Work Psychology Group
Thinking differently

Breaking the class ceiling: How can we promote diversity in selection?

Professor Fiona Patterson

Special Interest Group for the Public Sector – Lisbon
26th September 2016

Overview

- The case for ‘breaking the class ceiling’?
- *Case Study 1:* ***Widening access in selection in medical & dental schools admissions using UKCAT***
- *Case Study 2:* ***Promoting diversity in selection in the banking sector***
- Implications for future research, theory & practice

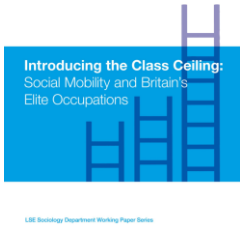
The case for breaking the class ceiling?

- **Boosting social mobility** is an objective of many governments & it is now a priority for employers (Social Mobility & Child Poverty Commission, 2015)
- Important for **economic prosperity** as well as on grounds of fairness
- A **diverse workforce** means employers draw on a wide range of talent that strengthens business & the economy as a whole
- UK Cabinet Office Panel for Fair Access to the Professions (known as the '**Milburn Review**': Cabinet Office, 2009)
- **Criticism of the 'elite' professions**, e.g. Medicine, Finance, Law, Accountancy

The case for diversity & inclusion?

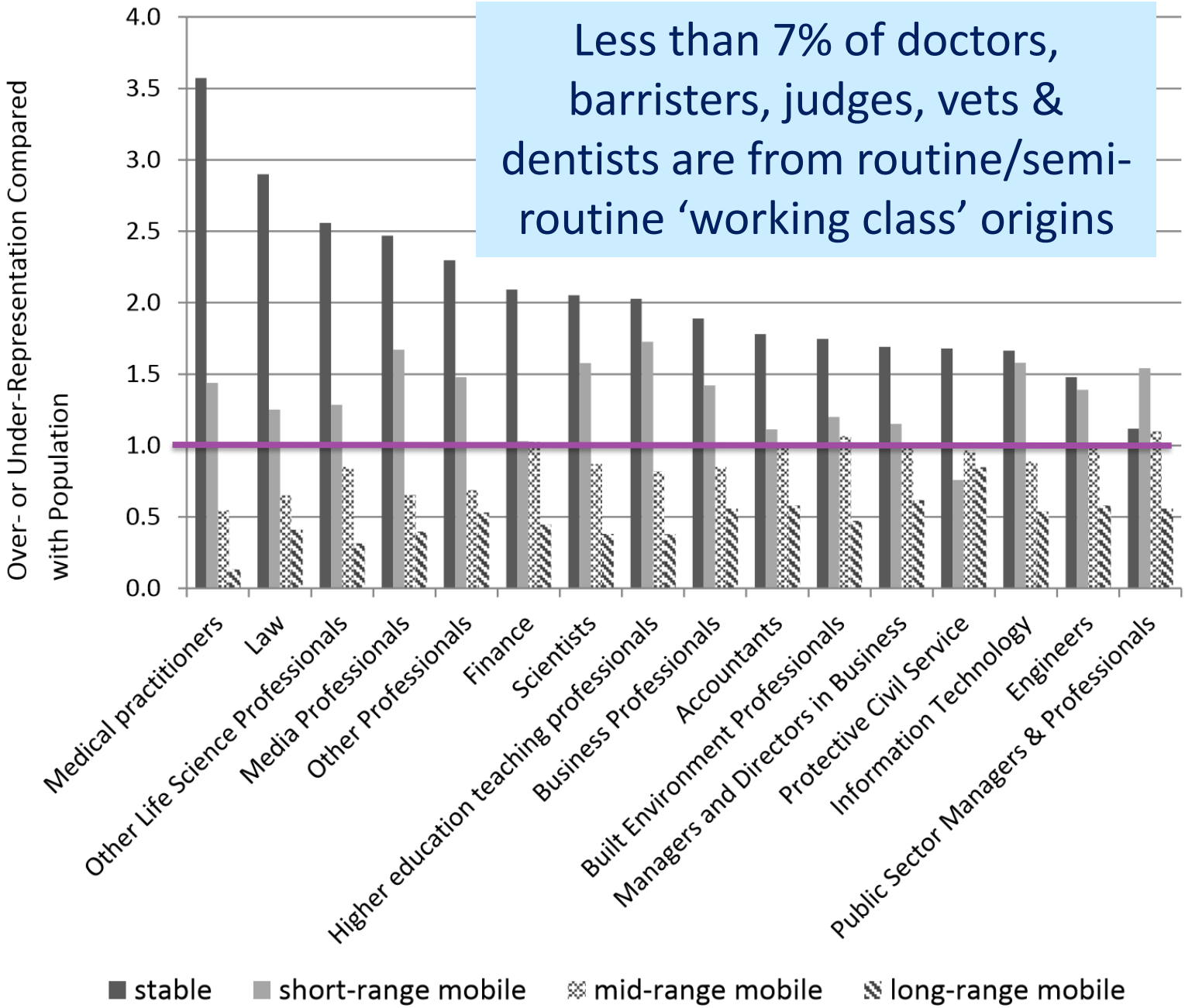
- Diversity confers a **competitive advantage**
  - Increased potential for **innovation** & **improved decision making**
  - Search for **top talent** draws from the widest possible pool
  - Customer service: **reflecting the communities served**
- Diversity as an '**organisational health**' indicator
- Fairness, **social justice** & **corporate social responsibility**
- Often embedded within the **organisation's values**

UK Context Laurison & Friedman, 2015

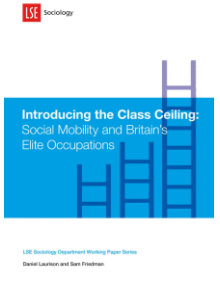


- Enduring disparity in income levels across the socio-economic classes – **'top jobs' disproportionately represented** by those from fee-paying schools
- Those whose parents work in routine/semi-routine jobs (approx. **33%** of the total population) only make up **17%** of those in professional occupations
- Young people from less advantaged backgrounds are much less likely to go to the 'best' universities (Harris, 2010)
- Some key factors include:
  - differential access to information, teaching & related resources
  - 'feeling out of place' at elite institutions (Reay, Clozier & Clayton, 2009)

Figure 1: Over-and Under-representation of Social Origins in Elite Occupations



Note: n=5,349. Height of bars is ratio of the percentage of people whose parents occupations are categorized as NS-SEC 1 in each occupational group to the percentage of people in the population with parents in NS-SEC 1 occupations; values over 1 indicate over-representation.



How can we best design selection methods & systems to promote diversity in SES?

- Research tends to focus on outreach, attraction, candidate preparation, rather than **selection methods** (Ashley et al, 2016)
- Challenges & issues in assessment
  - **Defining SES**
  - **Differential academic attainment** problem - lower SES is linked to lower academic achievement & slower rates of academic progress compared with higher SES communities (APA, 2016)
  - **Cognitive ability differentials**
  - Assessor (unconscious) **bias**
  - Use of **contextual data?**

Defining SES

- **How are data gathered?**
  - Self report data
  - Research shows its more acceptable for early career but experienced hires do not expect to be asked about their SES
- **What data are gathered?**
  - Commonly asked questions, all with their own challenges:
    - National Statistics Socioeconomic Classification (NS-SEC) - complex algorithm based on parental occupation
    - Post code area?
    - Parent/guardian has a degree?
    - Type of school attended
    - Free school meals?

High volume selection methods: A levels

- 'Traditional' high-volume selection methods, e.g. **cognitive tests/A-levels, are increasingly incongruent** with a social mobility agenda
- Independent school pupils more than twice as likely as pupils in state schools to be accepted into one of the 30 most highly selective universities (Sutton Trust, 2016), introducing immediate bias in selection (Kirkup et al., 2008)
- **30%** of pupils from private schools gain 3 A's, compared to **10.7%** of pupils attending state schools (Paton, 2012)
- Private school students do not outperform state school students for **undergraduate degree class** (Smith & Naylor, 2001)
- Links between A level attainment & career success remain unclear (Kirkup et al., 2008)

29 July, 2015 - 06:15 By **Kate Sweeney**

Grant Thornton breaks the mould with recruitment approach

With GCSEs, A levels and finals over for another year, a groundbreaking approach to recruitment that sidesteps traditional exam results is reaping rewards for the Cambridge office of Grant Thornton – and having a transformational impact on the firm nationally.

Since 2013, Grant Thornton has taken a radical departure from the industry norm by dropping school exam and degree results as requirements for new candidates and instead focusing on individual talent, values and potential.

As a result of the pioneering policy, the firm says it has seen a higher quality of applications, taking on 500 new trainees in 2015, up 25 per cent on the previou year.

PwC ditches A-level requirements to find 'untapped' talent

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PwC is dropping A-level requirements, claiming that they are biased against those from poorer backgrounds.

The accounting firm, as one of the biggest graduate employers in Britain, has announced that they will be using alternative testing methods in order to determine who is qualified rather than A-levels.

The company has previously focused on screening an applicant's UCAS score, which is made up of points for the qualifications that 16-17 year olds have, in order to determine who to recruit.

However PwC bosses now believe that A-level grade scores are related to class and those from poorer backgrounds are at a disadvantage. The firm believes that there is a direct correlation between wealth and A-level achievement.

Richard Irwin, Head of Student Recruitment at PwC, says: "We want to target bright, talented people and extend our career opportunities to untapped talent in wider pockets of society.

"Our experience shows that whilst A-level assessment can indicate potential, for far too many

Latest Stories

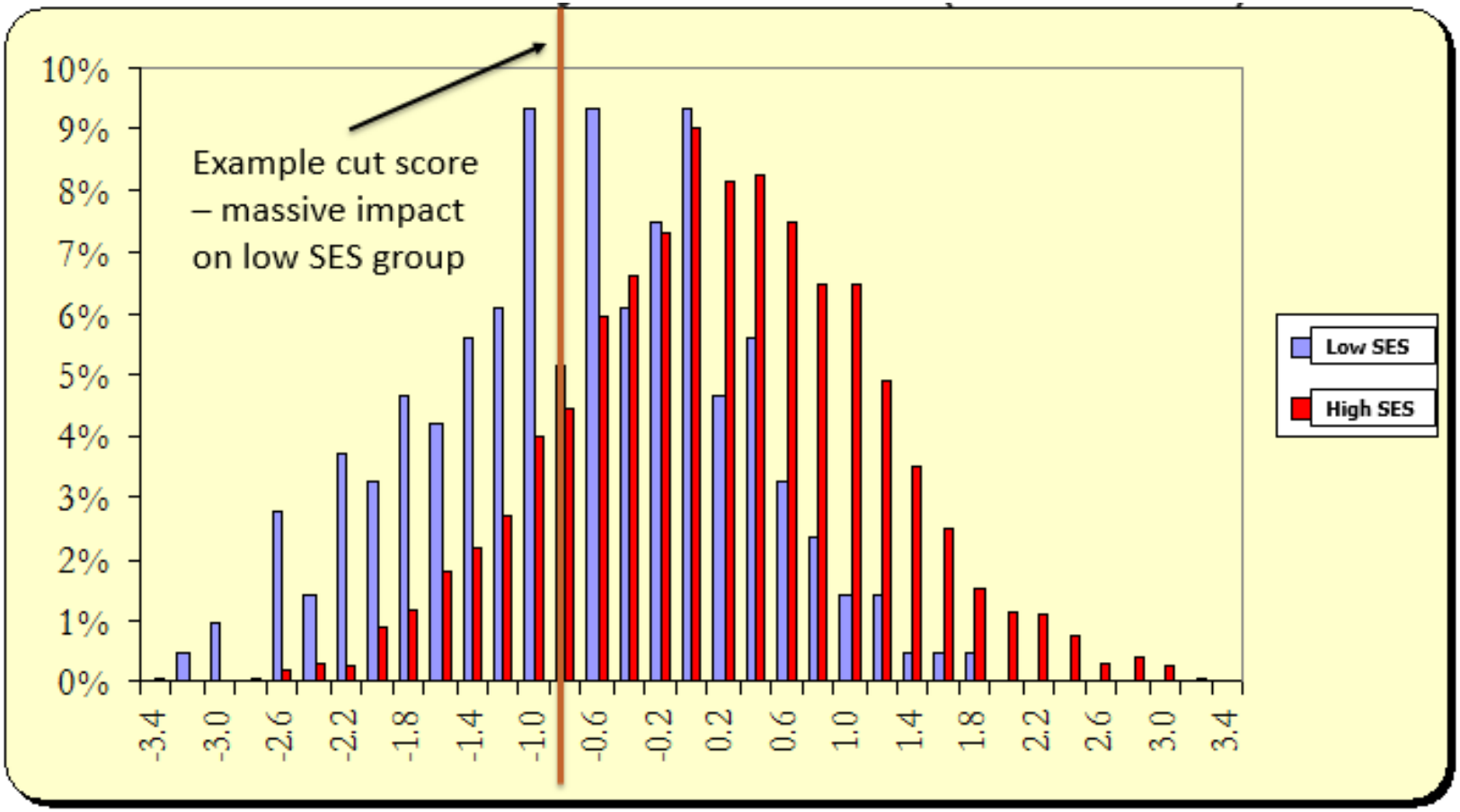
Thinner women are se as more 'hireable'

Recruitment boss caus Twitter furore with 'big comment

Patagonia Co-Founde only trust women to hi people here'

Cognitive Ability Tests & SES

- Clear links between cognitive ability & job performance but negative impact on SES



How relevant are these issues to your organisation?

What the key drivers & barriers to promoting diversity?

Selection methods into the healthcare professions

Research evidence & practice

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Yale Medical School graduating class of 1924

Yale University, Harvey Cushing/John Hay Whitney Medical Library

Medical Education, Jan 2016

How effective are selection methods in medical education? A systematic review

Fiona Patterson,[1] Alec Knight,[2] Jon Dowell,[3] Sandra Nicholson,[4] Fran Cousans[2] & Jennifer Cleland[5]

CONTEXT Selection methods used by medical schools should reliably identify whether candidates are likely to be successful in medical training and ultimately become competent clinicians. However, there is little consensus regarding methods that reliably evaluate non-academic attributes, and longitudinal studies examining predictors of success after qualification are insufficient. This systematic review synthesises the extant research evidence on the relative strengths of various selection methods. We offer a research agenda and identify key considerations to inform policy and practice in the next 50 years.

METHODS A formalised literature search was conducted for studies published between 1997

(vii) interviews and multiple mini-interviews (MMIs), and (viii) selection centres (SCs). The evidence relating to each method was reviewed against four evaluation criteria: effectiveness (reliability and validity); procedural issues; acceptability, and cost-effectiveness.

CONCLUSIONS Evidence shows clearly that academic records, MMIs, aptitude tests, SJTs and SCs are more effective selection methods and are generally fairer than traditional interviews, references and personal statements. However, achievement in different selection methods may differentially predict performance at the various stages of medical education and clinical practice. Research into selection has been over-reliant on cross-

Selection Method	Reliability	Validity	Candidate acceptability	Promotes widening access?
Academic records				
Structured Interviews/MMIs				
Situational Judgement Tests				
Aptitude testing				
Personality Tests				
Traditional Interviews				
Personal statements				
References				

Patterson, et al, 2016. How effective are selection methods in medical education and training? A systematic review. Medical Education.

Selection Method	Reliability	Validity	Candidate acceptability	Promotes widening access?
Academic records	High	High	High	Low
Structured Interviews/MMIs	Moderate to high	Moderate to high	High	Moderate
Situational Judgement Tests	High	High	Moderate to high	High
Aptitude testing	High	Various	Moderate	Moderate
Personality Tests	High	Moderate	Low to moderate	N/A
Traditional Interviews	Low	Low	High	Low
Personal statements	Low	Low	High	Low
References	Low	Low	High	Low

Patterson, et al, 2016. How effective are selection methods in medical education and training? A systematic review. Medical Education.

Academic Attainment

- Most widely used selection method
- Potential bias against ‘non-traditional’ candidates

Strengths	Limitations
Good predictor of performance in education	Less predictive of clinical practice
Research is generally highly consistent	In the UK, A Levels are losing discriminating power
Generally administered by other bodies, so low cost to educators	Socio-economic class bias
Standardised and well-recognised assessments	

Aptitude Tests

- Mixed findings, depending on the specific aptitude test used (e.g. MCAT/ GAMSAT/ UKCAT/ BCAT/ UMAT/ HPAT)
- The broad range of tests available makes commenting on generality of findings problematic
- It is important to evaluate each aptitude test in their own right in order to draw conclusions regarding the quality of the tool

Strengths	Limitations
Some evidence for reliability and validity (incremental, predictive, criterion-related)	Reliability and validity may be affected by how they are used (i.e. weighting, cut score, etc)
	No evidence on cost-effectiveness at present
	Less equitable for non-traditional applicants (e.g. SES)

Situational Judgement Tests (SJTs)

- High quality research, including meta-analyses/systematic reviews

Strengths	Limitations
An increasingly popular method of assessment in healthcare	Method of construction & response instructions may affect validity
Strong predictor of job performance; also predicts performance *above* cognitive ability & personality tests	Mode of administration may affect candidate reactions (e.g. computer-based vs. video-based)
Positive candidate reactions	Some item types may be more susceptible to faking, practice & coaching effects than others
Evidence that coaching does not significantly impact on validity	Requires expertise to design effectively
Reliable method of assessment with low adverse impact to minorities	

What are Situational Judgement Tests?

- Situational Judgement Tests (SJTs) are a **measurement method** designed to assess judgement in role-relevant situations:
  - Present challenging situations likely to be encountered in the role
  - Candidates make judgements about possible responses
  - Scored against pre-determined key
- SJTs focus on **non-academic attributes** *(e.g. integrity, empathy, resilience, team involvement)*

Example SJT item (for entry into postgraduate training)

You are reviewing a routine drug chart for a patient with rheumatoid arthritis during an overnight shift. You notice that your consultant has inappropriately prescribed methotrexate 7.5mg daily instead of weekly.

Rank in order the following actions in response to this situation (1=Most appropriate; 5=Least appropriate)

A Ask the nurses if the consultant has made any other drug errors recently
B Correct the prescription to 7.5mg weekly
C Leave the prescription unchanged until the consultant ward round the following morning
D Phone the consultant at home to ask about changing the prescription
E Inform the patient of the error

2015, 1–15, Early Online MEDICAL TEACHER

AMEE GUIDE

Situational judgement tests in medical education and training: Research, theory and practice: AMEE Guide No. 100

FIONA PATTERSON[1,2], LARA ZIBARRAS[3] & VICKI ASHWORTH[1]

[1]Work Psychology Group, UK, [2]University of Cambridge, UK, [3]City University London, UK

Abstract

Why use SJTs? Traditionally, selection into medical education professions has focused primarily upon academic ability alone. This approach has been questioned more recently, as although academic attainment predicts performance early in training, research shows it has less predictive power for demonstrating competence in postgraduate clinical practice. Such evidence, coupled with an increasing focus on individuals working in healthcare roles displaying the core values of compassionate care, benevolence and respect, illustrates that individuals should be selected on attributes other than academic ability alone. Moreover, there are mounting calls to widen access to medicine, to ensure that selection methods do not unfairly disadvantage individuals from specific groups (e.g. regarding ethnicity or socio-economic status), so that the future workforce adequately represents society as a whole. These drivers necessitate a method of assessment that allows individuals to be selected on important non-academic attributes that are desirable in healthcare professionals, in a fair, reliable and valid way.

What are SJTs? Situational judgement tests (SJTs) are tests used to assess individuals' reactions to a number of hypothetical role-relevant scenarios, which reflect situations candidates are likely to encounter in the target role. These scenarios are based on a detailed analysis of the role and should be developed in collaboration with subject matter experts, in order to accurately assess the key attributes that are associated with competent performance. From a theoretical perspective, SJTs are believed to measure prosocial Implicit Trait Policies (ITPs), which are shaped by socialisation processes that teach the utility of expressing certain traits in different settings such as agreeable expressions (e.g. helping others in need), or disagreeable actions (e.g. advancing ones own interest at others, expense).

Are SJTs reliable, valid and fair? Several studies, including good quality meta-analytic and longitudinal research, consistently show that SJTs used in many different occupational groups are reliable and valid. Although there is over 40 years of research evidence available on SJTs, it is only within the past 10 years that SJTs have been used for recruitment into medicine. Specifically, evidence consistently shows that SJTs used in medical selection have good reliability, and predict performance across a range of medical professions, including performance in general practice, in early years (foundation training as a junior doctor) and for medical school admissions. In addition, SJTs have been found to have significant added value (incremental validity) over and above other selection methods such as knowledge tests, measures of cognitive ability, personality tests and application forms.

Interviews & Multiple Mini Interviews (MMIs)

- Widely used for many years
- Format varies widely – 'traditional', structured and MMI
- MMI increasingly popular, but design & implementation varies hugely

Strengths	Limitations
Means of assessing non-academic skills	Careful design is required to ensure good reliability
Good approach for some aspects, such as communication skills	Potential for bias (gender, ethnicity, SES)
High face validity	Resource intensive
Some evidence they can be ranked effectively	Rarely clear what content is actually assessed within a composite total score, especially with MMIs
Belief may help screen out 'unsuitable' entrants	Historically little evidence of predictive validity, though changing as interviews become more structured

Widening access medical & dental school admissions?

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The case for widening access into healthcare?

- Diverse peer interaction throughout medical training allows students to develop '**cultural competence**' (Whital et al, 2003)
- 'Widening access' makes the workforce more **population-representative** which significantly improves **patient satisfaction** (Paez et al, 2008) & **patient outcomes** (Cohen & Steinecke, 2006).
- Medical/dental school admissions form the 'gateway' to the profession

Laura Spence

- Laura Spence applied for medicine at Oxford having taken 10 GCSEs, obtaining the top A* grade in each.
- Spence was not offered a place because *"other candidates had equally good qualifications had performed better at interview"*
- Huge political row that Oxford had discriminated against her because of her state-school background in a "working-class" region
- Spence won a scholarship at Harvard to study biochemistry & later graduated in medicine from Cambridge
- The rejection of a well-qualified state-school pupil led to suspicions that Spence's exclusion was on the basis of **social class & regional prejudice** rather than academic suitability

Social mobility

Medical profession must open doors to poor students, says Alan Milburn

Alan Milburn, the social mobility tsar said that schemes to raise diversity of intake should be funded by the state

Shiv Malik and Patrick Wintour

Tuesday 29 May 2012 21.04 BST

This article is 4 years old

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Save for later

The medical profession is accused by government's social mobility tsar of failing to open doors to poor students. Photograph Alix Phanie/Rex Features

The medical profession stands accused by the government's social mobility tsar of failing to make "any great galvanising effort" over the past decade to open its doors to poorer students.

Issuing a report into the closed shop of Britain's professions Alan Milburn, the

Why not use a lottery system?

Dutch medical schools abandon selection for lottery system for places

Jan Coebergh *Newcastle*

Two Dutch medical schools will no longer independently select some students as these students do not perform better at medical school.

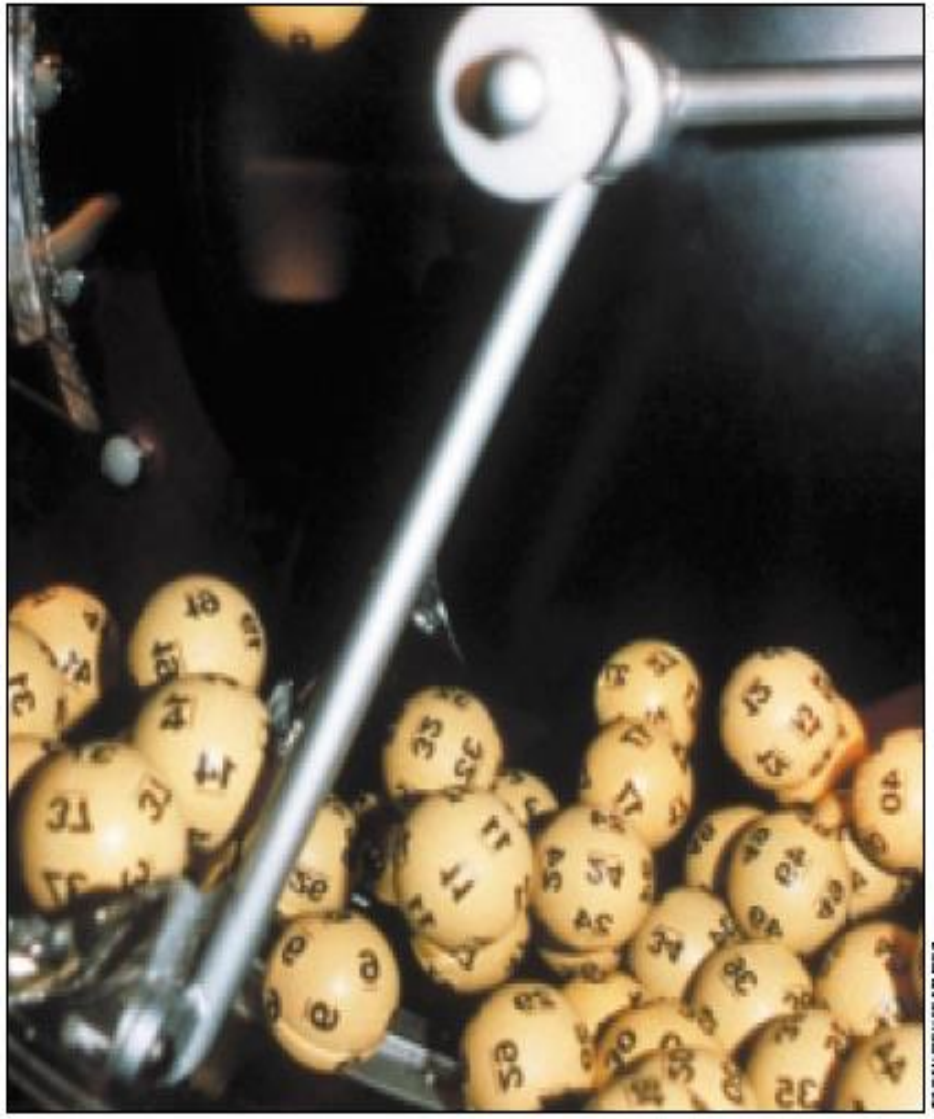
Until 1999, admission into the nine Dutch medical schools was based entirely on a lottery. Based on academic grades, the average chance of getting a place was 35%, rising to 70% for those with the highest grades.

The law changed in 1999 after a media row over a bright girl who was not allowed to enter medical school three years in a row. Universities were allowed to select up to half their

Some used this allowance to promote entry of mature students, graduates, and ethnic minorities.

In recent evaluations at four universities, three found that selected students did not get higher grades than those given places by the lottery. They concluded that selection was not beneficial. Two universities will stop selecting since the costs are high and will return to the lottery admission policy. One university did find that selected students performed better and will continue.

In contrast to the experiences



Evaluating the potential for UKCAT to promote diversity

N= 26,000 per year for 8,000 posts

5 subtests

- Verbal, numerical, abstract reasoning & decision analysis
- **SJT – targets empathy, integrity & team involvement**

UK Clinical Aptitude Test

http://www.ukcat.ac.uk/

Longitudinal assessment of the impact of the use of the UK clinical aptitude test for medical student selection

Jonathan Mathers, Alice Sitch & Jayne Parry

CONTEXT Medical schools are increasingly using novel tools to select applicants. The UK Clinical Aptitude Test (UKCAT) is one such tool and measures mental abilities, attitudes and professional behaviour conducive to being a doctor usin
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cal schools during the period 2004–2011 (data obtained from UCAS), adjusted for sex, ethnicity, schooling, parental occupation, educational attainment, year of application and UKCAT use (borderline, factor and threshold).

RESULTS The three ways of using the UKCAT did not differ in their impact on making the selection process more equitable, other than a marked reversal for female advantage when applied in a 'threshold'
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selective schooling. In view of this, the utility of the UKCAT as a means to widen access to medical schools among non-White and less advantaged applicants remains unproven.

"Our findings demonstrate no changes in admission rates based on higher social class…the (cognitive ability tests) are not a means to widen access to medical schools among less advantaged applicants"

SJT Specification

- An SJT for a novice population (**no medical knowledge required**)

Content

- Scenarios based in either a healthcare setting or during education/training for a medical/dental career
- Third party perspective

Response Format (rating using a 4 point scale)

- Rate the ***appropriateness*** of a response from 'very appropriate' to 'very inappropriate.
- Rate the ***importance*** of a response from 'very important' to 'not important at all'

Example UKCAT SJT items

A consultation is taking place between a senior doctor and a patient; a medical student is observing. The senior doctor tells the patient that he requires some blood tests to rule out a terminal disease. The senior doctor is called away urgently, leaving the medical student alone with the patient. The patient tells the student that he is worried he is going to die and asks the student what the blood tests will show.

*How **appropriate** are each of the following responses by the medical student in this situation?*

Q1 Explain to the patient that he is unable to comment on what the tests will show as he is a medical student

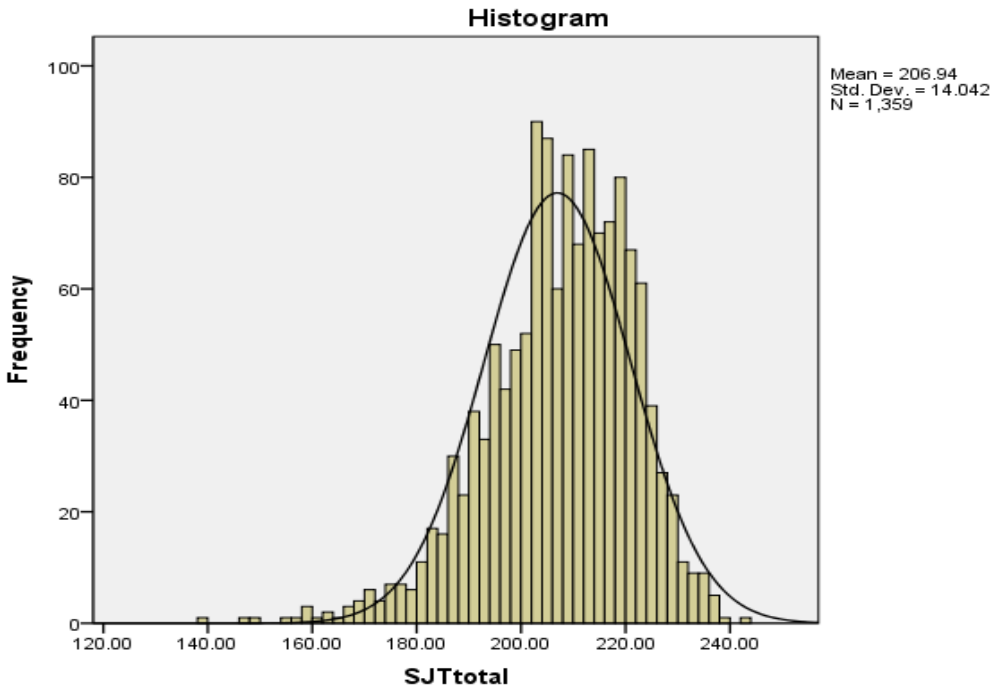
Q2 Acknowledge the patient's concerns and ask whether he would like them to be raised with the senior doctor

Q3 Suggest to the patient that he poses these questions to the senior doctor when he returns

Q4 Tell the patient that he should not worry and that it is unlikely that he will die

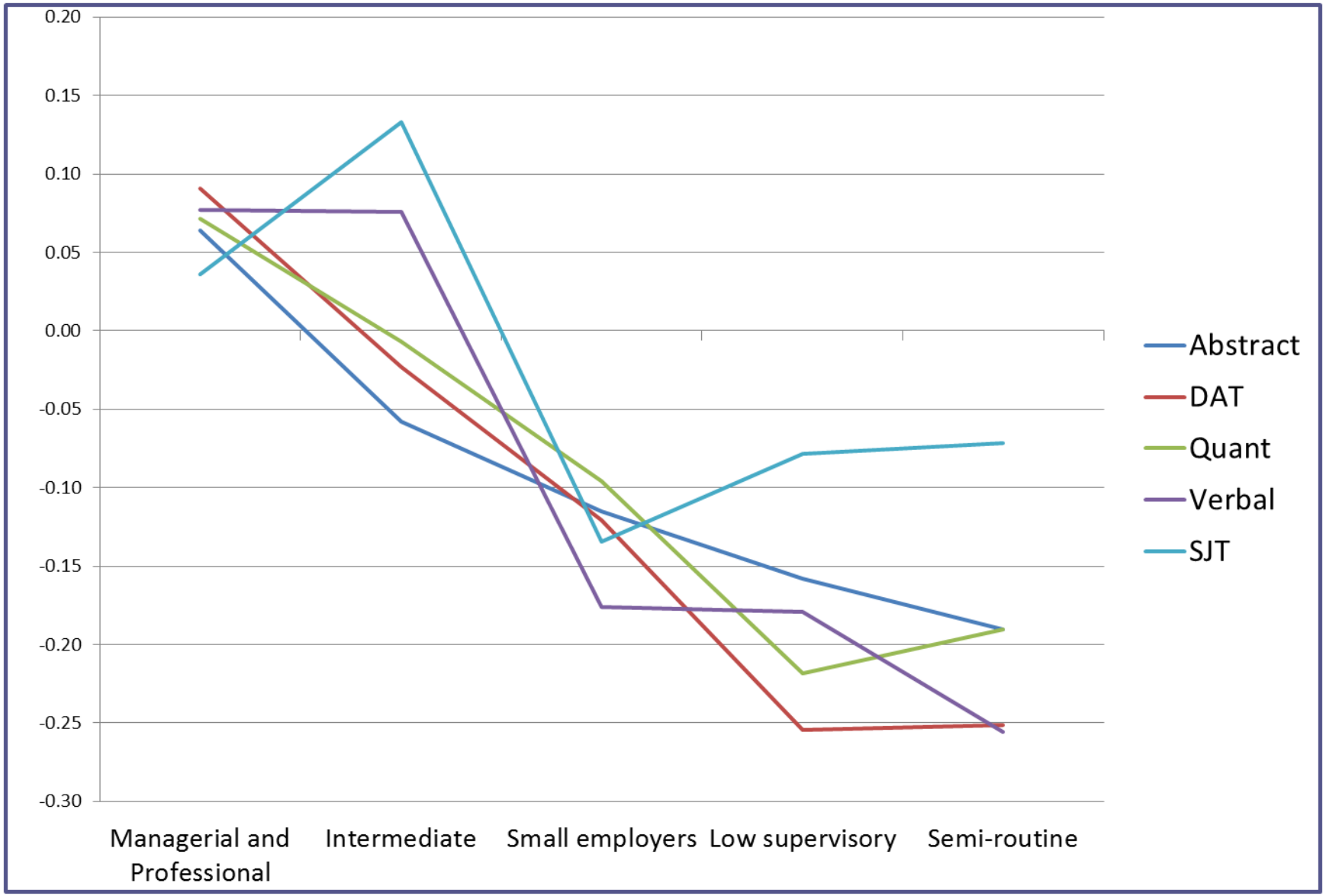
UKCAT SJT Evaluation

- **Reliability** of a 70 item test with similar quality items estimated (α=.75 to .85)
- Candidate reactions shows **good face validity** (significantly more than the cognitive tests of UKCAT)
  - *Content of SJT relevant for med/dental applicants = 70%*
  - *Content of the SJT is fair to med/dental applicants = 63%*



UKCAT SJT Evaluation

- **SJT correlates with CAT** (approx *r*=0.28). Since a large amount of variance is not explained, the SJT is assessing different constructs to the other tests.
- **Predictive validity:** Good evidence that the SJT predicts subsequent performance at medical/dental school N=217, *r*=.34
  Patterson et al, in press Academic Medicine.
- **Gender:** Females outperformed males (0.2 SD)
- **Ethnicity:** White candidates performed better (0.3SD)
- **Occupation & Employment Status:** those in the higher occupational classes (i.e. Managerial/Professional Occupations) do not always score higher than those in lower classes - in some cases those from lowest occupational groups, received the highest mean score.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Widening access using SJTs

- Applicants' SES impacted their SJT scores far less than their cognitive (CAT) scores, **i.e. the SJT notably helps redress the disadvantage to lower SES applicants**
- Cohen's d ≤.20 little/no effect

Table 2 Means, standard deviations (SDs), independent-samples t-tests and effect sizes of the cognitive ability test (CAT) and situational judgement test (SJT) scores according to socio-economic status (SES)

	High SES group		Low SES group				
	n	**Mean ± SD**	***n***	**Mean ± SD**	**Mean difference**	**Cohen's *d***	**95% CI of *d***
2012 cohort							
SJT	11 966	204.76 ± 11.70	3615	203.22 ± 12.14	1.54*	0.13	0.09–0.17
CAT	11 966	645.01 ± 64.51	3615	620.34 ± 66.66	24.67*	0.38	0.34–0.42
2013 cohort							
SJT	11 756	198.82 ± 15.54	3698	195.64 ± 17.41	3.19*	0.20	0.16–0.24
CAT	11 756	677.17 ± 72.16	3698	651.51 ± 76.48	25.66*	0.35	0.31–0.39

95% CI = 95% confidence interval.
*$p < 0.01$.

Widening access in selection using situational judgement tests: evidence from the UKCAT

Filip Lievens,[1] Fiona Patterson,[2] Jan Corstjens,[1] Stuart Martin[3] & Sandra Nicholson[4]

CONTEXT Widening access promotes student diversity and the appropriate representation of all demographic groups. This study aims to examine diversity-related benefits of the use of situational judgement tests (SJTs) in the UK Clinical Aptitude Test (UKCAT) in terms of three demographic variables: (i) socio-

tests were similar (d = ~ 0.50 in favour of White candidates). Thirdly, males outperformed females on cognitive tests, whereas the reverse was true for SJTs. When equal weight was given to the SJT and the cognitive tests in the admission decision and when the selection ratio was stringent, simulated scenarios showed

"SJTs ….complement cognitive (academic) tests….puts candidates of lower socioeconomic status at less of a disadvantage & can diversify the student intake…"

Medical Education, 2016

RESULTS Firstly, the effect size for SES was lower for the SJT (d = 0.13–0.20 in favour of the higher SES group) than it was for the cognitive tests (d = 0.38–0.35). Secondly, effect sizes for ethnicity of the SJT and cognitive

the SJT applied in this study did not diminish the role of ethnicity. Future research should examine these findings with other SJTs and other tests internationally and scrutinise the causes underlying the role of ethnicity.

Case Study 2.

Using SJTs for selection into early careers in banking

RBS Group

The bank you build

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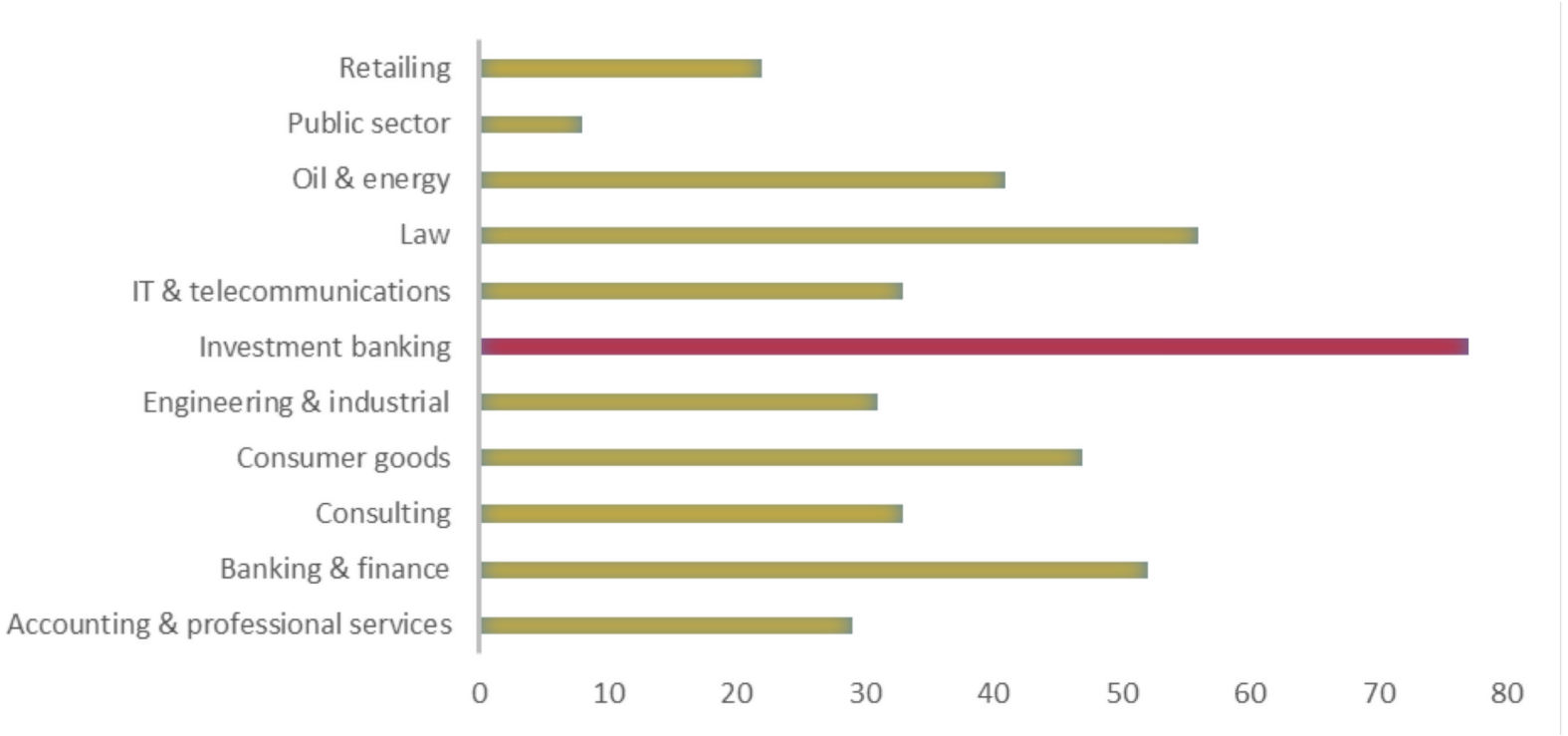
SES & banking sector selection

- 18% of all UK children attend a fee-paying school, in contrast to 34% of new entrants to the banking sector.
- In private equity roles, 69% of new entrants were educated privately & are from 'target' universities

Figure 3.4: Percentage of vacancies likely to be filled by graduates who had already worked for employer



Source: The Graduate Market, 2016, Highfliers[40]

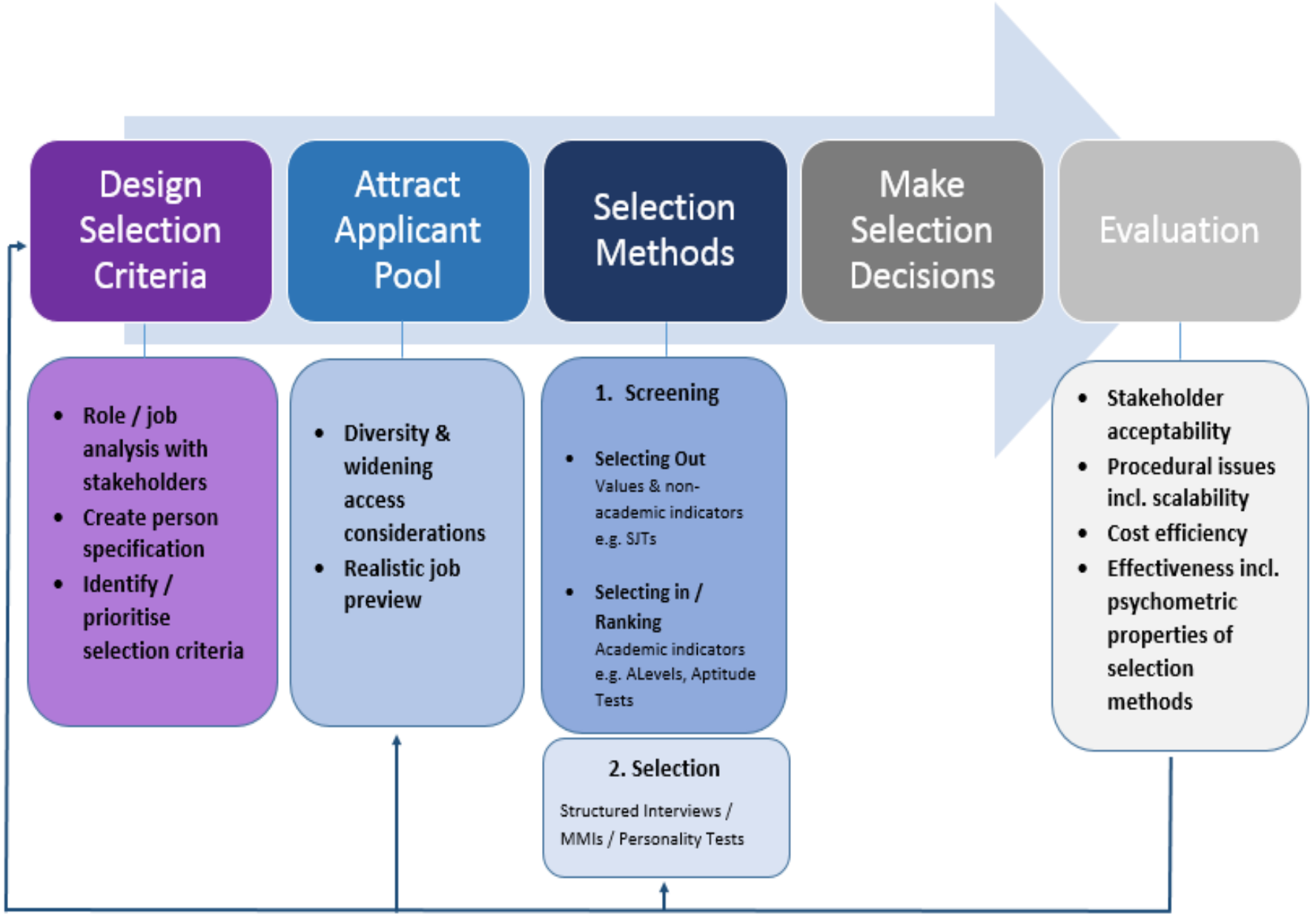
Evaluation results

- Good **psychometric properties** (the test differentiates effectively, with acceptable reliability)
- Those from **state schools (non-selective) group scored significantly higher on the SJT** than those from 'independent/private' schools ($p<.01$)
- **Females** outperform males (unlike the CAT)
- **No adverse impact** for ethnicity
- **Lower levels of candidate attrition** (i.e. greater engagement with the process & enhanced candidate experience)

What are SJTs measuring?

- SJTs measure **prosocial implicit trait policies** (**ITPs**) which are shaped by early **socialisation** (parental modelling) that teach the utility of expressing certain traits in different settings;
  - *agreeable expressions e.g. helping others in need, turning the other cheek, looking after one's neighbours or,*
  - *disagreeable actions e.g. showing selfish preoccupation with one's own interests, holding a grudge/getting even, and advancing one's own interests at others' expense*
- Prosocial actions are often part of **role modelling, leadership & interpersonal exchanges** and are related to effective performance
- People with stronger ITPs about the utility of prosocial action will tend to endorse prosocial SJT response actions

A model for future design & evaluation of selection



Summary & future research

- Research regarding the **optimal weightings & sequencing** of each selection method in a selection system
- A strong need for '**culture (& policy) change'** in some sectors?
- Has the case been made more strongly in the **corporate sector?**
- Should non-academic attributes be used for '**selecting out**' & academic attributes used for '**selecting in**'?
- Lack of evidence for use of **contextual data** in selection
- Increased focus on the role of selection methods in promoting **diversity** & **widening access** in recruitment

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Thank You

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