Psyche

The newsletter of The Psychometrics Forum

Visit our website at **www.psychometricsforum.org**

You will find information about forthcoming events, speakers, the origins of the group and much more.

Want to add something to the website? Contact our Administrator – **Caro Leitzell: admin@leitzell.com**

Also keep up to date with developments by signing up to **The Psychometrics Forum Affiliates Group** on LinkedIn

Contents

A few words from your Editor

Adrian Starkey

Adrian Starkey

Welcome to what has matured into the Autumn 2013 edition of Psyche. As a committee we continue to listen to our members and in the following pages TPF Chair Xanthy Kallis presents the results of a recent membership survey undertaken by Rajesh Chopra and Ann Rodrigues. The findings are the subject of active discussion by the committee and will inform our decisions as we set the agenda for the months ahead. As the editor of Psyche, I for one would be delighted to see more active participation in the writing of the content…. Please note the copy deadlines below…..

Also in this edition you will find a review of Douglas Board's entertaining presentation at the April 2013 TPF seminar at which he provided some refreshingly pragmatic guidance on how to approach assessment with executive level candidates.

As well are reports from the April TPF event we are also looking forward to marking the 70th anniversary of the MBTI in September and to TPF Vice-Chair Hugh McCredie's annual New Frontiers event in November. We hope that our active program of events will encourage more affiliates to make the step to become full members of TPF. Details of how to do so can be found on our web-site.

I am personally very pleased that Sid Irvine has prepared a highly informative retrospective on the British Army Recruitment Battery. This has a special relevance for me as it takes me back to the very start of my career when I was working as a lowly postgraduate at what used to be known as the Army Personnel Research Establishment in Farnborough, from where BARB was commissioned and piloted.

Finally in this edition our very own Hugh McCredie transports us all back to the beginning again with a historical reminder of the origins of personality psychology – although he resists the temptation to quote the original Greek and Latin.

Elsewhere activity continues on our LinkedIn forum where we currently have over 4300 affiliates from around the world. The thriving forum is actively managed and amongst other points of interest, Paul Barrett has recently been using it as a platform to share his rethinking of reliability and validity … . One to watch.

All the best

Adrian Starkey
Follow us on Twitter @TPF_UK

Copy Deadlines 2013–14

Winter – Wednesday 6th November 2013

Spring – Wednesday 5th February 2014

Summer – Wednesday 7th May 2014

Autumn – Wednesday 8th August 2014

Event Announcements

Two further TPF events to look forward to in 2013:

Thursday 26th September – Uses & Abuses of the MBTI in enhancing Team Effectiveness, plus an afternoon session exploring the Lumina Spark Personality Test based upon the Big 5

Tuesday 27th November 2013 – New Frontiers in Psychometrics Seminar

- Revising the Eysenck Personality Questionnaire (EPQ)
- Aspects of intelligence (1) Intelligence and creativity; (2) Bias in ability testing?
- Assessing integrity: utilizing Kohlberg's theory of moral development
- Authentic Leadership: A UK Perspective
- Personality and occupational speciality

To book a place at either of these events please contact our Administrator Caro Leitzell on 01962 880920 or email her at admin@psychometricsforum.org

Details of membership are available on the Forum website: www.psychometricsforum.org

The organising committee is currently actively considering ideas for speakers at TPF events next year. As ever we would welcome your thoughts on potential speakers for 2014 and beyond.

Science, Politics and Intuition in Selecting for Senior Roles

from Dr Douglas Board's presentation
to the Psychometrics Forum Event
– 17th April 2013

Ann Rodrigues & Lynne Hindmarch

Ann Rodrigues   *Lynne Hindmarch*

"Enjoyed novel concepts of politics and intuition. Very interactive."

"Entertaining. Illustrated with real life examples. Different perspective (refreshing) on selection."

"Very thought-provoking; came away with lots of ideas to think about, suggestions to enhance practice and books to read."

"Very valuable indeed. A lot of material to digest. Good references to follow up."

"Engaging. Final starfish blob [more on this later. Ed] **made it for me.**"

These were some of the many positive comments we received after Douglas Board's lively and instructive presentation. Much of the content of his talk was based on his doctoral research, which has recently been published under the title of 'Choosing Leaders and Choosing to Lead' (Gower).

Defining 'senior' as individuals at or near the board of a stand-alone organisation of any size and in any sector, Douglas explained that his book argues that there is a problem in selection at this level, compared to the more objective and rigorous selection processes used at lower levels. His talk did not go into the arguments, focusing instead on what might be done to address the issue.

Douglas identified three 'stories' to illustrate three approaches to selection:

- Opinion karate – an example from his own experience in which one trustee attempted to influence fellow selectors by the arbitrary veto of a long listed candidate – despite never having met him.
- A 'scientific cathedral' – a scientific process gone mad! The example was of a Fortune 50 company seeking to select its top tier, which used a process taking many months, beginning with identifying 12 competencies, then 4½-hour long taped selection interviews each rated by five raters to elicit evidence of the competencies.
- Cinderella – the shoe being an objective measure, a process that would be effective at more junior levels but not appropriate at senior levels.

Douglas identified a research crisis, and that there should be real concern that not much actual research is taking place when people are selected for senior level appointments. There is little research into executive selection practices (Schmitt and Chan, 1998) and the field has stuck with the classical personnel selection model, seeking to correlate predictors with criteria, even though it continues to disappoint (Hollenbeck, 2009). Fletcher (2011) also found that there is 'staggeringly little' occupational psychology research at senior levels. Douglas suggested that the reasons for this might include the sensitivity and confidentiality of senior appointments, and the small number of candidates being assessed at any one time.

There is also a practice crisis – poor practices in senior level selection. Douglas quoted a study by Khurana (2002) that discovered that search firms in the US (who are often paid $1m+) neither find nor grill senior candidates, who are often identified by Board members from people who are known to them. There is no proper interviewing (or interview training); instead the process is characterised by deference, with little questioning of the candidates.

Bower (2007) found that boards often prefer to give the job to an insider, even when they fall short when measured against external candidates, and allow them, effectively, to learn on the job. I loved Douglas's quote by Bower: "I call this **blindfolded parking**. You back into a space until you hit the car behind you, then you go forward until you hit the car in front of you, and you repeat the process until you're close enough to the kerb"!

So what is the answer?

The French anthropologist and sociologist, Pierre Bourdieu (1930–2002) developed a powerfully analytical approach to human reality, based on a 'grammar of games'. A simplified version of Bourdieu's theory is that three factors continuously interact to give answers or meaning to human activity. These are **science, politics and intuition**. Douglas believes that this framework can usefully be applied to senior selection i.e. **science** (the need to objectify, quantify and predict), **politics** (organisational culture/values) and **intuition** (the social dimension).

Progress in selection in the last 40 years has been entirely in the science space, but this runs counter to intuition. The literature is completely silent on politics, even though the activity taking place is very political. To move forward, Douglas suggests we should give equal weight to science, intuition and politics, and other ideas from academia.

Given his wealth of experience both as a recruiter of top tier managers, in his 18 years in headhunting with leading search firm Saxton Bamfylde, and as a senior executive himself, we were keen to hear his insights and were rewarded by some excellent ideas. These included:

- If a team analysis of the top team is carried out, share the findings with the candidates, since the better informed they are, the more effective the outcome is likely to be.
- To tease out intuition, ask candidates 'what are the two or three biggest judgments you have had to make in your career?'
- Make the right judgement about which part of the recruitment process is going to be the most difficult – attracting candidates or selecting the right person?
- Manage the Board's political behaviour by deciding who will be involved in the selection process, and who is best suited to which role (such as interviewing).
- Ensure that candidates have been pressed in all three areas (science, politics and intuition).
- Walk through the process in the candidates' shoes.
- Avoid packing six or seven interviews into one day, and allow plenty of time (two hours minimum) at the end of the process to make a decision.

- And finally the 'Spider Blob' (a concept devised by Saxton Bamfylde's Australian office):
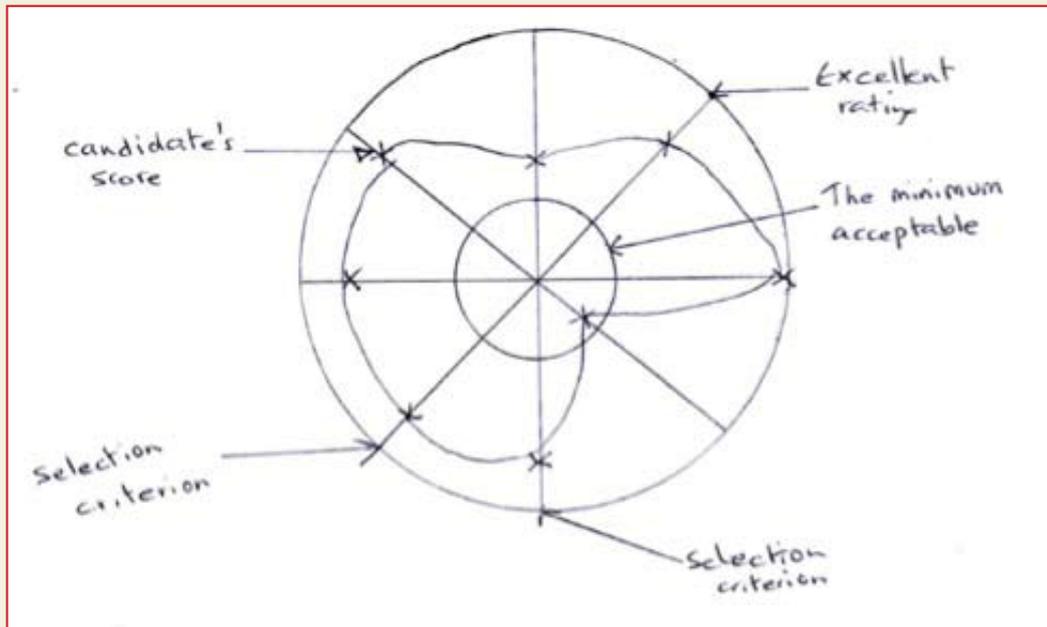
Each member of the selection committee completes a spider chart, rating each shortlisted candidate on each of the agreed criteria (represented by the spokes). Any score falling inside the 'minimum acceptable' would exclude the candidate. Once the scores are joined, it gives an immediate visual presentation of the selector's view of each candidate, and makes it easy for the different selectors to compare each other's assessment, indicates that no candidate is perfect and highlights immediate problem areas, for further discussion.

Xanthy Kallis & Dr Douglas Board

Douglas's presentation provided some valuable insights, supported by referenced research, in a straightforward, refreshing and entertaining way. His book gives further practical advice; extracts are available to download free from the Gower Publishing website (see http://www.gowerpublishing.com/isbn/9781409436485 under the heading 'Extracts from this title are available to view').

Ann Rodrigues and Lynne Hindmarch
TPF Committee Members

References

Bower, J. (2007). *The CEO Within: Why Inside Outsiders Are the Key to Succession*. Harvard Business School Press.

Fletcher, C. (2011). *Assessment for Top Management*. Assessment and Development Matters 3 (4) p. 11.

Hollenbeck, G.P. (2009). *Executive Selection – What's Right…and What's Wrong*. Industrial and Organizational Psychology 2, 2009, pp. 130–143.

Khurana, R. (2002). *Searching for a Corporate Saviour. The Irrational Quest for Charismatic CEOs*. Princeton University Press: Princeton NJ.

Schmitt, N. and Chan, D. (1998). *Personnel Selection: A Theoretical Approach*. Sage: Thousand Oaks CA, p. 33.

The British Army Recruitment Battery (BARB) After 21 Years: The End of a Generation?

Sidney H. Irvine

Sidney Irvine

BARB at The Sharp End

In 1986 The British Army Recruit Battery (BARB) was commissioned as part of a programme of strategic research by Dr. John Anderson O.B.E., Head of the Personnel Division of The Army Personnel Research Establishment (APRE). The initial research team had two members, Dr. Peter Dann and myself, but over the next five years it gradually grew to include a number of full and part-time members of the Human Assessment Laboratory, University of Plymouth. The BARB system went operational throughout the UK in 1992, and for the past 21 years has selected all British Army volunteers. Every recruit receives a new real-time parallel form of each test used in the battery. Millions of tests were automatically generated with no need to equate their respective means and variances. BARB is now due for renewal under a contract with an external contractor, with a reported budget of £49 million. This may be contrasted with the ten-year total contract research spend for BARB of £1.25 million. Questions remain. Was the initial MOD effort worthwhile? Did BARB contribute anything to psychometrics? Did it portend anything?

Tactics for Test Construction

BARB had to replace the Army Entry Test, a veteran paper-and-pencil system based on item types that had survived since the second world war. At a symposium Major Chris Lewis-Cooper (1993) listed official reasons for change, including scoring errors, coaching, compromise, security, and group administrations that did not anticipate the emerging computer culture. BARB needed to produce an index of general training potential within a testing time of no more than one hour. There was, in addition, one other limiting factor - all test instructions and test content had to be within the range of educational achievement for the average elementary school eleven year old child. Moreover, the means to an end were to be provided by answers to the psychometric question of the decade, seriously asked of me by John Anderson, albeit over a malt whisky.

What would tests be like with no item-banks, no IRT – and no money!

Perhaps I should have added at the time, because of experience with adapting tests to the cultural setting in Africa (Irvine, 1969a,b, 1986), the Irvine question.

How do you deliver these tests using computers to people who have never before seen a computer, let alone used one?

Answers provided the core of BARB and its successors. Only after a network was installed in a new building in the Army Personnel Selection Centre were computer-delivered tests possible. Until then, we used machine-scored paper-and-pencil 'hybrid' analogues. From the outset success depended on the a priori prediction of item difficulties from theoretical models; and, operationally, the generation, delivery, scoring and storing for each recruit, a set of new test forms whose items were constructed in real time. All of this to be done with micro-computers, those strange toys for recruits in 1986. Thirty years on, every schoolchild knows how to play the game. BARB, from its inception, was a new force in mass screening.

Theoretical and Operational Campaigns for BARB

The first phase of the work required much of the research detailed in Table 1, and had the benefit of an exhilarating NATO Advanced Study Institute (Irvine & Newstead, 1987: Newstead, Irvine & Dann, 1986). The outcome was a cadre of test types that fell within the self-imposed boundaries set by both of the fundamental Anderson-Irvine questions. Two conclusions proved pivotal. The first, from the preliminary empirical phase, was the need to include a core of working memory tests; and to test perceptual speed, and spatial orientation. Early developments are described in detail in Irvine, Dann & Anderson (1990). Second, success or failure depended on two critical areas of the computer interface with the volunteers – test instructions and the response mechanism. Test

instructions on screen, printed as if the tests were on paper, are a recipe for disastrous non-comprehension. This early discovery is now recognised as the first of the Dann-Irvine-Murphy Laws. ***The greater the area of screen covered by the test instructions, the less effective they will be.*** We intuited, perhaps presciently, that answers to questions had to be physically pointed to on screen. Rudimentary by today's standards, state-of-the-art touchscreens were invoked: and since 1987 they have been an outstanding fail-safe feature of the BARB system. Installation from the outset, after trials comparing keyboards and 'mice', led to the second Dann-Irvine-Murphy Law, which is: ***The more keys and buttons on the response apparatus, the less the test-retest reliability of item latencies***. Both of these laws subscribe to the computer-delivered-test-on-screen principle that more is less.

Parade Drills

Was BARB reliable and valid? How was proof provided? Did it make a difference to attrition? Table 1 summarises initial efforts to standardise and validate the BARB series. These were to include a hybrid version for the Royal Navy (the NPS /ABC Tests) while computer networks were constructed; and an advanced version for officer candidates (ARCOM), produced in six weeks. Both were a tribute to team capabilities and the strength of the theory. The necessarily bald summary in Table 1, confined to official technical reports, does no justice to the years of work involved by academics and independent MOD officials alike. Nor does it include quarterly progress reports, published work or symposia that added considerably to the total output.

Table 1: Summary of Test Development Reports, 1986–95

Source	Number	Reliability	Validity Concurrent	Validity Construct	Validity Predictive
ARMY	27	.78-.97	.71	WM, V.Ed.	.00-.65
NAVY	18	.74-.92	.68	WM, K, V,Ed	.27-.76
AIR Force	1	.88	.65	K	–
Australian Air Force	3	.78 -.91	.72	WM, V.Ed.	.14 -.36
US Air Force	1	.77 -.89	.46	WM, V.Ed.	–

WM Working memory; V.Ed Verbal/Educational Ability, K Spatial Ability

Briefly, the reliabilities were always very high, close to unity in composite scores, so that border zones for acceptance were comfortably small. Concurrent validities with existing tests were all good; and predictive validities ranged from minor to substantial, their variation largely a function of criterion quality. Notably, the best predictions were obtained with Royal Marine Commandos whose detailed practical skills training criteria were shown by Cawkill & Collis (1991) to be unique among a large number of follow-up studies.

However, no details of army follow-up beyond 1997 have been available to assess the impact of BARB on the ancient enemy of selection tests – the 30 percent attrition rate commonly associated with initial training. The use of BARB in a current recruit entry rating from A to D is stated in Johansen's (2011) report of supplements to ability scores. Recruits with A grades had a four in five chance of survival; B grades three in four; and C and D grades, only two in three. However, BARB is only one part of the grade, a number of other personal factors being taken into account. In general, an extensive review of attrition studies (Kubisiak et al, 2009) confirms that aptitude test grades do not measure numerous factors related to attrition, as Kiernan's (2011) admirable thesis on British infantry drop-out dramatically illustrates.

Deployment: Victory in Sight?

The work begun with BARB had far-reaching consequences during the next 20 years. The theory enabled new generations of the cognitive tests, unlike those in BARB, to be produced for trial in Germany, for use in the USA and Northern Ireland, and, since 2006, for nation-wide selection in Belgium in all official languages. Internationally, the test forms were uniformly parallel and measured the same constructs. In general there are two factors: one being a precisely defined information-processing factor with highest loadings on working memory tests. This factor is somewhat distinct from a second verbal-educational factor characteristic of traditional Army Entrance, ASVAB and Navy Recruiting Tests, but correlates with it in the region of .6. Separate diversity studies demonstrated test fairness to men and women, to different language groups and did not discriminate among ethnic and sectarian minorities. An account of these NATO country developments from 1986 is destined to follow later this year (Irvine, 2013 in press).

In short, theoretical elements of items that predicted item difficulties with very high multiple correlations (Irvine, 2002, pp 12–13) were stable. These were called radicals. Surface characteristics inserted randomly to alter the appearance of items, but to preserve serial independence without changing their difficulty were called incidentals. Today, these terms are in common use. Gradually, automatic item-generation has become a major test construction avenue, with the generic label evidence-centred design championed by Bob Mislevy (Mislevy, 2011) and foretold in a key resource of the last decade (Irvine & Kyllonen, 2002 and 2010). In conclusion, John Anderson wrote recently that the full potential of BARB has yet to be realised. That may happen only when preoccupation with IRT has ceased, realising that it is a wholly empirical, expensive, easily compromised (Wainer, 2002) and statistically complex attempt to equate test forms whilst unable to predict item difficulty.

Personally, the creation of BARB was not only a life-changing experience but also a privilege to serve as a member of what history proved to be a unique, largely unsung, British psychometric team at the University of Plymouth from 1986 to 1995. BARB has served the nation with minor changes since its nation-wide installation in 1992 for 21 years: and if nothing else, has earned its good conduct and long-service medal. Can its successors do the same? One can only wait and see.

References

Cawkill, P. & Collis, J.M. (1991). *The Plymouth Combined ABC Test Battery for Royal Marine other rank entrants, validity and reliability studies*. Senior Psychologist Naval SP(N) Report TR269, Ministry of Defence, London.

Irvine, S.H. (1969a). The factor analysis of African abilities and attainments: constructs across cultures. *Psychological Bulletin, 71*, 20–32.

Irvine, S.H. (1969b). Culture and mental ability. *New Scientist, 42*, 230–231.

Irvine, S.H. (1986). Cross-cultural assessment: from practice to theory. In Lonner, W. & Berry, J.W. (Eds). *Field methods in cross-cultural psychology*. New York, Sage pp 203–230.

Irvine, S.H. (2002). The foundations of item generation. In S.H. Irvine & P.C. Kyllonen (Eds). *Item generation for test development* (pp 3–34). Mahwah, N.J.: Erlbaum.

Irvine, S.H. (2013 in press). *Tests for recruitment across cultures: a tactical psychometric handbook*. IOS Press, Amsterdam, The Netherlands.

Irvine, S.H., Dann, P.L. & Anderson, J.D. (1990). Towards a theory of algorithm-determined cognitive lest construction. *British Journal of Psychology, 81*, 173–195.

Irvine, S.H. & Kyllonen, P.C. (Eds) (2002). *Item generation for test development.* Erlbaum Associates, Mahwah, N.J. (Reprinted 2010 by Routledge.)

Irvine, S.H. & Newstead, S.E. (Eds). (1987). *Intelligence and cognition: contemporary frames of reference*. NATO Advanced Study Institute, Martinus Nijhoff, Dordrecht, The Netherlands.

Johansen, D. (2011). *The effectiveness of graded selection in the British Army (Army Recruiting and Training Division (ARTD) UK)*. Proceedings of the 50th International Military Testing Association Conference, Bali.

Kiernan, M.D. (2011). I*dentifying and understanding factors associated with failure to complete infantry training among British Army recruits*. Thesis submitted to the University of Nottingham Faculty of Medicine & Health Sciences for the degree of Doctor of Philosophy.

Lewis-Cooper, C. (1993). *Implementing the British Army Recruit Battery*. In Proceedings of the 32nd Annual Conference of the International Military Testing Association. Williamsburg, Virginia, USA.

Kubisiak et al. (2009) *Review of Interventions for Reducing Enlisted Attrition in the U.S. Military, An Update*. (ARI Research Note 2009-13) U.S. Army Research Institute for the Behavioral and Social Sciences, Arlington, VA 22202–3926. (Complete Author List U. Christean Kubisiak, Elizabeth Lentz, Kristen E. Horgen, Rebecca H. Bryant, Patrick W. Connell, Matthew D. Tuttle, and Walter C. Borman (PDRI), Mark C. Young (U.S. Army Research Institute), Ray Morath (ICF International).

Mislevy, R.J. (2011). *Evidence centered design for simulation-based assessment*. (CRESST Report 800). Los Angeles, CA: University of California, National Center for Research on Evaluation, Standards, and Student Testing (CRESST).

Newstead, S.E., Irvine, S.H. & Dann, P.L. (Eds). (1986). *Human assessment: cognition and motivation*. NATO Advanced Study Institute, Martinus Nijhoff, Dordrecht, The Netherlands.

Wainer H. (2002), On the automatic generation of test items: some whens, whys and hows. In Irvine, S.H. & Kyllonen, P.C. (Eds). *Item generation for test development*. Erlbaum Associates, Mahwah, N.J., (pp 287–316).

Xanthy Kallis

TPF Member/ Visitor Survey 2013

I am very pleased to share the findings of the survey we recently carried out, asking you a variety of questions in order to better understand and improve the benefits our group offers you.

The last time we undertook a survey of our members' needs was about 6 years ago, and what changes we have seen since then! At that time, we were still the 16PF User Group, although the name did not reflect the coverage given to other psychometric instruments and topics for discussion. The website was not yet developed and LinkedIn was not even a twinkle in the Chairperson's eye. Currently, whilst membership of The Psychometrics Forum (referred to as TPF from here on in) has not changed markedly, membership of our LinkedIn group has grown exponentially, with over 4000 members worldwide and regular lively debate. Attendance at our meetings has also risen dramatically.

The 16PF newsletter was relaunched as Psyche, and a new editor, Adrian Starkey was appointed, after our longstanding and highly respected editor, David Roberts, stood down. Visitors to our website have increased, aided by the launch last year of a blog, written by new committee member, Raj Chopra, and we can also be followed on Twitter.

Feedback comments after each of our meetings are usually very positive. However, in the light of these significant changes, TPF Committee is keen to ensure the Forum continues to deliver what you find valuable, stimulating and interesting, and to ascertain how closely we are meeting the needs of our members and those who have attended our meetings, or joined our LinkedIn Group. We therefore set up an on line survey which was carried out between April and May 2013.

We would like to thank all those who took the time to complete the survey for us, and very much appreciate the feedback you have given us.

Summary of Key Findings and Actions to be taken

What would attract non-members to join TPF?

It is clear from the many responses that non-members are unsure about the benefits of taking up membership of TPF itself, and would like to know what membership has to offer, as opposed to attending meetings as non-members. Respondents clearly saw TPF as playing a key role in presenting new ideas, research and latest developments in the field of psychometrics, with innovative topics. Financial incentives such as reduced cost of attendance for members, and negotiated discounts on training and material with test publishers are also attractive. The Committee has decided to set up a sub-Committee to review this important area and aim to identify, and in due course, deliver specific benefits which will help increase membership.

Reason for not joining

The main reason given was that potential members did not attend TPF meetings often enough to benefit from the discount. [***Note****: membership fee is £35, and members receive a £25 discount for each meeting; therefore members need only attend two meetings to more than recoup their outlay on membership fee. This message may not be promoted by TPF clearly enough*]. Another issue with a small number of respondents was the London location of TPF meetings.

What additional benefits would be valuable?

CPD is clearly important and, as mentioned elsewhere, respondents report that they want to be kept abreast of latest developments in the field, but also webinars, problem-solving discussion groups outside the meeting, and tutorials were mentioned. The remit of TPF has not included a strong educational element as we are a user group and a small organisation run by volunteers, and arguably other (and larger) organisations, such as the BPS, might be expected to fulfil this role. *However the Committee will explore how we might be able to provide some further element of professional education.*

The other key message was respondents' appreciation of the networking opportunities afforded by TPF but also the desire for increased informal networking/discussion groups.

An interesting suggestion from one respondent was for members to be given the opportunity to participate in test development studies or other related research. There was a strong message from respondents that they did not appreciate presentations/presenters who were too sales-orientated. *The TPF Committee always makes this clear to speakers, but as they do not charge a fee to address us, we believe that some limited form of promotion is acceptable as long as it is not overt or biased. But we will reinforce the message further.*

Value of TPF

Respondents were generous in their praise of what they got out of the Forum. The two themes that emerged powerfully were **networking** and **learning**. Respondents appreciate meeting like-minded people, sharing ideas and knowledge, stimulating/expert presentations, acquiring leading edge knowledge, keeping up-to-date with new developments and psychometric tools (and the audience's experiences of using them).

Website

From the responses, it was clear that the 'News and Events' page was rated as most widely useful, with over 60 selections. This was followed by the 'Psyche' page with approximately 45 selections, which was then closely followed by the 'Blog' page with just over 30 selections. The 'Useful links' page was also deemed as useful (just over 30 selections), however other pages

Graph 1: Bar graph to show responses to the question, which pages do you find the most useful?
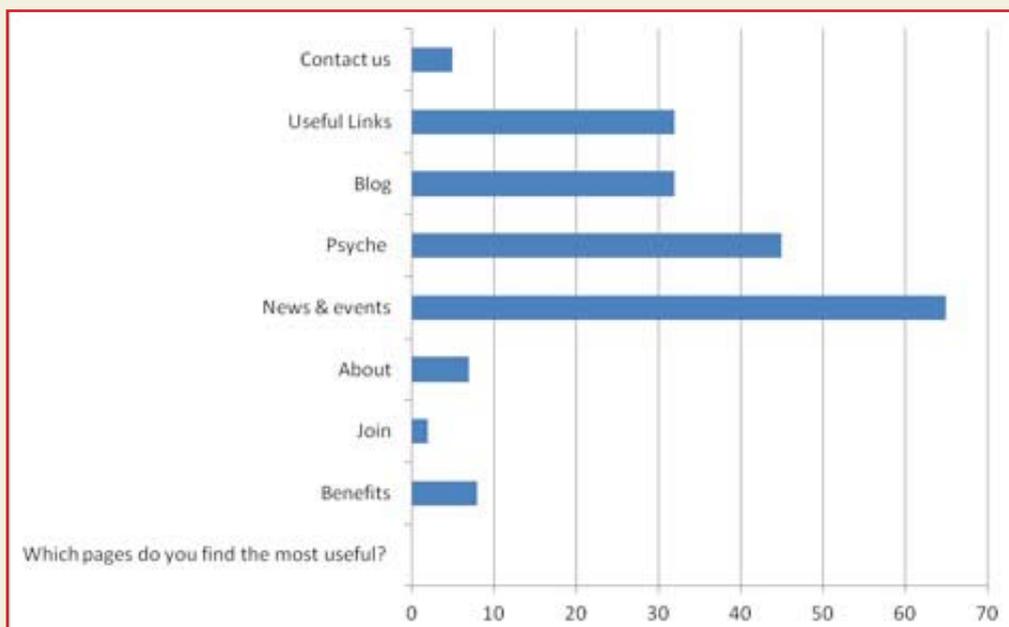
such as 'Contact us', 'About', 'Join' and 'Benefits' were each rated useful by under 10 respondents. Please see the graph above for a representation of this data.

There were a number of constructive and useful suggestions as to how TPF website could be improved. These suggestions centred on the themes of more interaction, as well as engaging content. In addition, there was an emphasis on providing more information in the form of updates and perspectives on recent developments in Psychometrics and research as well as applications in the field, to mirror the information sharing which occurs at meetings. Suggestions also included reviews of existing Psychometric tools and in particular, more extensive reviews than the BPS PTC system. There was a request for videos, in an effort to engage the global Psychometrics Forum community as well as bringing the website to life. Additionally, there was a request for relevant job advertisements and more of a forum where members can discuss between themselves.

Future Meetings

There was a clear favourite in terms of future meeting themes, and this was 'Assessment and Selection' with over 80 selections. This was followed by 'Leadership', with 60 selections and then 'Intelligence' with 50 selections. 'Teams' and 'Careers' then followed with

just less than 50 and just less than 40 selections, respectively. See graph opposite for a representation of this data.

In addition to these topics, a number of others were specified. These 'Other' suggestions belonged to a huge variety of areas, and therefore have been categorised into broad themes below:

Leadership: Coaching, executive assessment, traits vs. leadership style, derailers, destructive leadership and emotional intelligence.

Technical aspects of Psychometrics: Item Response Theory, online data collection, test construction, measurement models, new technology and its impact on Psychometrics.

New developments in Psychometrics: Neuroscience, new online tests, value-for-money tools, Mindfulness, Emotional Intelligence, and alternatives to self report i.e. 360-degree reports.

Practice: Glass ceilings, team profiling, culture, coaching, assessing entrepreneurship, resilience, values, careers, CPD, test batteries (which tests work well together), and conflict resolution.

In addition, there were some suggestions that pertained to clinical and educational psychometric tools. However, TPF focuses on occupational/ organisational tools to represent the majority of members and therefore these particular areas would be beyond our remit.

Graph 2: Bar graph to show responses to the question, which topics are of particular interest to you for future meetings?
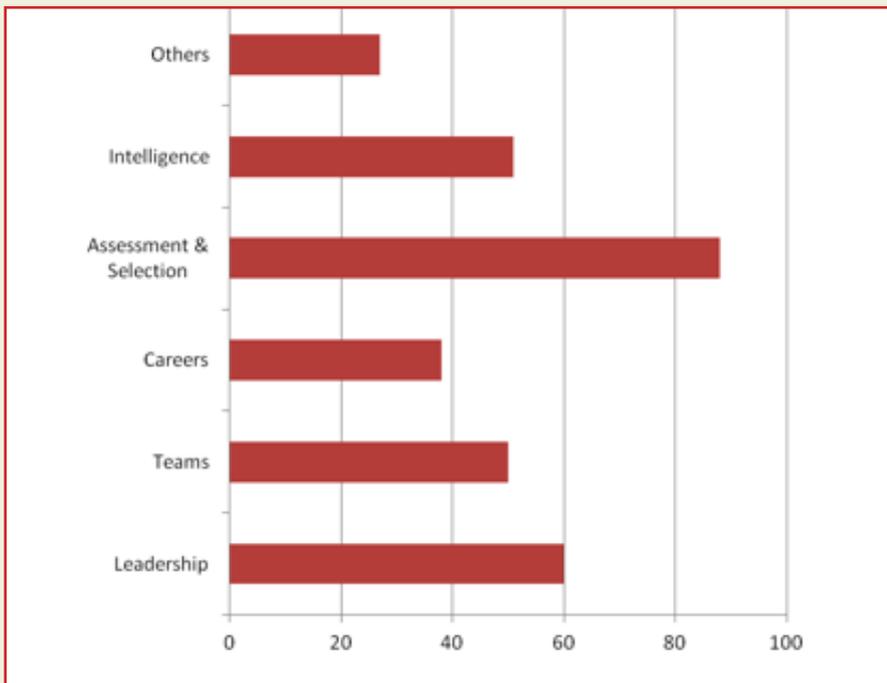
Future speakers were also suggested, and there was a general consensus that there should be a move towards more academic speakers, who will discuss broad areas of research or literature. This would be preferred to commercial speakers who have been perceived to 'sell' their tools and/or products. Recurring suggested names included Professor Adrian Furnham and Professor Rob Briner, as well as international academics from the USA and Australia. Therefore, a more global speaker line up seemed to be recommended, perhaps to accommodate the growing global following of TPF.

Blog

A number of respondents reported that they read the TPF Blog – *Fresh Perspectives on Psychometrics*. In fact, over 40 % of those who answered this question said that they read it and 64 % of these respondents said that they found it useful. In terms of improvements to the blog, one of the major findings was the lack of awareness regarding it. Therefore, there seems to be a need to increase knowledge about it and/or build in reminders about the monthly blog posts to direct members to them. Other suggestions included more practical business applications for the research that was discussed in the various blog posts. There was also a request for a more interactive experience via comments, debates and further discussion of the topics within the blog. Additionally, there was a call

to incorporate more research into the blogs, therefore making them more objective but at the same time keeping them brief and snappy. As well as these suggestions, there were a number of comments pertaining to the current high quality and standard of the blog, which is hugely encouraging.

Psyche

Of those that responded to the question, 55 % said that they regularly read TPF quarterly newsletter, *Psyche*. In terms of improvements to *Psyche*, general themes included having specific subsections for distinct branches or disciplines i.e. HR, clinical practice, etc. There was also the suggestion of summary sections for those who do not have time to read the newsletter completely, but do not want to miss out on the high quality information. There was a call to shake things up in terms of writing style and approach, and perhaps make the content more engaging. Lastly, a point which speaks to the popularity of *Psyche*, there was a request to have wider access to participation in writing of the content of *Psyche*. There were also a number of comments which suggested members were very satisfied with the high quality, right length and balance of the *Psyche* newsletter –"they are just perfect", one member wrote.

Secondment to the Committee

Another very important point was that 16 respondents said that they would like to be seconded to the committee for particular projects. We would encourage these members or non-members alike to get in touch with the committee through our administrative service (email: admin@psychometricsforum.org), specifying the type of project they would be interested in being involved in, and we would be delighted to continue the discussion moving forward.

Finally, I would like to thank both Rajesh Chopra and Ann Rodrigues (TPF Committee Members) for their hard work in setting up this survey and analysing the data here for us.

We look forward to hearing your comments.

All the best,

Xanthy Kallis
The Psychometrics Forum Chair
July 2013

The Relationship between Leadership Effectiveness and Personality

John Jackson

from Wendy Lord & Jon Cowell's presentation to the Psychometrics Forum Event – 17th April 2013

John Jackson – Fusion Leadership

This session reported on some research currently being undertaken by Hogrefe Ltd. and Edgecumbe Group to map the behavioural insights provided by the NEO PI-R onto the Primary Colours Model of leadership. The aim of this collaboration is to be able to produce an informative computer-generated report for use in leadership coaching.

This session was structured around three broad topic areas:

1. Some general measurement issues
2. A framework for mapping personality and leadership
3. Automating the process

Measurement issues

As a starting point Wendy proposed it was vital to be clear on how both personality and leadership are defined as constructs before seeking to explore relations between the two. Wendy suggested personality could be defined as a person's typical or preferred behavioural style, including thinking style as well as style of 'doing'. In Wendy's view the NEO PI-R was the first, and remains the most comprehensive commercial available measure of the Five Factor Model of personality.

Extrapolating from personality to leadership involves posing a number of questions. How do effective leaders typically understand the world and
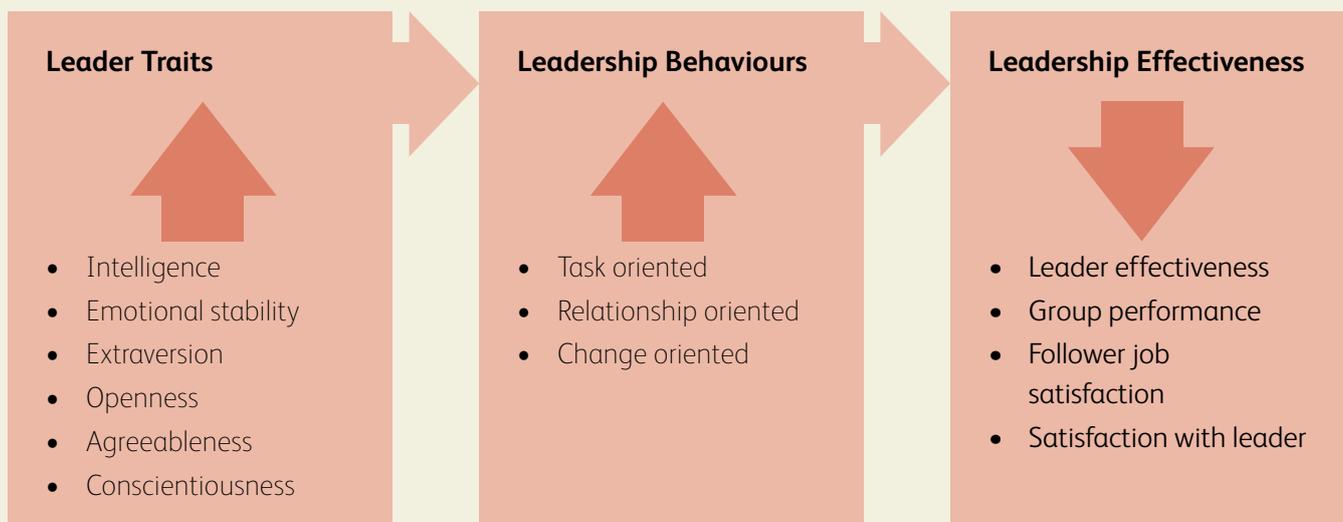
operate within it? How do we isolate those aspects of effective leadership that are influenced by personality and can be measured by a psychometric assessment of personality? Are individual differences in typical style relevant to developing 21st century leaders?

Aside from personality, Wendy also sees other constructs (i.e. aspects of psychological functioning) as being potentially significant for leadership, including critical thinking ability; situational judgement; self-regulation and unconscious bias. Wendy's own view was that the first three of these can generally be seen as positive for leadership, whereas the last one was more of a negative influence. For Wendy the central question in this research is "With what aspects of leadership is this person temperamentally compatible?" She believes the Edgecumbe Primary Colours model provides a useful framework for addressing this question.

Framework for mapping personality and leadership

Jon Cowell reported from his literature review and the model which had informed this research. One broad conclusion from this was that strong employee engagement was generally good for a range of key organisational outcomes, including sales and customer loyalty. As effective leadership is an important factor in determining levels of employee engagement the indirect link between leadership and tangible organisational results looks to be strong.

Jon referred to a meta-analysis (Derue, Nahrgang, Wellman & Humphrey, 2011) which extended the hypothesised links between leader traits, leadership behaviours and leadership effectiveness.

Leader Traits	Leadership Behaviours	Leadership Effectiveness
• Intelligence • Emotional stability • Extraversion • Openness • Agreeableness • Conscientiousness	• Task oriented • Relationship oriented • Change oriented	• Leader effectiveness • Group performance • Follower job satisfaction • Satisfaction with leader

Within this research a combination of intelligence and the five factors within the 'Big Five' model of personality are postulated to drive key leadership behaviours. These behaviours include being able to focus on the job in hand and to get things done (task oriented); a sensitivity to the significance of relationships and an ability to build and sustain these (relationship oriented); and an appetite for change (change oriented). It is a combination of these behaviours that determines overall leadership effectiveness as measured by the effectiveness of the actual leaders; the overall performance of the group; the job satisfaction that followers express; and more general satisfaction with the leader.

Key results of this research suggests that "who you are" and "what you do" has a significant impact on a person's leadership effectiveness. It was suggested that around 25 % of leadership effectiveness stems from leadership traits, with as much as 75 % arising from leadership behaviours. This view of leadership effectiveness also suggests that being effective is really as much about "leadership beingness" as it is about "leadership doingness". The charisma

of the charismatic leader reflects the subtle sense of presence and "beingness" in stark contrast to the results oriented, driving, "doingness" of many recognisable and energetic leaders.

The research by Derue, Nahrgang, Wellman & Humphrey indicates that leader traits and behaviours combine to predict significant elements of leadership effectiveness and related outcomes:

- Leader effectiveness – 58 % of observed variance accounted for, of which 25 % from direct trait effects, 75 % from behaviours
- Group performance – 31 % of observed variance accounted for of which 38 % from traits, 62 % from behaviours
- Job satisfaction – 56 % of observed variance accounted for, of which 6 % from traits, 94 % from behaviours
- Follower satisfaction – 92 % of observed variance accounted for, of which 15 % from traits, 85 % from behaviours

Jon then went on to link this research to the Primary Colours model of leadership. This model is framed around three associated domains – see diagram to the right.

Jon talked through the implications for the overlaps between domains in the Primary Colours model, e.g. striking the right team-working balance between concern for results (blue) and the need to maintain harmonious relationships (red). Intuitively these overlaps work well but the central, leading segment at the core of the model is a bit more challenging to articulate and explain. For Jon this conjunction is essentially about 'creating a moral world' for the truly effective leader.

Outside of leader traits, behaviours and an ability to balance the sometimes competing demands of providing direction, keeping the peace and ensuring the tasks get done, coping with pressure is seen to be an additional, vital moderating element of effective leadership. An ability to soak up pressure without passing it directly on to followers, and at the same time maintaining the right level of balance and mix of behaviours makes true leaders stand out from those who cope only in easier times.

For Jon all of these competing demands suggest that it is virtually impossible to identify leaders who will thrive in every given context. The clear solution looks to be to acknowledge this; to recognise that most leaders will be "incomplete individuals" to some extent, but that their shortcomings can be overcome by recruiting the "complete team" to work with them.

These views of leadership provides a high level taxonomy of guidance as the basis for leadership development and coaching as outlined here:

STRATEGIC DOMAIN

Setting strategic direction

Planning and organising

Creating alignment

Leading

Delivering results

Team working

Building and sustaining relationships

OPERATIONAL DOMAIN

INTERPERSONAL DOMAIN

	STRENGTH	LIMITATION
Personality helps:	Natural strength **WORK WITH**	Potential strength **WORK ON**
Personality hinders:	Fragile strength **WORK ON**	Resistant limitation **WORK AROUND**

In summary the tips for each scenario look to be:

1. In contexts where a leader's personality really helps and they have a natural strength in their personality they really need to work **with** that strength and use it to the full.

2. In similar contexts, but where the leader's personality is more of a potential strength rather than a natural one the leader has to work **on** their personality as well as draw on it.

3. Similarly in scenarios where personality hinders rather than helps a leader, but where they have a 'fragile strength' the guidance is again to work **on** personality.

4. Finally, where leader personality is a drawback to such an extent that it may be seen as a 'resistant limitation' the leader may even have to work **around** that limitation rather than divert energy into vain efforts to develop it.

In closing Wendy reported that the NEO has now been fully mapped onto the Primary Colours Leadership model. The overall aim for both Hogrefe and Edgecumbe remains to be able to drive out an automated report for people that will be useful in leadership development and coaching.

John Jackson
Fusion Leadership

Heroes, landmarks and blind alleys in personality assessment

Early type theories

Dr Hugh McCredie

Galen (AD 131–200)

Galen qualifies as the super-hero in this series of articles. He took his inspiration from the proto-science of Greek antiquity and his model of personality is still being validated by contemporary 21st century psychologists.

600 years before Galen, the Greek philosopher Empedocles (circa 450 BC) asserted that all nature is composed of four elements:

- *Air*: warm and moist
- *Earth*: cold and dry
- *Fire*: warm and dry
- *Water*: cold and moist

Dr Hugh McCredie

Shortly after Empedocles, the Greek physician (and formulator of the famous medical oath), Hippocrates (460–370 BC), postulated, or promulgated, the idea that human moods and emotions were caused by body fluids (or 'humors): blood, yellow bile, black bile, and phlegm.

Based on these beliefs, Galen developed his typology of temperament in a dissertation entitled De temperamentis. He asserted four temperament type categories and the dominant element and bodily fluids/humours with which they were associated:

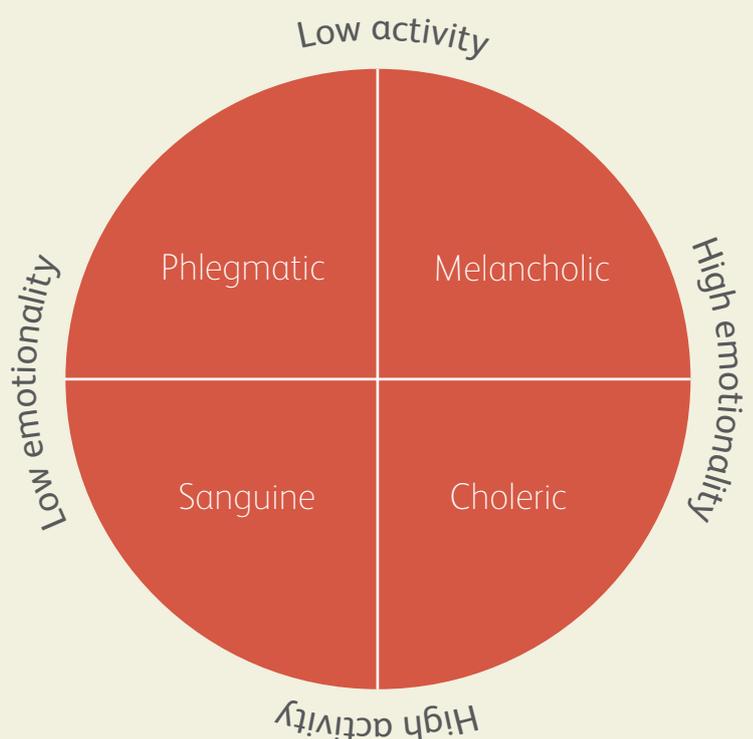| Temperament (emotion)	Dominant element	Bodily fluid/organ
Sanguine (happy)	air	blood/liver
Choleric (angry)	fire	bile/spleen
Melancholic (depressed)	earth	black bile/gall bladder
Phlegmatic (calm)	water	phlegm/lungs & brain

De temperamentis was first translated from Greek into Latin by Thomas Linacre (circa 1460–1524) an English humanist, scholar and physician, after whom Linacre College, Oxford is named. A revision of Linacre's translation by the distinguished physician, and Harveian Orator, Joseph Frank Payne, was published in 1896 and is currently in print (Galen, Linacre & Payne, 2012), albeit with Galen's text still in Latin!

In subsequent articles, we shall see how several authors have related Galen's temperaments to modern psychometrics. This confirms the amazing prescience of Galen's taxonomy, notwithstanding that the original elemental and biological correlates were long-since abandoned. How many contemporary psychometric models and are likely to be around in 3800AD, 1800 years after they were formulated? In the meantime we can note the linking insights of two giants, the philosopher Kant (1724–1804) and the early psychologist Wundt (1832–1920). Kant and Wundt located the four temperaments in the quadrants of two orthogonal dimensions, emotionality and activity (Matthews et al., 2003, p. 9):

With which of the modern Big Five factors are these dimensions likely to be associated?

Carl Gustav Jung (1875–1961)

Jung was a Swiss psychiatrist and a son of the Manse. His principal claim to fame was to provide an alternative, developmental, view on the role of the unconscious in contrast to the emphasis of Sigmund Freud (1856–1939) on the process of maturation to sexual identity. There is a metaphysical or mythical, rather than a scientific, quality to much of Jung's published work. It is interesting that in the, quite substantial, entry on

Low activity

High emotionality

Low emotionality

Phlegmatic

Melancholic

Sanguine

Choleric

High activity

Jung in *The Oxford companion to the mind* (Gregory, 1987), there is not a single reference to Jung's theory of personality type; the inference being that this was secondary to the main thrust of Jung's contribution to psychology and psychiatry.

As indicated, a primary focus of Jung's work was on the ideal trajectory of the adult human mind towards full development, or 'individuation' as he termed it. He offered his model of psychological types as a means of explaining the individuation process (Jung, 1921, 1971) proposing four main *functions* of human consciousness:

- Two perceiving functions: Sensing and Intuition
- Two judging functions: Thinking and Feeling

The exercise of these functions was moderated by two main attitude types: extraversion and introversion to yield eight distinct type categories which differentiate individuals:

- Extraverted sensing types
- Introverted sensing types
- Extraverted intuition types
- Introverted intuition types
- Extraverted thinking types
- Introverted thinking types
- Extraverted feeling types
- Introverted feeling types

The route to individual development is, first, to identify the dominant function, which operates in the realm of the individual's consciousness and, from there, to locate its polar opposite. The latter operates unconsciously so the task is to raise awareness of it in stages and subsequently integrate it into the conscious mind and so achieve individuation.

The challenge to 'operationalize' Jung's model was picked up by Katharine Cook Briggs and her daughter, Isabel Briggs Myers in the Myers-Briggs Type Indicator, which was first published in 1962. In the meantime, *The Oxford dictionary of psychology* (Colman, 2001) credits Jung with introducing the concept of introversion/extraversion to the world in 1910. Extraversion is derived from two Latin words *extra* outside and *vertere* to turn; thus, 'outward turning'.

Contributions that 'did not fly'

The most notorious theory of personality, which eventually crash landed, was Phrenology originated by Franz Joseph Gall (1758–1828). This supposed mental faculties were located in specific areas of the brain detectable through bumps on the skull. Although discredited, modern brain scanning devices are detecting some localisation of personality factors.

There were two personality taxonomies based on body types. The first was the 'constitutional' typology propounded by Kretschmer (1888–1964) and included the asthenic (frail), athletic (muscular) and pyknic (plump) body types. The second was by Sheldon (1899–1977) consisting of ectomorph (thin), endomorph (fat) and mesomorph (in between) 'somatypes'. Neither of these taxonomies found acceptable empirically supported personality correlates.

Types and traits

Type theories, such as those outlined in this article are implicitly or explicitly based on categorical distinctions. In contrast, trait models tend to presume continuous dimensions. Notwithstanding the availability, or otherwise, of data distributions, psychologists have a conditioned distrust of categories arising from the discovery that, aside from geometric shapes, most phenomena belong to 'fuzzy' categories. If we struggle to define precisely a concept so basic as that of gender how can we emphatically distinguish between extraverts and introverts? It is safest to assume continuous dimensions as the default position.

The next article in this series is entitled 'Early implicit measures and the first psycho-lexical trait studies'.

Dr Hugh McCredie is a Chartered Psychologist, Vice-chair of the Psychometrics Forum and author of 'Selecting and developing better managers'

References

Colman, A. M. (2001) *The Oxford dictionary of psychology*, Oxford: OUP

Galen, Linacre, T. & Payne, J. F. (2012) *Galeni Pergamensis de Temperamentis*, Lightning Source UK Ltd

Gregory, R. (1987) *The Oxford companion to the mind Oxford*: OUP

Jung, C. G. (1971). *Psychological Types*. Princeton, New Jersey: Princeton University Press

Matthews, G., Deary, I. & Whiteman, M. C. (2003) Personality traits, Cambridge: CUP

The UK's leading independent group of psychometric practitioners

New Frontiers in Psychometrics Seminar
Tuesday 27th November 2013
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	**Revising the Eysenck Personality Questionnaire (EPQ)**	Dr Barry Cripps, Managing Director at Eysenck Cripps Cook Occupational Scales Ltd

Tracing the development of the EPQ to ECCOS: from Clinical to Occupational

11.45	**Aspects of intelligence:**	Danny Hinton, PhD researcher Aston Business School

Danny will report on two studies: (1) Intelligence and creativity; (2) Bias in ability testing?

12.15	**Assessing integrity: utilising Kohlberg's theory of moral development**	Louisa Tate, Managing Consultant, Cubiks

A discussion of the development and validation of a new Moral Reasoning Questionnaire.

12.45	**Lunch**	
14.15	**Authentic Leadership: A UK Perspective**	Fiona Beddoes-Jones Cognitive Fitness Consultancy

Fiona will report on development of a new 360 instrument, with the participation of RAF officers and business leaders, which formed part of her PhD research at Hull University Business School

Tea/Coffee will be taken when convenient

15.15	**Personality and occupational speciality**	Dr Steve Woods Aston Business School

Steve will reveal how the Big Five factors which predict success in a broad field are different from those predicting success in its specialisms

16.00	**Close**	