

**Keep an eye on most recent developments on the News & Events Section of our website:** <http://www.psychometricsforum.org>

## Integrating the individual and the Organisation:

### Neuro-Behavioural Modelling within a Whole Systems Framework



**Nicholas Bennett and Harpal Dhatt**

#### **TPF Committee Members**

May 2011 Psychometrics Forum event – speaker Prof. Paul Brown



Paul Brown is a clinical and organizational psychologist. Amongst various and interesting appointments, he is the Visiting Professor in Organisational Neuroscience at London South Bank University and in Individual and Organisational Psychology at Nottingham Law School.

The above title sounded impressively complicated but Professor Brown soon put us at our ease by stating that “today my role is to interest, amuse and provoke!”

He did just that as a starter for ten by showing two phrenological type, but of course spoof slides of the brain and its areas of action/control. The first showed the *Male Brain* which included the tv/remote control addiction centre, the listening/attention particle, two large areas marked sex, and the toilet-aiming cell. The *Female Brain* included the shoe & handbag coordination area, the chocolate addiction centre and the sense of direction neuron. Apologies were issued to all those of a sensitive nature.

After this amusing icebreaker Professor Brown went on to tell us about the latest research- based information, starting with the fact that the human brain only weighs around 4 lbs. However, this relatively small area of the human body contains several thousand miles of synaptically interconnected nerve cells - about 100 billion of them. From recent research the right ventrolateral pre-frontal cortex (RVCPFC) is now being seen as the key area for complex decision-making, or put another way, the brain’s braking system.

He told us that the brain’s amygdala is a powerful scanner looking for information generated by thought and bodily sensation. It continually asks and seeks answers to what is the emotional loading in a situation, particularly to something dangerous. Its task is in effect to filter every signal that we receive.

The right ventrolateral pre-frontal cortex is also getting a lot of attention, it is a key area for decision-making - *but it stops* when we get stressed when the fight or flight reaction comes to the fore. So the question is how can we keep this part of the brain open and functioning when under stress?

Moving on to Organisational Theory and Practice, there are two things Professor Brown believed we do not know how to define properly and scientifically – namely the Individual and the Organisation.



We know that change is difficult - organisations are wary about change - huge amounts of energy are put into resisting change and individual behaviour does not change easily because it is best for the brain to continue doing what it has always done.

As psychologists we might be surprised to learn that neuro-scientists are not interested in people, they are interested in the brain, whilst psychologists should but do not really study the mind. We psychologists use the word "mind" frequently, and we should be the experts on the mind and the way we operate it. Professor Brown believed that we should be much more aware of this area of research and perhaps in the future call ourselves Neuro-Psychologists. *Food for thought here.*

Thus, humans only make sense of the world by the way feeling attaches itself to experience. So what are feelings? Emotions are the irreducible feelings, it is the mixing that creates feelings and there are now clearly identified basic emotions.

### **The Basic Emotions.**

These are first grouped in ***Escape and Avoidance Emotions*** of which there are five, i.e. Fear, Anger, Disgust, Shame and Sadness.

Then there are the ***Potentiator Emotions***, i.e. Surprise and Startle.

Finally, there are the ***Attachment Emotions*** of Excitement and Joy, Love and Trust.

From the above we can deduce that the whole of the emotional system is the basis of the motivational system. "We have to understand this to help people to manage it if we are to do something about it." Others have already claimed the title *Interpersonal Neurobiologists* (Daniel Siegel) where the modern understanding of the mind is seen as a triangle of three axes which interconnect; namely the axis of Information, leading to Energy, leading to Relationships, which leads back to Information.

Professor Brown then focussed his talk on the Organisation as now perceived in line with latest neurological research. He recommended further study on neuro-behavioural modelling (NBM) where factors such as Trust play a far more significant role than previously believed. Trust within an organization can give traits such as positivism, optimism, good listening, approachability, braveness, resilience, fairness, courageousness, and effective leadership. No doubt the opposite traits can be effected when Fear is invoked!

His model of the Organisation was built up from the basics of Leadership, Culture, Development, Staff/Employees and Customers. Around these key elements, he added items such as Strategy, Operational Management and Marketing/Communications, Finance/Resources and Sales. The premise was that the effective organisation can be modelled on the working brain. If such an approach was adopted then workplace and organisational effectiveness would be significantly improved.

Finally, we were introduced to David Rock's (2009) SCARF model of managing and the mind - **S**: Status, **C**: Certainty, **A**: Autonomy, **R**: Relatedness, **F**: Fairness. This model comes from Rock's article *Managing with the brain in mind*, Strategy & Business, Issue 56, Autumn 2009.

So overall, an excellent and information-packed session which prompted much further debate and food for thought.

Nicholas Bennett  
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C.Psychol, CFCIPD, C.Scientist, AFBPS, PABP

Harpal Dhatt  
Chief Executive – Glowatwork  
MSc, C.Psychol.

## Out there and in here

**Dr. Hugh McCredie – TPF Vice-Chair**

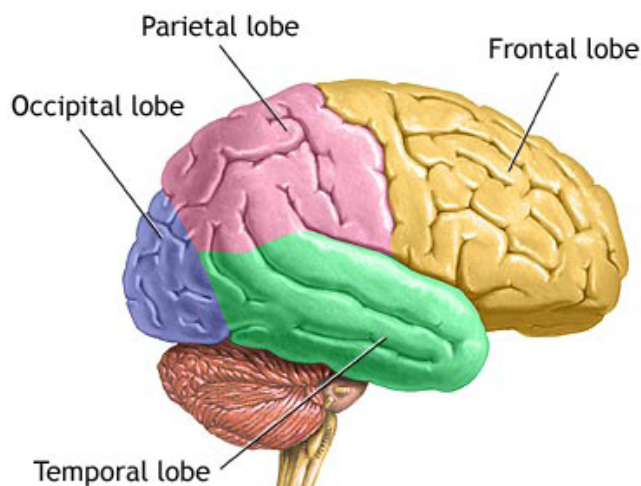


May 2011 Psychometrics Forum event – speaker Prof. Colin DeYoung

When I undertook my initial psychometrics training three decades ago, I thrilled to the saga of how Ray Cattell ‘captured’ the essence of 18,000 everyday descriptors of personality, and key concepts from psychology literature, within a mere 16 personality scales. A decade later I was amazed to learn how Lewis Goldberg had found an even more basic structure in the Big Five factors of personality. These stars of the psychometrics scene looked ‘out there’ in the field of everyday language and psychological practice to discover the essence of personality.

My pulse raced even further when, after a further decade, I unearthed the secret that our very own Hans Eysenck had identified biological correlates for two of the Big Five factors: the excitability of the neo-cortex for extraversion, the excitability of the limbic system for neuroticism. At a later stage, I read of Eysenck’s assertion that his third factor, psychoticism, which he sometimes rendered as toughmindedness was associated with the production of testosterone. I recalled that with my, then, instrument of choice, 16PF, Toughmindedness correlated with that questionnaire’s approximation to openness, the third of the Big Five factors. So, the Big Five model of personality was coming close to being validated from ‘in here’, in the brain’s structure and systems, as well as ‘out there’ in language. But, hold tight, you ain’t seen nothing yet, enter magnetic resonance imaging (MRI) and Professor Colin DeYoung.

Colin is operating at the leading edge of research into the neurobiological underpinnings of personality. It was down to a combination of Adrian Starkey’s vision, persuasiveness and sheer technological virtuosity that we were treated to a very substantive presentation from Colin by transatlantic relay to the TPF neurobiology event in May. To get some appreciation of what Colin told us, it may be helpful to look at the following diagrams of the brain’s structure:



I borrowed this image from Rita Carter’s presentation, which was reported upon in the last edition of *Psyche*. The frontal lobe has known associations with thinking, the parietal with integrating multiple senses to model space, the occipital with vision and the temporal with hearing, emotion and memory.

In the first part of his presentation, Colin reported how by the use of MRI he had measured the size of a number of brain structures in 100+ subjects and then correlated the measurements with their Big Five scores<sup>1</sup>. He discovered that:

- *Extraversion* correlated with the size of a structure at the bottom centre of the frontal lobe associated with sensitivity to reward.
- *Neuroticism* correlated with the size of structures higher up in the middle of the frontal lobe and in the upper temporal lobe associated with sensitivity to threat and punishment.
- *Agreeableness* correlated with the size of structures at the interface of the frontal and temporal lobes associated with altruism.
- *Conscientiousness* correlated with the size of a structure in the upper outer portion of the frontal lobe associated with top-down control.

There were no clear cut findings for openness but Colin had devoted considerable time to this factor in a separate study<sup>2</sup>. In the NEO version of Openness, he differentiated two sub factors: (1) narrower Openness comprising the facets of aesthetics, fantasy, feelings and actions; (2) Intellect which centred on the facet of ideas. Prof. DeYoung found correlations between Intellect and the frontal areas of the cortex associated with thinking but no significant correlations for any of the facets of narrower Openness.

In earlier research<sup>3</sup>, Colin had confirmed a level of personality description above that of the Big Five. There were two factors, which he labelled Stability and Plasticity. Stability encapsulated neuroticism, agreeableness and conscientiousness whilst Plasticity comprised extraversion and openness/intellect. He found that Stability was associated with reduced production of the neurotransmitter serotonin which was known to be implicated in impulsivity, aggression and negative affect. At the same time he reported that Plasticity was associated with the increased production of dopamine known to be implicated in exploration, reward, approach behaviour and cognitive flexibility.

I started this account in the style of a 'trailer' for a 1950s Hollywood epic. I end in the closing style of a serial cliffhanger, keep attending TPF events and discover aspects of psychometrics that you never imagined!

1. DeYoung, C. G., Hirsh, J. B., Shane, M. S., Papademetris, X., Rajeevan, N., & Gray, J. R. (2010). Testing predictions from personality neuroscience: Brain structure and the Big Five. *Psychological Science*, 21, 820–828.
2. DeYoung, C. G., Shamosh, N. A., Green, A. E., Braver, T. S. & Gray, J. R. (2009) Intellect as Distinct From Openness: Differences Revealed by fMRI of Working Memory, *Journal of Personality and Social Psychology* 97, 5, 883–892
3. DeYoung, C. G., Peterson, J. B. & Higgins, D. M. (2002) Higher-order factors of the Big Five predict conformity: Are there neuroses of health? *Personality and Individual Differences* 33, 533–552

## Leadership: What You Do and What You Are

**David Roberts** - Business Psychologist & TPF Committee Member



Report on the June 2011 Psychometrics Forum event – speakers Prof Peter Saville and colleagues at Saville Consulting

Oh dear, where to begin? Leadership was the theme of our June seminar at The Caledonian Club. After Bob Hogan in the morning, we listened to Peter Saville. I was unsure as to what new approach to leadership was to be advanced. I think most readers will have had their fill of this subject over the years, and I wondered, as I contemplated having agreed to write this report, whether there was anything new left to be said. Happily, it turned out that there was.

No doubt the topic brings back for many, memories of sitting in an MBA tutorial or some postgraduate management course. Or struggling with an essay on the subject.

Why struggle? Well, as Peter Saville reminded us during the first half of his talk, there have been many theories advanced, each, no doubt, carrying a grain of truth. There is leadership in sport, leadership in politics, leadership in business and in the military. Each may require a different type of leadership. (In the morning session, Bob Hogan opined that leadership was absent in most political leaders, and named several US Presidents to support his view.)

It is important to distinguish between *leadership traits* and *leadership behaviours*. Traits are fairly stable aspects of personality, remaining very much the same during our lifetime. Assertiveness, independence and intelligence are three such traits. Conscientiousness and confidence are two more. Leadership behaviours are concerned with what leaders do - how they behave when in a position of leadership. For me, the best definition I have heard on the subject came from the late John Garnett, Director of The Industrial Society, when he said, "*Leadership is about what people DO, not what they are.*" Yes, he was impatient with the psychometric approach to leadership.

Personality traits that are evident in all successful leaders are universal traits, and those that are specific to one situation are known as *situation specific* traits. Therefore it follows that someone who displays high leadership skills in one activity might not show the necessary leadership skills in another. However, there is an optimistic side to this: if successful leadership behaviours can be identified, they can also be learned. So you don't have to be born great - you might just have greatness thrust upon you by the situation in which you find yourself!

Peter Saville's WAVE Assessment – a leadership measurement tool - comprises 4 clusters, each having 3 sections and 3 facets. Therefore there are 108 facets in total.

The 4 clusters are: Thought, Influence, Adaptability and Delivery.

The sections are:

**Thought:**     *Evaluative, Investigative, Imaginative.*

**Influence:**    *Social, Impactful, Assertive*

**Adaptability:** *Resilient, Flexible, Supportive*

**Delivery:**     *Conscientious, Structured, Driven*

Each of the above has 3 Dimensions.

The Wave Professional Styles Questionnaire is different in that it combines both trait and situational responses. The Leadership Styles Profile focuses on 24 leadership styles that have been derived from 108 facets of the Wave Professional Styles model. It gives an indication of likely motives, preferences, needs and talents in adopting different leadership styles.

The Situational Leadership Effectiveness profile predicts the type of situation in which the candidate is likely to be an effective leader. It ranks 24 workplace situations using a 1 – 10 sten scale. Finally, the Leader Base Profile provides a summary of the likely potential of the candidate in 6 key aspects that underpin leadership effectiveness. They are:

**Task** (logical, expert)

**People** (adaptable, dominant)

**Growth** (entrepreneurial, revolutionary)

This seems to pull together in one assessment personality traits (that might show what a candidate is capable of), and situations, likely to reveal how the candidate will react in specific circumstances. There are of course built in checks and balances but as with all such assessments it is always wise to seek other information relevant to the work situation, perhaps through structured interviews or aptitude tests.

The Wave model seems to me to break new ground in combining traits (with which we are all familiar) with situations. Might the latter be more important? I think Garnett was right when he cited what people DO, as a leadership indicator, rather than what they are. But in Wave we have the best of both worlds.

## Wave Professional Styles Assessment Tool in Coaching

**Ann Rodrigues – TPF Committee Member**



Report [continued] on the June 2011 Psychometrics Forum event – speakers Prof Peter Saville and colleagues at Saville Consulting

Having taken us through the development of the Wave Leadership Report, Peter Saville gave us an anonymous profile to examine. As is usually the case with a case study at The Psychometrics Forum, the audience really got their teeth into it, and the hubbub of opinions, debate and musings filled the air. In vain did one of the co-presenters from Saville Consulting try to make himself heard above the noisy enthusiastic voices, to explain how to analyse the profile, WE WERE OFF!!

Thus with little or no instruction, the Leadership Report appears fairly straightforward to interpret and understand. Clearly time was limited, and if used in a real life assessment or coaching situation, there would have been a greater insight into the complexities of the individual concerned. But nonetheless, there was a degree of consensus amongst audience members about the individual characteristics that emerged, including:

Vision/Pioneering/Persuading/Consulter/Facilitator/Less interested in delivery/ Non hierarchical.

After we had finished analysing the profile, Peter Saville identified the individual as a member of the audience - to our surprise - Ajaz Ahmed. Ajaz had joined Dixon's, the electronics retailer, at 16 and developed Freeserve for them, which was later sold for £1.9bn! A serial entrepreneur, he describes himself as a generator of radical ideas, a creative PR person, someone who enjoys doing deals, but is less interested in operations. So the profile seemed pretty accurate. Ajaz was amusing, refreshingly honest and a delightful 'mystery guest'.

Peter ended his talk by taking us through the development of Saville Consulting's new Reflections Report. This uses the normal Wave questionnaire, but pulls out the individual's strengths and overplayed strengths – which Forum members who attended our successful event in April last year, will recognise as concepts from the Positive Psychology movement. The report is made up of 9 bi-polar combinations of individual scales, each showing the positive and potentially negative aspects of that particular strength.

A stimulating and thought-provoking end to a informative and entertaining successful day.

## My Experience at The Psychometrics Forum

**Tom Harris – Student**

Report on the June 2011 Psychometrics Forum event

For a 16 year old school boy just finished his GCSE's and on his work experience, to get an opportunity such as this has been a fantastic privilege, one which some fanatics at my age would only dream of.

Walking into the Smoking Room of the Caledonian club, at the beginning was a little nerve-racking, as I knew that being the age I am and talking to people with a deep knowledge of psychometrics would be somewhat of a challenge. Relying on Adrian Starkey to guide me around, and get to know people ended up in me making my own way to the drinks counter and mulling over the reports pretending I knew what they meant, no criticism to Adrian of course, this is work experience, getting to know the environment was part of the experience.

As the talk commenced beginning with Dr Robert Hogan, knowing what to expect may as well have been bogus, as what came out from his talk was unexpected. His ideas on how psychology has been going wrong over the past 100 years were intriguing. His serious tone was combined with some witty comparisons and comments. One being *"So if I were to take my pants off here as much as I'd like to, I'd get into a lot of trouble!"* He created a concentrated but relaxed atmosphere, like one of those classes you had when you began secondary school, you concentrated but all the while had a laugh. His talk on identity particularly intrigued me as things such as reputation, which is important to us all, and self-awareness were all discussed.

I decided to mull it over over lunch. A glorious buffet and lots of people to chat to was again a fantastic opportunity to talk to people. Some that I talked to weren't psychologists at all, which was interesting. One young-looking man ran an internet site which specialised in psychometric testing. Others I talked to helped me to understand the criteria better. I even had a personal chat to a man about my life and what I do. It made me think of the possibilities, of what psychology can bring and why I should keep it as an open option for my future.

Peter Saville seemed more down to earth compared to Dr Hogan as he was very statistical, and relied a lot on his sources and what we already knew. What intrigued me the most about his talk was his pitch on leadership. How you had different types of leader and different leader bases, also his myths on leadership, if they're born not made, or if they can be trained left me to think about how leaders are made. For example, I was told after I'd undertaken psychometric testing that I am no leader. However, I like to lead in certain situations, such as in the CCF (Combined Cadet Force) at my school. I am a sergeant and love to lead tasks and tell people what to do.

As the case study commenced, obviously I wasn't going to try to do it due to my complete lack of understanding. As the case study ended, the man (Mr X) was called to talk about his report and how he became successful. What came out was completely jaw-dropping. I've never heard a story quite like it before. To a teenager just finished his GCSE's, a story like that is priceless.

All in all my experience is one I shall never forget. The combined genius of two of the world's big names in psychology, the kindness and motivation of the people there, and the knowledge gained from it, is what some of us would take for granted, I'm so glad I didn't.

With my greatest gratitude to The Psychometrics Forum for giving me this opportunity.