Psyche

The newsletter of The Psychometrics Forum

The Psychometrics Forum

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Contents

A few words from your editor

Adrian Starkey

Adrian Starkey

In this edition of **Psyche** you will read about our two most recent TPF events. Sadly I missed hearing Rainer Kurz and Paul Barrett speak in June, but I was fortunate to be in the UK to attend September's 'Illuminating the Dark Side' event, where we were treated to two equally contrasting sessions from Bob Hogan & Andrew Munro respectively. TPF is proud to provide a platform for such notable international figures from the world of psychometrics. As a not for profit organization we are particularly appreciative of our speakers who freely give of their time and expertise.

A recent initiative has been the introduction of preferential training offers to TPF members. This is intended as an additional benefit of TPF membership and has been proving very popular with members and training providers alike. As a committee we are keen to make sure that we target our limited resources on promoting sessions that are of the greatest interest and relevance to our membership. To this end you will recently have received a survey requesting information on your current accreditations. Please be assured that any information you provide will remain within TPF and will be used to inform our internal selection of potential training providers – we are not in the business of selling data!

Also in this edition TPF's Vice Chair Hugh McCredie continues his guided tour through the historical founders of the field of psychometrics. In his current piece the focus is on the biological basis of personality and the work of Jeffrey Gray in particular. One of my undergraduate lecturers studied under Gray and I still recall grappling with the complexity of his work – with limited success. Thankfully Hugh makes a complex subject accessible and relevant to the general reader.

As editor of **Psyche** I am particularly pleased that, in addition to the return of TPF stalwart Nicholas Bennett, we have two new contributors – Jane Pollock & Kate Hammond. I was fortunate to meet them both at the recent 'Dark Side' event and given the quality of their contributions, hope that they can be encouraged to pen pieces in the future. As ever there is an open invitation to you all to contribute articles and ideas of general psychometric interest to adrian@xlr8talent.com.

Finally, I would like to draw your attention to our next TPF event that takes place on the 25th November. Yes it is once again time for TPF Vice Chair Dr. Hugh McCredie to serve up the festive smorgasbord of psychometric treats that we know as 'New Frontiers'. You will find a reminder of the program at the very back of this edition of Psyche. If you have not already signed up I urge you to do so before all the tickets have gone. Given the time of year the event will be followed by a Christmas social with mince pies, mulled wine and the usual trimmings…..

Copy deadlines

Spring – Monday 12th January

Summer – Monday 13th April

Autumn – Monday 15th July

Winter – Monday 12th October

To book a place on any of the events please contact our Administrator
Caro Leitzell on 01962 880920 or email her at
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Assessment and selection in the internet age

TPF event 25 June 2014

Rainer Kurz and Paul Barrett

Dr. Rainer Kurz's presentation:

Structure and dynamics of personality, ability and competency assessment

by Dr. Jane Pollock

Dr. Jane Pollock

We convened at the elegant RAF Club, in a fabulous room which included antiqued mirrors and a rather appropriately sky-painted ceiling. We were well looked-after throughout the event with plenty of opportunity for discussion and networking.

Dr. Kurz generously gave his presentation at very short notice, and shared with us his views on his 20+ years working with psychometric tools. He, perhaps uniquely, has a background with several of the larger UK-based psychometrics companies, and so is well-placed to discuss the developments in personality, ability and competency- based assessments.

His three main themes were theoretical ("How many factors?"), historical ("How did we get here?"), and predictive ("Where are we going?"). All delivered in a humorous and engaging way.

How many factors?

Well, although many of us might start with 3, Dr Kurz began in more recent history looking at the Big 5 models of the NEO and OPQ. Then of course there was the IMAGES model with 6, the HPI model with 7, and finally the 'Great 8' (Kurz & Bartram, 2002). The 'Great 8' model, it should be noted, extends beyond the traditional remit of personality testing by including constructs based on needs and cognitive processing elements, presented in competency constructs. All of the 'Great 8' factors have demonstrated association with the NEO factors, and thus derives external validity from a well-known and reliable instrument.

This brief history begs the question traded in undergraduate classes: how many factors? Dr Kurz's own work (Kurz 2009, 2010) with the WAVE instrument, seems to suggest an underlying 3 components. These three

The Great 8 Terminology Factor Names and Traits

Original Great 8 Terms (Kurz & Bartram, 2002)	4 Clusters & Great 8 Factors (Kurz, 2003)	Aligned Personality Traits
	Solving Problems	
Analysing & Interpreting	Analysing Situations	Openness - Analysis
Creating & Conceptualising	Creating Concepts	Openness - Creativity
	Influencing People	
Interacting & Presenting	Relating to People	Extraversion - Sociability
Leading & Deciding	Controlling Resources	Extraversion - Need for Power
	Giving Support	
Supporting & Co-operating	Respecting People	Agreeableness
Adapting & Coping	Adapting to Demands	Emotional Stability
	Achieving Objectives	
Organizing & Executing	Delivering Results	Conscientiousness - Structure
Enterprising & Performing	Driving Performance	Conscientiousness - Need for Achievement

are 'Working Together', 'Promoting Change' and 'Demonstrating Capability'. Underneath these global components sit more complex detail which we would recognise in many current psychometric instruments. It does seem that many of the scales of those instruments can be said to fit into a three-way higher-order framework (see the "Wave wheel), but in each case more detail is needed to be useful. Dr. Kurz points out that the Wave product captures perhaps unique detail from respondents, because of its emphasis on competency.

With the Big 5 factors at its heart, Wave builds on these to provide more pragmatic detail relating to 'Adapting Approaches', 'Solving Problems', 'Delivering Results' and 'Influencing People'.

How did we get here?

Again, how far back do you want to go? Dr. Kurz began with the Jungian and MBTI models of the 1940s and 1950s, through the NEO, HPI and OPQ of the 1980s, and right up to date with the TalentQ dimensions, Wave and Spark tools more recently available. One of the purposes of more recent models such as the revised 'Great 8' is that they are now trying to adopt a slightly more applied approach, using measures which are more closely akin to competencies (specifically 'Analysing and Interpreting' and 'Creating and Conceptualising' factors). At SIOP 2104, Kurz & Rojon

showed how Dr. Celine Rojon's new performance model explicitly attempts to measure counterproductive behaviours. This model converges with measures based on the 'Great 8' and 12 'Wave' sections, aiming again for a more pragmatic view of the workplace.

There is some paradox here. On the one hand, modern psychometrics need to demonstrate continued utility for the modern workplace and all of the change that brings. Whilst moving with the times however, we still need to demonstrate that the factors we are measuring, based on constructs developed some 50 years ago, still relate to humans in the modern workplace. If we strive to meet the changing demands and expectations of our clients, and the workplace they inhabit, does that pull us away from the foundations of psychometrics?

So how far has the 'Great 8' taken us from the older models, and how does the new tool relate to established tests for reliability purposes?

In a study in 2013, Dr Kurz compared Great 8 scores across three versions of 'Wave' and 4 psychometric instruments. These were the familiar tools used by many: the NEO, HPI, 16PF and OPQ32i. The results demonstrate that indeed, the Great 8 competency maps do show correspondence to the relevant elements of all of the 4 major tests, but the NEO Big Five in particular. This does seem to demonstrate then,

Wave Wheel Mapping
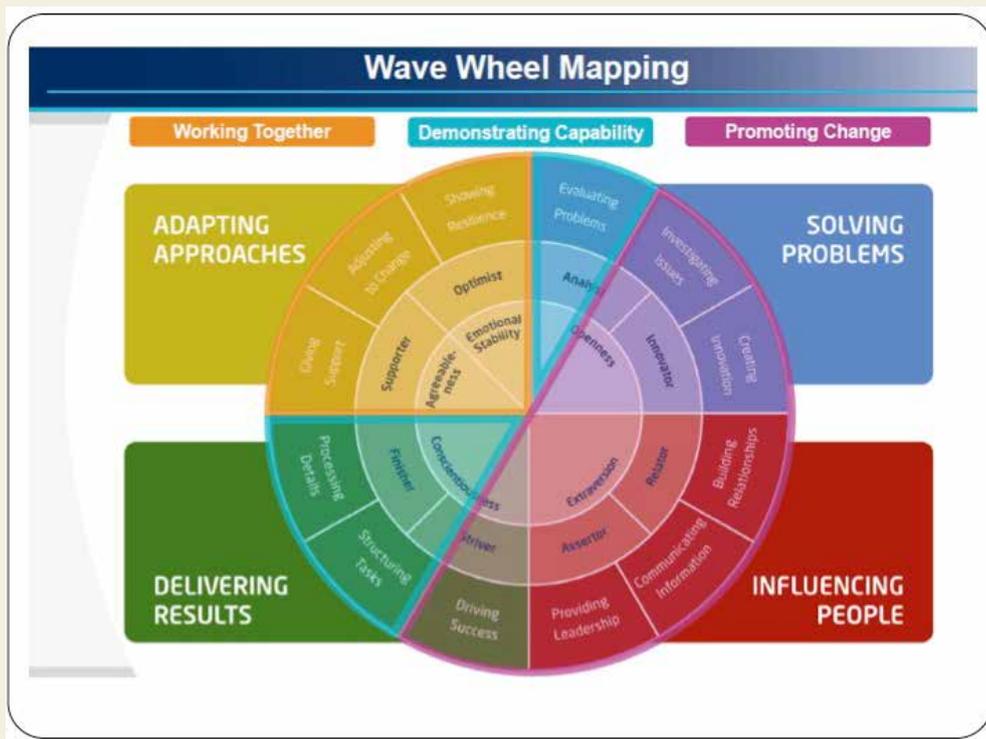
that modern instruments can indeed accommodate new emphases, but the constructs themselves have remained more or less stable over time.

Where are we going?

The increasing take-up of modern technology, and engaging graphical interfaces means that the front-end of any test can be much more engaging than a traditional questionnaire. Feedback, too, can be presented in colourful and engaging ways. Dr. Kurz gave a review of some of the latest instruments currently available. This was delivered as a slightly tongue-in cheek, but nevertheless revealing set of awards, highlighting some of the recent developments and products introduced to the market.

Rainer's award for Applied Innovation went to...
Harrison Assessments, for including Role Fit dimensions, and inclusion of some wonderful potential role strategies including (roughly translated) 'blind optimism', 'heedless pessimism', 'skepticism' and 'realistic confidence'.

Rainer's award for Practical Innovation went to...
Pi Company/HUCAMA, which provides a work related NEO variation, and a language free reasoning test. A useful tool in today's multicultural workplace where English might not be a first language.

Rainer's award for Emotional Innovation went to...
JCA, for a novel approach to Emotional Intelligence with a unique way of using scales in combination to describe behaviour in the workplace. Unusually for a psychometric, the emphasis is on practising and developing the constructs being measured, so that clients actively improve their scores. The traditional "I'm OK, you're OK" attitude model gets a new lease of life in their short summary report.

Rainer's award for Technological Innovation went to...
Cubiks, for highly interactive and engaging computer-based reporting tools, representing the gamification end of the psychometric scale?

Rainer's award for Sparkling Innovation went to...
Lumina Learning for the Lumina Spark approach blending Type theory with four of the Big 5 personality factors, allowing people to embrace their paradoxes by measuring each end of the Type dichotomy independently. E.g. Rather than being forced into a Thinking or Feeling preference the participants can be Outcome focussed and People focussed. "Overextended personas" based on 'overused skills' (dark side) provide a lens into maladaptive behaviour.

Great 8 Competency Mapping

Great 8 Criteria	Wave Competency Potential (CP) Dimensions	Wave Professional Styles (S) Dimensions	Wave Focus Styles (S) Facets	SPQ36ni	OPQ32i	NEO – PI-R	HPI (HICS)	16PF5	
Analysing & Interpreting	• Examining Information • Exploring Possibilities • Interpreting Data	• Analytical • Abstract • Rational	• Information Analysis • Conceptual • Data Oriented	• Analytical • Theoretical • Data-Driven	• Evaluative • Conceptual • Data Rational	• Openness to Ideas • Compliance • Openness to Feelings (-)	• Math Ability • Education • Science Ability	• B (Intellect) • M (Abstractedness) • Q2 (Self-Reliance)	Openness
Creating & Conceptualising	• Generating Ideas • Developing Strategies • Providing Insights	• Inventive • Strategic • Insightful	• Creative • Strategic • Focused on Improving Things	• Creative • Unconventional • Independent	• Innovative • Conventional (-) • Independent Minded	• Openness to Actions • Openness to Aesthetics • Openness to Values	• Experience Seeking • Culture • Generating Ideas	• Q1 (Openness to Change) • M (Abstractedness) • G (Rule Consciousness) (-)	
Interacting & Presenting	• Articulating Information • Interacting with People • Impressing People	• Articulate • Interactive • Self-promoting	• Presentation Oriented • Lively • Attention Seeking	• Assured • Extrovert • Unreserved	• Socially Confident • Outgoing • Modest (-)	• Gregariousness • Warmth • Positive Emotions	• Like Parties • Entertaining • Exhibitionist	• H (Social Boldness) • F (Liveliness) • N (Privateness) (-)	Extraversion
Leading & Deciding	• Directing People • Empowering Individuals • Making Decisions	• Directing • Empowering • Purposeful	• Leadership Oriented • Motivating • Responsibility Seeking	• Leading • Sales-Oriented • Decisive	• Controlling • Persuasive • Decisive	• Assertiveness • Modesty (-) • Competence	• Leadership • No Social Anxiety • Even Tempered	• E (Dominance) • H (Social Boldness) • O (Apprehension) (-)	
Supporting & Cooperating	• Understanding People • Team Working • Establishing Rapport	• Attentive • Involving • Engaging	• Empathic • Team Oriented • Rapport Focused	• Considerate • Consultative • Friendship Orientated	• Caring • Democratic • Affiliative	• Altruism • Tender-Mindedness • Trust	• Sensitive • Trusting • Virtuous	• A (Warmth) • L (Vigilance) (-) • Q2 (Self-Reliance) (-)	Agreeableness
Adapting & Coping	• Showing Composure • Conveying Self-Confidence • Thinking Positively	• Composed • Self Assured • Positive	• Relaxed at Events • Self-Confidence • Optimistic	• Tough Minded • Laid-back • Optimistic	• Tough Minded • Relaxed • Optimistic	• Vulnerability (-) • Anxiety (-) • Depression (-)	• Not Anxious • Empathy • Identity	• O (Apprehension) (-) • C (Emotional Stability) • Q4 (Tension) (-)	Emotional Stability
Organising & Executing	• Checking Things • Meeting Timescales • Taking Action	• Meticulous • Reliable • Dynamic	• Detailed Focused • Deadline Focused • Action Oriented	• Completion Oriented • Detailed • Planful	• Conscientious • Detail Conscious • Forward Thinking	• Order • Deliberation • Dutifulness	• Impulse Control • Avoids Trouble • Mastery	• G (Rule-consciousness) • Q3 (Perfectionism) • M (Abstractedness) (-)	Conscientiousness
Enterprising & Performing	• Pursuing Goals • Producing Output • Seizing Opportunities	• Striving • Activity Oriented • Enterprising	• Results Oriented • Quick Working • Business Opportunity Oriented	• Ambitious • Vigorous • Competitive	• Achieving • Vigorous • Competitive	• Achievement Striving • Self-Discipline • Activity	• Self Confidence • Competitive • Curiosity	• Q3 (Perfectionism) • E (Dominance) • I (Sensitivity) (-)	

Jane Pollock works as a freelance Organisational Psychologist, and currently combines tutoring and lecturing at the University of Oxford with commercial projects. She specialises in Psychometrics and Statistical analysis, and is currently working with several organisations to prepare statistical underpinnings for existing and future products. She also has skills based in Human Factors and information processing, with a particular emphasis on multi-modal presentation. Further information can be found at janepollocksolutions.co.uk. Jane can be contacted at janepollock.solutions@gmail.com

Kate Hammond

Dr. Paul Barrett's presentation:

Beyond GMA: cognition, cognitive processes, & the cognitive process profile (CPP)

by Kate Hammond

Business Psychologist and Associate Lecturer at the Open University

The opportunity to hear Paul Barrett speaking was the stimulus that transformed my long standing intention into the actual behaviour of joining the Psychometric Forum, and I was not disappointed. You did not have to agree with the arguments presented to yet benefit from such a fundamental challenge to accustomed ways of thinking and to the re-examination of the normative psychometric discourses we tend to use without thinking of their continued relevance. Certainly, the discussion was continued actively in the bar in the ground floor of the rather wonderful building that is the RAF club, the venue for the event.

As one would expect with Paul from his generous posting on Linkedin, the full presentation in two parts is readily available on his website (http://www.pbarrett.net/psycforum/#:1), along with other information that arose from the panel discussion. Paul also directed us to his very full notes that accompany the slides. This report will therefore cover the key points of the discussion.

Paul began by examining the case for going beyond GMA, stressing the key limitation of using GMA in selection: GMA testing can indicate 'can do' but not 'will do'. He cited Schmitt (2014)'s downwards revision of the familiar Hunter and Schmidt predictive validity correlations for GMA, suggesting the region of .2 is more appropriate. Paul acknowledged that Kuncel and Hezlett (2010) have argued for much higher coefficients, with values corrected for restriction of range and measurement error of .5 to .6. What, however, he argued, is the use of knowing 'corrected' scores if we do not live in a 'perfect' world? To further enforce the message

here, Paul showed several correlation graphs to illustrate just how scattered a coefficient of this size is – and how useless for a company trying to select. Even a correlation of .4 means there is a lot of inaccuracy when selecting high ability groups.

Alternatives were then considered: some go for incremental shifts by adding more assessments such as personality or emotional intelligence. With effect sizes of .3, he argued that for an employer looking at thirty people, these are fairly useless. Another alternative is to assess behaviour directly. This could involve familiar options such as assessment centres and situational judgement tests. It also could include assessments such as the Cognitive Process Profile (CPP).

At this point, Paul addressed the issue of measurement, explaining that psychological attributes do not fit the maxims of measurement as set out by Michell (1990): 'no psychological attribute has been shown to vary as a quantity'. Thus, there is 'dissonance between practice and academia'. While the arguments are complex, and Paul provides detailed notes to his argument on his website, the key point here is about the interpretation that is made on the numbers, that is, we observe variation in people's abilities to do a test item, but do not know what causes that variability. That, he argues, is the big issue.

A fundamentally different approach is required, and the CPP might just provide an answer. Developed in South Africa since 1994, the CPP has three major advantages: firstly, it does not rely on self-report; secondly, it works

with thinking processes and styles, and these are linked to everyday functions; and thirdly, the simulations it uses allow the extraction of precisely the processes used in their full complexity. It attempts to answer the high-stakes question: is this person really up to this job and can they cope with complications? In its very different approach, it harks back more to the Rorschach test than GMA tests.

As it is easier sometime to demonstrate rather than describe, Paul took us through the first thirty minutes of one of the eight CPP 'stories'. Based on the original card sort method, the candidate is required to decipher a story told through non-verbal symbols. A set of cards reveal information that is either helpful or unhelpful to this deciphering task. Memory processing is clearly a key aspect of the test as cards are replaced face downwards after being selected, so key information has to be retained for when it is of use. GMA is therefore part of the test, but only part. Card information also builds on other cards, so that cards can cancel each other out or reverse meanings. In its abstract approach to a storyline, it felt more Ebbinghaus than Bartlett for me.

Every move is timed and captured by the computer programme, and so approaches such as systematic left to right or more random turning over of cards is recorded. This information, plus a final open answer where the candidate provides their qualitative interpretation of the story provides the data for analysis. As Paul summarised, this data captures what people do – how they deal with information and how they respond to change. Importantly it captures both performance and metacognitive processing. The final report, therefore, can provide understanding of not only thinking skills, but also learning potential.

We then got to the crunch-point. As CPP can only be done once, there can be no test-retest reliability. Furthermore, while some aspects of the test are right or wrong, much of it is a subjective and based on interpretation. Essentially, the results are based on CPP's expert, Maretha Prinsloo's rule-based interpretation and this is partly where the validity issues arise as the test does not allow for standard validity testing. As Paul pointed out, however, while most tests are objective in their scoring, interpretation almost inevitably follows in what happens next with those test scores. The question then is, does the test do what it claims? Paul focused on how the CPP is not just a GMA

June 25th group mingling

test in disguise as through a range of diagrammatic interpretations, he showed that there is a clear difference between the CPP and ability testing.

The presentation then entered its most controversial phase with the discussion of the value of what is essentially 'faith' validity: does it actually matter if a test is not shown to be valid in formal ways if it has face validity and people believe in it? Paul presented this in terms of workplace utility: if it seemed to be useful to a purchaser, who returns for more over time. In these terms, 'the CPP is clearly a valid assessment as Cognadev is both profitable and successful'. This argument would of course also 'validate' DISC, Enneagram and MBTI. Paul counters this by suggesting that consultants need to help their clients more formally evaluate the measure. At the same time, Paul suggested that traditional approaches of evaluation reliant on raw scores are inappropriate as the validity coefficients are calculated based on subjective interpretations of these raw scores. He also argued against a reliance on metanalytic approaches: within the meta-analysis will be clients who got zero validity.

Paul's final offering was to focus on a workplace-intervention model, whereby the consultant explores with the client what they expect to happen, and what a 'better class of person' means for them. If the client uses CPP, they can then see if it works for them. All in all, a very provocative talk that did two things: it offered a new way of working which might not sit well for many in the audience. At the same time, however, it made more problematic the status quo: we might not agree with Paul, but doing more of the same is a much less easy option now.

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Heroes, landmarks and blind alleys in personality assessment

5. The contribution of the laboratory and experimental psychology: The work of Jeffrey Gray (1934-2004)

Dr. Hugh McCredie – TPF Vice Chair

Dr. Hugh McCredie

Jeffrey Alan Gray was British and graduated from Oxford, first in modern languages and then in psychology and philosophy. He trained as a clinical psychologist at the Institute of Psychiatry, in London completing a PhD in Hans Eysenck's department. Gray's thesis concerned environmental, genetic and hormonal influences on emotional behaviour in animals. He returned to Oxford, as university lecturer in experimental psychology, where he remained until succeeding Eysenck at the Institute of Psychiatry in 1983. As a laboratory-based researcher, Gray operated at a very detailed 'molecular' level of enquiry. This current review, aimed at psychometrics users, will attempt to report his contributions at a broader, more 'molar' level focussing on his conclusions at the expense of methodological detail. His contributions are reviewed in order of publication.

The psychophysiological basis of introversion-extraversion (1970)

Gray's initial contribution to the study of human personality was in response by Eysenck's assertion that introverts were generally more conditionable that extraverts. He argued, more selectively: (1) that *neurotic* introverts form conditioned fear reactions (aka conscience) more strongly than extraverts because they are more susceptible to fear and have a heightened sensitivity to punishment or the omission of anticipated reward ("frustrative nonreward"); (2) *neurotic* extraverts are most likely to form conditioned responses around the taking of reward '(by, say, stealing, lying or sexual gratification) without thought for the consequences, i.e. with no fear of punishment.' He added that the extravert's 'greater liking for people can be understood if we recall that people are the most important dispensers of both rewards and punishments for other people; therefore, those who are less sensitive to punishment are more likely to seek them out.' (p. 256)

The neurological basis suggestive in the title is explicated below. A key inference from this paper is that increasing degrees of *neuroticism* represent increasing degrees of sensitivity to all classes of reinforcement: fear reinforcement for the introverted and reward reinforcement for the extraverted.

**The psychology of fear and stress (1971)**

Biological findings

Gray (1971, 1987) included a chapter dealing with neuroticism and, to a lesser extent, extraversion in humans. He focussed his neuroticism enquiry in the septo-hippocampal system, part of the broader limbic system previously identified as relevant by Eysenck, concerned with memory, inhibition and spatial awareness. He postulated a role for serotonin and other neurotransmitters, in the neurotic condition. (In particular, those who have the short form of the 5-httlpr variant in the serotonin-transporter gene are more prone to neuroticism)

Conditioning effects

Gray repeated his conclusion that conditionability depended on combinations of extraversion-introversion (E-I) and neuroticism (N), with neurotic introverts being prone to conditioning by threat of punishment and neurotic extraverts by reward. He believed that this divergent conditionability would lead, by selective reinforcement, to permanent emotional/behavioural traits. This focus on conditionabilty, in opposition to Eysenck's arousability, came to be known as Reinforcement Sensitivity Theory (RST).

Drug treatment evidence

The third article in this series recorded Eysenck's assertion of Neuroticism-Stability and Introversion-Extraversion as the core independent personality dimensions and represented them as right-angled to each other. Gray thought the evidence from anti-anxiety drug (anxiolytic) treatment pointed to the positioning of two alternative axes bisecting Eysenck's model. He labelled his axes (1) *anxiety*, associated with punishment sensitivity, and (2) *impulsivity*, related to reward sensitivity via a Behavioural Activation (aka Approach) System (BAS). Gray drew support for his model in that anxiolytics worked specifically on the 'kind of behaviour which, in human beings, is experienced as anxiety' and also reduced the type of depression associated with high N and I, indicating common biological underpinning. He believed that such depressive tendencies were likely to have been conditioned 'by the loss of important sources of reward' (p.359) rather than threat of punishment. (p.354). Anxiolytics did not, however, reduce fear in the

Neuroticism

Anxiety · Impulsivity

Introversion · Extraversion

Stability
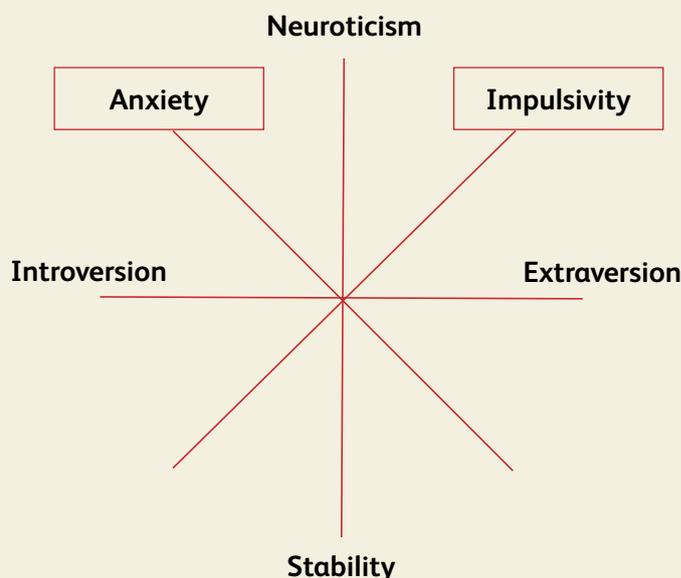
face of actual panic-inducing stimulants/environments (e.g. the proximity of snakes and spiders or the act of public speaking). Incidentally, Gray saw the type of depression arising with *low* N and E as associated with Eysenck's psychoticism (P) dimension.

A critique of Eysenck's theory of personality (1981)

Developments in Gray's thinking reflected in this paper included:

- The addition of sensitivity to novelty, alongside sensitivity to signals of punishment and signals of non-reward, as a correlate of anxiety (p.260)

- An underlying physiological Behavioural Inhibition System (BIS), activity in which controls the level of anxiety. Unsurprisingly the BIS involves the septo-hippocampal system, referred to above, which interacts with incoming impulses from the brain stem and connections to the neo-cortex (p.260)

- Evidence that introverts learn better when punished for wrong responses but extraverts learn better when rewarded (with social approval) for correct responses (p.267)

The neuropsychology of anxiety: an enquiry into the functions of the septo-hippocampal system (2000, 2003)

A key contribution of this densely argued co-authored volume is the amplification of the distinction between fear and anxiety based upon what anxiolytic drugs do and do not alleviate. The defining factor of fear, or panic, appears to be the physical proximity of the threat, as in the case of a rat placed in an experimental cage containing a cat. Such situations give rise to the engagement of the Fight/Flight System, (later refined as the Fight/Flight/Freeze

System, FFFS) located in 'the medial hypothalamus and the central periaqueductal grey' (p.3). The FFFS is probably related to Eysenck's P factor.

Responses to such proximal FFFS-inducing situations are *not* affected by anxiolytics which could interfere with the normal regulatory functioning of the BIS and *increase* the stress experienced. In contrast, anxiety seems to be induced by the *anticipation* of threat based on previous experience (this smells like a cat nearby), the conflicting possibility of reward (the cheese looks appetising) and having to decide how to respond. Such ambiguous situations trigger the BIS (stop doing anything until the situation clarifies). Gray and McNaughton say of the BIS:

> *This system is held to control the inhibition of ongoing behaviour, the increase in vigilance, and the increase in arousal which can be produced by stimuli associated with pain, punishment, failure, loss of reward, novelty, or uncertainty. (p.4)*

The BIS tends to be overactive with those high on anxiety and such anxiety is responsive to anxiolytic drugs, e.g serotonin blockers.

A critique of Gray's personality theory can be found in Matthews & Gilliland (1999) who get to the heart of both Eysenck and Gray's contributions:

> *Gray's theory has advanced research through stimulating interest in moderation of personality effects by motivational variables. It also provides a*

> *better explanation than Eysenck's theory for certain data, such as instrumental conditioning to reward stimuli and the positive affectivity of extraverts. Overall, however, Gray's theory explains a narrower range of findings than Eysenck's. There is little evidence that Gray's revised personality axes are generally more predictive of psychophysiological and performance criteria than Eysenck's original dimensions. (p.583)*

For the user of psychometrics, the last sentence of this statement is probably the most helpful. It allows us to treat extraversion-introversion and neuroticism, which occur in all Big Five models, as proxies for impulsivity and anxiety and benefit from Gray's findings relating to these two constructs. This being the case, drawing further on Matthews & Gilliland, we can crystallise our knowledge of E-I and N as shown in the table below.

Additionally, we have the probability that Eysenck's Psychoticism (P) is related to (1) a low N, high E form of depression, (2) the medial hypothalamus and the central periaqueductal grey and (3) the FFFS system, sensitive to proximal threat.

Was Gray a hero?

Matthews & Gilliland's concluding judgement is:

> *The Gray theory receives its strongest support from the role of motivational signals as an important moderator of personality effects and from the broad association between E...and "behavioural*

Factor	Extraversion-Introversion (E-I)	Neuroticism (N)
Nearest Gray approximation	Impulsivity	Anxiety
Broad location (Eysenck)	Reticulo-cortical circuit controls the cortical arousal generated by incoming stimuli	Reticulo- limbic circuit controls response to emotional stimuli.
More specific location (Gray)	Mesolimbic dopaminergic pathways	Septo-hippocampal comparator which detects mismatch between the actual and predicted state of the world
Key neurotransmitter	Dopamine	Serotonin
Related neural system	Behavioural Activation System (BAS) sensitive to signals of reward and non-punishment and influences probability of approach behaviour	Behavioural Inhibition System (BIS), which is activated by fear and novelty stimuli and signals of punishment and non-reward.
Key motivator	Reward	Punishment

activation". Overall, however, our impression is that the theory has had less predictive success than the Eysenck theory, even within those domains to which it most clearly applies. (p.618)

So, Gray's postulated anxiety and impulsive dimensions as an alternative to Eysenck's N and E were something of a blind alley. However, they serve to remind us that there are some interesting nuances in the space between the Big Five factors, a subject we shall explore further, in Article 6, when we come to look at Circumplex models of personality. In Article 7 we shall also be looking more extensively at positive and negative affect, to which this review of Gray's contributions has introduced us. In the judgement of this author, Gray remains something of a hero but possibly a lesser one than Eysenck.

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Illuminating the dark side
TPF event 25 September 2014

Andrew Munro

Andrew Munro's pm presentation:

Illuminating the dark side / drunks looking for keys under a lamp post?

by Nicholas Bennett - TPF committee member and Chairman of Ledborough Associates

Nicholas Bennett

Andrew Munro (MA and C.Psychol) is the leader of AM AZURE and a regular contributor to the TPF LinkedIn website. In following Bob Hogan, Andrew gave us a most interesting and attendee-interactive afternoon session on the Dark Side (DS.) He started by asking the question is the DS just another fad?

The wave of books like *Snakes in Suits* and *Overcoming the DS of Leadership* would suggest the answer *No*. Being suitably provocative,

Andrew then went on to say that the nature of some organisations – to operate on the principle of a company hierarchy, which had Sociopaths at the top and other middle people who ran the system and then, those who were at the bottom of the pile as losers – was well established.

However, DS Leadership might also be good for some organisations, where the 7 Deadly Wins including ruthlessness, charm, focus, mental toughness, fearlessness and mindfulness action could be seen as good, e.g. Steve Jobs at Apple, whereas Fred Goodwin at RBS reportedly condemned his organisation to an inevitable fate by similar traits. For Steve Jobs, *The Halo Effect* took over – which overestimates the impact of perceived successful leadership. So overall in Andrew's view, there was some need for care in distinguishing between DS Vices and Virtues.

Moving on, Andrew described a number of sub-clinical and clinical DS models which exist including:

- Manfred Kets de Vries and the 5 varieties of neurotic leadership.
- The Hogan Development Survey (HDS) and the 11 maladaptive themes.
- Nigel Guenole and DSM5 (Diagnostic & Statistical Manual) which includes negative emotionality, detachment, antagonism, disinhibition, compulsivity and psychoticism.
- The older Hans Eysenck's personality model which included neuroticism and psychoticism.

Andrew went on to show us a variation of the Big 5 Model via a schematic which included elements such as Will, General Intelligence, Extraversion, Conscientiousness, Affection/Agreeableness and Emotionality. He showed the use of this model in demonstrating permutations of DS personality traits, in organisations using an organisation chart approach.

Another useful source of information was that from Lucy Kellaway (FT Journalist) and the results of her 60 interviews with top CEO's. These interviews resulted in her *7 Deadly Sins* – including Control Freak, Vanity, Dithering and Poor Listening.

Another study was that of Douglas et al (2012) *Distinguishing the Dark Triads*, using evidence from the 5 Factor Model and Hogan's HDS. The Dark Triads (for those like me who wanted to know more) are a measure of Narcissism, Machiavellianism and, Psychopathy.

In drawing some conclusions from this fascinating session, Andrew looked at a number of implications of the DS for Talent Management and Succession Planning. Here he suggested we look at the current office of any contender for a senior role and seek out items which are prominently displayed. An example might be a large sword on the wall (worrying), a sign which said *Make it Happen* (Fred Goodwin) which also suggested cutting corners and, even the size of a corporate photo of the applicant from their current Annual Report – is it small or is it a full A4 size – draw your own conclusions!

Finally in answering a question about the strap line for this session, Andrew confirmed his view that we have a number of DS models – but we need to be more sophisticated in our use of such tools and in our analysis, with the caveat that in the hands of skilled practitioners DS can be very helpful indeed.

The UK's leading independent group of psychometric practitioners

New Frontiers in Psychometrics Seminar

Tuesday 25th November 2014

The Naval Club.38 Hill Street, Mayfair, London W1J 5NS

This popular annual event aims to look at new concept psychometrics, new applications, new insights, new alternative models of personality, ability and competence, new methods of test administration and comparative validation studies. The programme for this year's event will be:

10.00	**Coffee & conversation**	
10.30	**Introductions**	Dr Hugh McCredie, Vice-chair The Psychometrics Forum
10.45	**Maladaptive Personality at Work**	Dr Nigel Guenole, Goldsmiths, University of London

How mainstream personality testing can benefit from developments in clinical assessment reflected in DSM V

11.45	**The influence of personality on people's choice of organisations.**	Prof Dave Bartram, CEB/SHL Talent Management

The extent to which people self-select organisations as potential employers and how organizations make decisions about which people to employ.

12.45	**Lunch**	
14.15	**Perfectionism, perseverative cognition, and acceptance-based therapy**	Dr. Paul Flaxman, City University

Recent models of psychological health applied in the workplace

Tea/Coffee will be taken when convenient

15.15	**The Universal Leader:**	Tom Hopton, Saville Consulting

Validating the New 3P Model of Leadership

16.00	**Close**	

For bookings please contact TPF administrator Caro Leitzell by emailing her at admin@psychometricsforum.org.