OCCUPATIONAL PSYCHOLOGY

PSYCHOMETRIC TESTING AND INDIVIDUAL DIFFERENCES

INDIVIDUAL DIFFERENCES

Most branches of psychology are interested in human behaviour under different conditions

The assumption made is that all people are pretty much the same

BUT! This assumption is wrong…

- Some children develop faster than others
- Some adults are less conscientious than others
- Some people are more intelligent than others

PSYCHOMETRIC TESTING

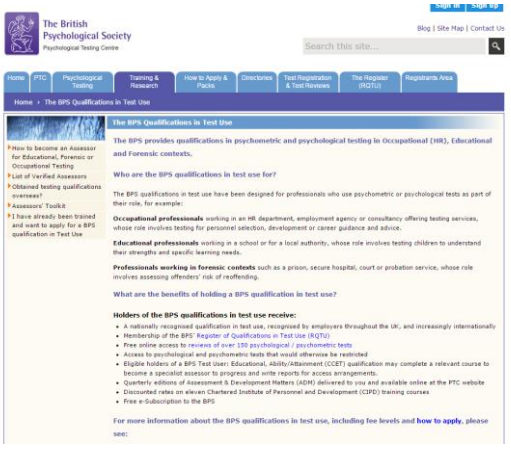
Psychometrics is the branch of psychology concerned with the scientific measurement of individual differences

Accurate measurement of I.D's is important because theories can be tested *if and only if* the constructs involved can be measured

PSYCHOMETRIC TESTING

- The field of psychometrics and behavioural statistics has been expanding with unprecedented speed
- These rapid and technically rigorous developments have created a need for a new breed of quantitative scientist who can work at the interface between mathematical stats and applied research

WHY??



The British Psychological Society
Psychological Testing Centre

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Home > The BPS Qualifications in Test Use

- How to become an Assessor for Educational, Forensic or Occupational Testing
- List of Verified Assessors
- Obtained testing qualifications overseas?
- Assessors' Toolkit
- I have already been trained and want to apply for a BPS qualification in Test Use

The BPS Qualifications in Test Use

The BPS provides qualifications in psychometric and psychological testing in Occupational (HR), Educational and Forensic contexts.

Who are the BPS qualifications in test use for?

The BPS qualifications in test use have been designed for professionals who use psychometric or psychological tests as part of their role, for example:

Occupational professionals working in an HR department, employment agency or consultancy offering testing services, whose role involves testing for personnel selection, development or career guidance and advice.

Educational professionals working in a school or for a local authority, whose role involves testing children to understand their strengths and specific learning needs.

Professionals working in forensic contexts such as a prison, secure hospital, court or probation service, whose role involves assessing offenders' risk of reoffending.

What are the benefits of holding a BPS qualification in test use?

Holders of the BPS qualifications in test use receive:

- A nationally recognised qualification in test use, recognised by employers throughout the UK, and increasingly internationally
- Membership of the BPS' Register of Qualifications in Test Use (RQTU)
- Free online access to reviews of over 150 psychological / psychometric tests
- Access to psychological and psychometric tests that would otherwise be restricted
- Eligible holders of a BPS Test User: Educational, Ability/Attainment (CCET) qualification may complete a relevant course to become a specialist assessor to progress and write reports for access arrangements.
- Quarterly editions of Assessment & Development Matters (ADM) delivered to you and available online at the PTC website
- Discounted rates on eleven Chartered Institute of Personnel and Development (CIPD) training courses
- Free e-Subscription to the BPS

For more information about the BPS qualifications in test use, including fee levels and how to apply, please see:

BPS QUALIFICATIONS IN TEST USE

Occupational, educational and forensic

Benefits?

- Nationally recognised qualification
- Access to psychological/psychometric tests that would otherwise be restricted

OCCUPATIONAL TESTING

Level 1: Assistant test user

- Qualifies the delegate to administer psychometric tests, teaches the basics of ethical test use and computer-based testing

Level 2: Test User (Ability)

Level 2: Test User (Personality)

- Qualifies delegate to score, interpret and provide feedback on tests
- Delegate will get trained in specific tests (e.g., NEO PI-R)

PERSONALITY

WHAT IS PERSONALITY?

In certain respects, each of us is:

- Like *all other* people
- Like *some other* people
- Like *no other* people

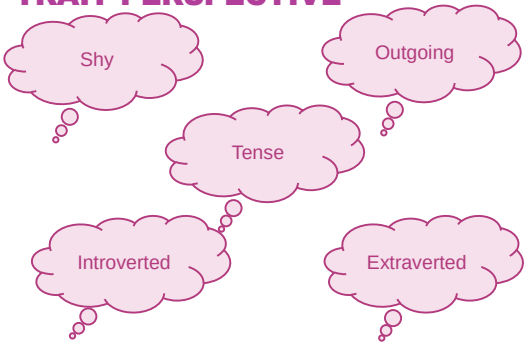
Personality: distinctive and relatively enduring ways of thinking, feeling, and acting that characterise a person's responses to life situations

TRAIT PERSPECTIVE

Goals of Trait Theorists:

- Describe the basic classes of behaviour that define personality
- Devise ways of measuring individual differences in personality traits
- Use these measures to understand and predict behaviour

TRAIT PERSPECTIVE



PERSONALITY AND JOB PERFORMANCE

Is personality a useful construct for understanding performance at work??

- Task performance?
- Leadership?
- Team working skills?
- Resilience to stress?

PERSONALITY AND JOB PERFORMANCE

How do we know?

How do we measure personality?

- Which models/theories?
- Which assessment method?

What other factors do we need to consider?

PERSONALITY AND JOB PERFORMANCE

PERSONALITY AND JOB PERFORMANCE

Personality traits are useful if they:

- Describe consistent differences between individuals
- Predict work-related behaviour independently from cognitive ability

Does 'typical behaviour' at work matter more than 'maximal performance'?

PERSONALITY AND JOB PERFORMANCE

Are some personality traits within the Five Factor Model (such as conscientiousness) generally better predictors of performance at work than other traits?

Are some traits more predictive of performance in specific settings than others?

RECAP

The Five Factor Model (Costa & McCrae, 1992)

Openness to experience
Conscientiousness
Extraversion
Agreeableness
Neuroticism

RECAP

Barrick, Mount and Judge (2001):

- Conscientiousness (in particular) and neuroticism are the best personality predictors of job performance across all occupations
- Extraversion and agreeableness are important in jobs requiring a high degree of interpersonal work
- Less consistent evidence for Openness to experience

Salgado et al. (2003):

- Conscientiousness is a valid predictor of performance across most jobs and organisational settings; criterion-related validity 0.23

Ones et al. (2007):

Unlike ability testing, the predictive validity of personality measures for 'overall job performance' is not seen across all occupational settings and areas

E.g., for managerial roles, the 'achievement' and 'dependability' facets of conscientiousness predict job performance

CONSCIENTIOUSNESS

The most important personality predictor of performance at work:

Assesses individual differences in:

- Responsibility
- Dutifulness
- Achievement striving
- Organised planning
- Self-control

CONSCIENTIOUSNESS

Conscientious people set ambitious goals and work hard to meet them (Barrick, Mount & Strauss, 1993)

A general marker (like GMA?) of people's typical performance or work ethic?

NEUROTICISM

Inconsistent findings but generally negatively associated with performance at work

Neuroticism linked to job and training performance particularly under stressful conditions

Matthew (1999) - better performance in air traffic controllers amongst individuals high in N

Marker of individual differences in stress-reactivity?

EXTRAVERSION

Inconsistent evidence

Positive associations between Extraversion and sales/managerial performance

Interaction between Extraversion and Neuroticism may be a better predictor of performance at work than one alone

AGREEABLENESS

Predicts performance in:

- Customer service type jobs (Hurtz & Donovan, 2000)
- Team-work based jobs (Barrick et al., 1998)

But generally *negatively* associated with career success/income: *Correlations of -.11 to -.32*

❖ Interaction with conscientiousness!
High C + low A = conflict with others!

OPENNESS TO EXPERIENCE

Inconsistent in predicting work performance

May reflect lack of clarity of what the trait consists of:

- Driven by fantasy?
- Artistic?
- Liberal?
- Need for cognition?

Relevant predictor in creative industries

Predicts training success generally

CRITICALLY EVALUATING THE BIG FIVE

- Some personality dimensions tend to be more stable over the lifespan than others
- Introversion-Extraversion, self-esteem, emotionality, and activity level remain relatively stable
- Neuroticism, openness and extraversion tend to decline with age
- Agreeableness and conscientiousness tend to increase with age

CRITICALLY EVALUATING THE BIG FIVE

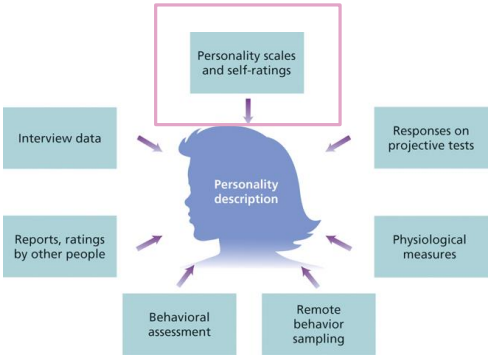
But, is it better to explore smaller facets of the 'big five' in order to predict performance at work?

- Each contains six sub-facets that allow for sharper predictions

Does 'conscientiousness' tap into general mental ability?

PERSONALITY ASSESSMENT

PERSONALITY ASSESSMENT



PERSONALITY SCALES

Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1964)

Measures:

- Extraversion; neuroticism; psychoticism

The 16 PF5 (Cattell *et al*., 1970)

- short and long versions available
- measures 16 personality factors (e.g., submissiveness, self-assurance, tender-mindedness, etc.)

PERSONALITY SCALES

The Occupational Personality Questionnaire (SHL, 1990)

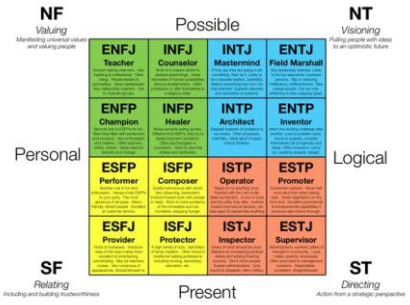
- Thirty personality dimensions
- Origins of questions come from people's behaviour in the workplace
- E.g., measures: caring, emotional control, forward planning, etc

PERSONALITY SCALES

The Myers-Briggs Type Indicator (MBTI)

- Very different from the Big Five; uses Jung's theory of psychological types
- Uses *dichotomies* rather than positions on a scale
- Shown to correlate with the Big Five
- However, there are qualitative differences in what the MBTI measures because it is based on a different underlying theory…

MBTI



THE BIG FIVE INVENTORY

- 44 items
- Measures all five factors

- Your task:
  - Fill out the BFI-10 and score yourselves on this personality measure
  - Be aware that this does involve reverse scoring!

THE BIG FIVE

Costa and McCrae (1992)

Openness to experience
Conscientiousness
Extraversion
Agreeableness
Neuroticism

THE BIG FIVE

	Low scorers	High scorers
Extraversion	Loner; Quiet; Passive; Reserved	Joiner; Talkative; Active; Affectionate
Agreeableness	Suspicious; Critical; Ruthless; Irritable	Trusting; Lenient; Soft-hearted; Good-natured
Conscientiousness	Negligent; Lazy; Disorganised; Late	Conscientious; Hard-working; Organised; Punctual
Neuroticism	Calm; Even-tempered; Comfortable; Unemotional	Worried; Temperamental; Self-conscious; Emotional
Openness to experience	Down-to-earth; Uncreative; Conventional; Uncurious	Imaginative; Creative; Original; Curious

PERSONALITY SCALES

The revised NEO Personality Inventory (NEO PI-R, Costa & McCrae, 1992)

- 240 items
- Measures the Big Five plus facet scores for six subscales within each of the five domains
- Designed for a wide range of purposes (e.g., clinical, research and occupational uses)
- Can only be purchased, administered and scored by an individual with occupational test user qualification

NEO PI-R

Neuroticism

Anxiety
Angry hostility
Depression
Self-consciousness
Impulsiveness
Vulnerability

Extraversion

Warmth
Gregariousness
Assertiveness
Activity
Excitement seeking
Positive emotion

Openness to experience

Fantasy
Aesthetics
Feelings
Actions
Ideas
Values

Conscientiousness

Competence
Order
Dutifulness
Achievement striving
Self discipline
Deliberation

Agreeableness

Trust
Straightforwardness
Altruism
Compliance
Modesty
Tender mindedness

INDIVIDUAL DIFFERENCES ACROSS OCCUPATIONS

1) Lawyer

2) Lecturer

3) Pilot

LAWYER - EXTRAVERSION

Richard (1993);

- 57% (of 3014) lawyers were more introverted than extraverted
- Stark contrast to the finding that, in the general population, 75% of people are more extraverted

Richard (2002);

- Lawyers are more autonomous than 89% of the general population – they prefer to work alone
- Lawyers judged as 'excellent' were less sociable than 87.5% of the people in a general population

LAWYER - NEUROTICISM

Foster et al. (2010);

- Results suggest that the average lawyer may score more highly on the neuroticism domain than 56% of the general population
- Lawyers have a tendency towards becoming tense and overly critical – more than 68% of the general population
- Relatively low degree of adjustment; relatively high degree of excitability.

SUMMARY - LAWYER

According to research:

1) The typical lawyer is inclined towards introversion and is likely to prefer working by him/herself
2) The introverted tendency may be exaggerated among highly successful lawyers
3) Lawyers are low in extraversion when considered as a group

LECTURER – PREFERENCES BY STUDENTS

Chamorro-Premuzic et al. (2008);

- Students prefer lecturers who were emotionally stable (low in N) and high in C
- Students prefer lecturers who are similar to themselves in all personality traits except N, and particularly for O and C

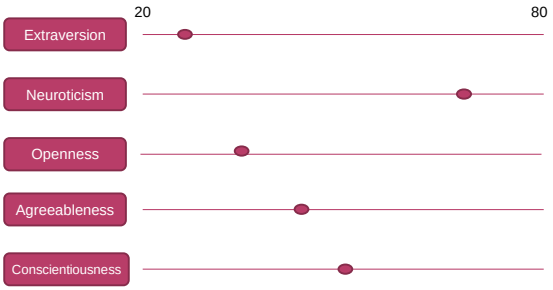
Generally, students want lecturers who are stable, conscientious, extraverted, agreeable and open

LECTURER

Conscientiousness

- On the plus side, high C is associated with academic and occupational achievement; on the negative side, it may lead to annoying fastidiousness, compulsive neatness and workaholic behaviour

LECTURER PERSONALITY??



PILOT PERSONALITY

Jessup (1971);

- Success rates highest in stable introverts
- But; failure rates higher in neurotic introverts than neurotic extraverts

Lambrith et al (2003);

- Conscientiousness considered most important dimension and predictor of performance for pilots

ISSUES IN PERSONALITY ASSESSMENT

1) 'FAKING'

- The tendency for people to present a favourable image of themselves on questionnaires
- Social desirability response bias affects the validity of a questionnaire
- Job applicants have been found to score more highly on desired personality traits
  - Motivated to 'fake good'? (Barrick & Mount, 1996)

1) FAKING

- Easy to identify the 'desirable response' on a personality test
- May influence the ordering of candidates re: hiring decisions!
- Is there a solution?
- Ipsative tests:
  - 'forced choice' scale - respondents compare two or more equally desirable options and pick the one that is most preferred

2) STATE OR TRAIT??

E.g., Laziness

State or trait?

- State = something that changes depending upon an individual's mood, situation, etc
- Trait = general trait of the individual across all settings

3) SPURIOUS VALIDITY

Tests can have high face validity but no true validity

e.g., graphology, magazine quizzes

Personality Insight

The brain-color clue to your true personality!

An analytical thinker?

A curious innovator?

A people person?

A risktaker?

4) BARNUM EFFECTS

The tendency to regard generalised descriptions as accurate comments of an individual's personality

E.g., the dessert personality

PSYCHOMETRICALLY VALID AND RELIABLE…

VALIDITY

Construct validity:

- The degree to which a test measures a specified construct
- Rests on the psychological theory underpinning a testing instrument

Predictive validity:

- The degree to which scores on a test predict future behaviour on a criterion variable

Face validity:

- 'Experts' review contents to determine if they are appropriate 'on their face'

RELIABILITY

Many forms of reliability; the one you are most interested in is **'internal consistency'** or **'Cronbach's alpha'**

✓ Measures the *homogeneity* of the test - i.e., the degree to which the various parts of an instrument measure the same variable

RELIABILITY

Interpretation of Cronbach's Alpha

Certain benchmark values have been proposed in order to interpret Cronbach's alpha:

$\alpha < .60$ = poor!
$.60 < \alpha < .70$ = adequate
$.70 < \alpha < .80$ = good
$.80 < \alpha < .90$ = very good!
$\alpha > .90$ = perhaps too good...

PERSONALITY MEASURES

You will be discussing how reliable and valid you think a number of personality measures are in today's seminar…

The BFI

Alpha reliabilities for scales typically range from .75 to .90 and average above .80;

Three-month test-retest reliability mean of .85

Ten-Item Personality Inventory (TIPI)

Gosling, Rentfrow and Swann (2003);

- Extraversion - $\alpha = .68$
- Agreeableness - $\alpha = .40$
- Conscientiousness - $\alpha = .50$
- Neuroticism - $\alpha = .73$
- Openness to experience - $\alpha = .45$

Why are some of these so low??

QUESTIONS?

YOUR REPORT ASSESSMENT

You need to choose:

1. A psychometrically robust measure of personality
   - i.e., valid AND reliable..
2. A stress-inducing cognitive task
   - Think about what it is you're looking to assess with this task. How can something be 'stress-inducing'?

YOUR REPORT ASSESSMENT

You are then required to:

1. Complete the proposal and ethics form to obtain ethical approval to run your study
   - This must be submitted by **5pm Friday 9th February**- only one form per group. Outcomes disseminated by Tuesday 13th Feb.
2. Collect data in your groups
   - Tip: think carefully about how many participants you are going to need to collect data from based upon the design of the study you are running…

YOUR REPORT ASSESSMENT

Writing up the report:

1. Appropriately report the use of any measures in the materials section of your report
   - Example on Moodle; this will be scrutinised in your final submission.
2. Report the reliability analysis as compared to previous literature
   - Remember that you must have all your data entered into SPSS before you can do this.
   - Reading any journal article will show you how to report this correctly.
3. Conduct the multiple regression analysis on your data set; correctly report descriptive and inferential statistics according to APA standards and using correct terminology
   - Stats books needed! Any APA journal will give you an idea of how this should be presented. Example on Moodle, also.

FINAL QUESTIONS?