

Tools to Hire Qualified Minority Police Officers

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(post-conference version)
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1

Focus on d

- Standardized B-W mean score difference (d)
- Adverse impact (AI) ratio bounces around
 - Influenced by proportion hired, small Ns
- d is a more stable measure than the AI ratio

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Print and Audio Links

- 2018 SIOP Master Tutorial, *Tools to Increase Diversity, Utility, and Validity in Hiring Police Officers*
 - PowerPoints
 - Audio recording
- Links to related files
- <http://jpwphd.com/ipac2019>
 - Or contact: jw@jpwphd.com

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Focus on Utility

- “Projected productivity gains ... due to use of the selection procedure” (SIOP *Principles*, 2018, page 33, col 1, par 4)
- We will ignore cost of recruitment, testing, training, etc., and focus on job performance (for the sake of this presentation)

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In a Nutshell

- Focus on what is important
- Be aware of the impact of our tools
 - Don't let high d tools have unintended weight
 - Effective weight often different than intended
- New findings negate old findings
 - g *not* most valid, in general
 - g validity shrinks with time

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What Reflects Importance?

- Validity
- Utility
- These are related but not the same
- Can lead to different selection batteries
- Utility better reflects import to organization

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Avoid High d Tests

- Average of low & high d tests can be high
- High d can nullify the benefit of low d tests
- Avoid high d tests!

Overview of Topics

- **Appetizer**
- Why search for new ways to select police officers (POs)
- Theoretical considerations (40% of time)
- Describe various tools (25%)
- Real-life examples (15%)

Fairness Trumps Validity

- "... fairness to all individuals in the intended population of test takers is an overriding, foundational concern ..."
 - AERA, APA, NCME (2014, page 49, col 2, par 1)

Appetizer

- Naiveté?
- Intellectual honesty?
- Do the tools really work?
- Balanced perspective
- Dual goals
 - Hire more minority POs
 - Improve expected job performance

Ultimate Goal

- Reinvigorate efforts to hire a diverse police officer (PO) workforce while substantially maintaining or improving the expected level of job performance (utility)
 - We have a moral, societal imperative to strive for diversity in hiring POs.

Prevalent Wisdom

- g is the best test area: highest validity
- There is not much beyond g
- Don't dilute validity of g w/ low validity test
- Can select good employees with test of g
- Strong risk of increased d with a composite

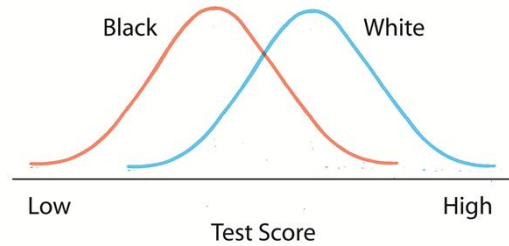
Prevalent Wisdom is Changing

- g is not the highest validity
- Tests of g are deficient
 - Deficient measures of intelligence
 - Valid KSAPs beyond g
- Validity sums, not averages (usually)
- Many false positive hires with a test of g
- Composites usually have lower d than g

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One Standard Dev. Difference



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Need Psychometric Expertise

- One real-life example
- Large civil service agency
- Opened an application period for PO exam
- Not many minority applicants
- Management decision:
Extend the application period

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Normal Curve Analysis

- Adverse impact (AI) is a function of sample size as well as d
- Assume $d = 1$
- Use the Excel function NORMSDIST

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Evaluate This Using I/O Methods

- Knowledge about d
- Knowledge about shape of distributions
- Knowledge about areas of normal curve

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AI for Various z-Score Cutoffs

z Score	Adverse Impact
-3	.98
-2	.86
-1	.59
0	.32
1	.14
2	.06
3	.02

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Project Number of Hires

- Assumptions
- 10,000 applicants
 - 9,000 White
 - 1,000 Minority
- 500 openings
- Selection ratio = .05 (i.e., 5% or 1 in 20)
- What if we double number of applicants?

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Takeaways

- Analyze **quantitatively** before acting
- More applicants=AI & fewer minority hires
- Recruitment matters (more on this below)
- Try to recruit a higher proportion of minority applicants
- Try to recruit higher ability applicants
- Evaluate recruitment sources over time

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Projected Minority Hiring

Total # of Applicants	# of Minority Applicants	# of Minority Hires	Adverse Impact Ratio
10,000	1,000	4	.08
20,000	2,000	3	.06

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Takeaways

- Do numerical projections, no gut decisions
- Consider trade-offs between investing in test development and in recruitment
 - Cost
 - Quality of hires
 - Number of minority POs hired

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Result of Additional Recruitment

- Adverse impact expected to be worse
- Fewer minority hires expected
- Management decision to extend the application period was **misguided**
 - Ineffective
 - Costly

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Tutorial Topics

- Appetizer
- **Why search for new ways to select police officers (POs)**
- Theoretical considerations
- Describe various tools
- Real-life examples

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Why New Ways to Select POs?

- Social considerations
- Psychometric considerations

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Tutorial Topics

- Appetizer
- Why search for new ways to select police officers (POs)
 - **Theoretical considerations**
- Describe various tools
- Real-life examples

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Social Considerations

- Our tests have adverse impact (AI)
- Many mixed munis. have mainly white PDs
 - e.g., Diversity on the Force (2015)
- Our cities are burning
- Our clients are being sued
- Our field is evolving, albeit slowly
- Psychologists' past support of **eugenics**

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Theoretical Considerations

- Main cause of adverse impact: tests of g
- Do tests of g identify good POs?
- Level of validity of g for Police Officer
- Use utility or validity to select tests/KSAPs
- Are tests of g fair?

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Psychometric Considerations

- g weakly predicts PO job performance
- g drives adverse impact (AI)
- Even low weight for g causes composite AI
 - Sackett & Ellingson (1997, Table 2)
- Other predictors have good r & smaller d
- Questions about fairness of our tests of g

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Main Cause of Adverse Impact

- Ranking candidates based on M/C tests of general mental ability (GMA), aka g
 - Cognitive ability
 - General intelligence
- One standard deviation difference (d) in mean scores for blacks and whites typically results in severe adverse impact on blacks

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Main Cause of Adverse Impact

- Including g in a composite will cause AI
- Hard to get composite $< .5$ when g has $d = 1$
 - Sackett & Ellingson (1997, Table 3)
- Any use of g to rank, even in a composite, is likely to result in severe adverse impact
 - Sackett & Ellingson (1997, Table 2)

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Psychometric Analysis

- Do tests allow hiring of good POs?
- What is false positive rate?
- What is false negative rate?
- (Analyses of expected mean job performance yield basically the same conclusions as the simpler P/F analyses.)

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Do tests of g identify good POs?

- How do police managers view our tests?
- Psychometric analysis

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Definitions

- False Positive:
A person cannot do the job but is hired.
- False Negative:
A person could do the job but is not hired.

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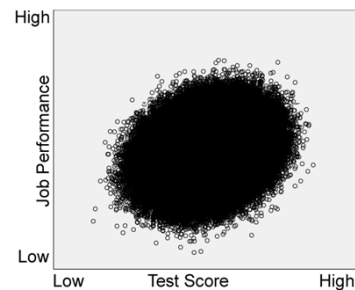
Police Managers' View of Tests

- In favor:
 - Recruit many applicants to take test
 - Test is a fair way to identify good candidates to hire
- Against:
 - Tests of g ignore many important abilities
 - Hard to hire a diverse police force w/ g tests

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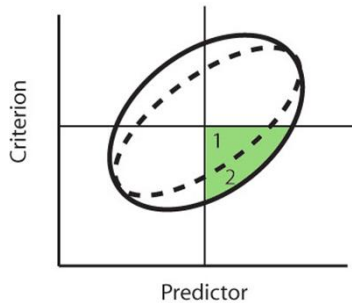
M/C Predictive Validity, $r = .24$



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False Positives: Two Levels of r



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Expectancy Chart, $Q = .5$

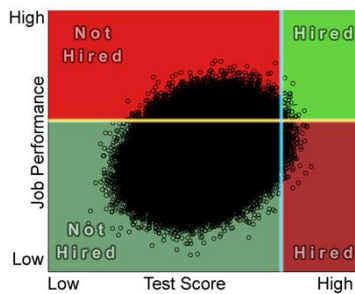
Group	Chances of hires being successful ($r=.25$)	Chances of hires being successful ($r=.20$)
top 20%	64%	61%
top 40%	60%	58%
top 60%	56%	55%
top 80%	54%	53%
All	50%	50%

(Based on Taylor & Russell, 1939, page 575)

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Decisions, Right and Wrong



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Expectancy Chart, $Q = .5$

- Utility of practically useful size (11+%)
- High proportion of false positives
 - 36% or 39% (considering g alone)
- Utility driven by SR as much as r
 - Within typical ranges of SR and r

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Expectancy Chart, $Q = .5$

- Q is quality of applicants
 - the proportion who can do the job successfully
- Look at $r = .25$ and $r = .20$

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Unmeasured Abilities

Let's assume there are untested KSAPs:

- Creative problem solving: 10% deficient
- Oral communication: 10% deficient
- Ability to get along w/ others: 10% deficient
- Conscientiousness: 10% deficient
- ~34% lack abilities not tested by M/C test

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Reevaluate False Positive Rate

- Expectancy chart: 61 to 64% true positives
- But 34% of these are deficient on non-g
- These abilities probably are independent
- So, reduce the 64% by 34% = 42%
 - $.64 \times (1-.34) = .42$
- 42% true positives

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Expectancy Chart, $Q = .9$

Group	Chances of hires being successful ($r=.25$)	Chances of hires being successful ($r=.20$)
top 20%	95%	94%
top 40%	94%	93%
top 60%	93%	92%
top 80%	92%	91%
All	90%	90%

(Based on Taylor & Russell, 1939, page 577)

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Reevaluate False Positive Rate

- Conclusion:
Most hires based on g are false positives
 - 58% false positives based on a typical test of g

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Compare $Q=.5$ and $Q=.9$

- Utility of $r=.25$, $Q=.9$ is 5% more true pos.
- Utility of $r=.2$, $Q=.5$ is 11% more true pos.
- Lower validity can have higher utility
- It depends on Q for the two areas tested
- In PD requiring college, Q for g may be high
- Q for a non-cognitive variable may be low

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What Happens with Higher Q?

- Q is proportion of good applicants
- We hire better people
- Less room for improvement over chance
 - Cannot do much better than hiring randomly
 - Utility is lower

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Some Takeaways

- Recruiting good applicants is **important**
- Tests of g result in many false positive hires
- Ignoring non-g areas inflates false positives
- Utility can be greater with lower validity test

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How Valid is g for PO?

- $r = .27$ (corrected) for predictor unreliability
- $r = .24$ (not corrected) for predictor reliability
 - This is a more realistic estimate of r
- $r = .62$ (corrected) for academy grades
 - Aamodt (2004a)

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Why is r for Academy Greater than r for Job Performance?

- We assume that people who learn faster learn better.
 - But there is research to the contrary
- Slower learning can result in better retention and generalization
 - Bjork (2018, page 147, col 2, par 3), commenting on the idea introduced in his influential 1992 article in *Psychological Science*

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Why is r for Academy Greater than r for Job Performance?

- Reason to believe the higher value of $r = .62$
 - Job performance less reliably measured

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Why is r for Academy Greater than r for Job Performance?

- Validity of g decreases with time
- Validity of job knowledge increases w/ time
 - e.g., Farrell & McDaniel (2001)
- Validity of personality can increase w/ time
 - $r = .18$ to $r = .45$, year 1 to year 7 of med school
 - Lievens, Ones & Dilchert (2009).

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Why is r for Academy Greater than r for Job Performance?

- Reason to believe the lower value of $r = .24$
 - Common method (M/C) is unrelated to job
 - Both g test and academy grade are g loaded
 - Job perf. partly due to extra-individual factors
 - Job performance is partly due to non- g factors

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Why is r for Academy Greater than r for Job Performance?

- “Ability tests are commonly validated against narrow, cognitively loaded criteria”
 - Sackett, Shewach and Keiser (2017)
- $r = .24$ probably best estimate of validity of g

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Focus on Utility, Not Validity

- Utility \neq Validity
- Utility: “projected productivity gains ... due to use of the selection procedure”
 - SIOP *Principles*, 2018, page 33, col 1, par 4
- Validity: “evidence and theory support ... proposed uses of ... selection procedure”

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Relationship Between U and V

- Validity drives utility
- Utility does not drive validity

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Is Utility or Validity Primary?

- Profession seems to largely ignore utility
- Utility and validity are not identical
- A less valid test can have higher utility
- Selecting tests on utility may favor diversity
- Management interested in **utility**

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Three Variables Drive Utility

- Quality of applicants (Q)
 - Proportion of applicants who can do the job
- Number of applicants and openings
 - Selection ratio (SR)
- Validity (r)
 - Cascio & Aguinis (2011, pg 328)
 - Taylor & Russell (1939)

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We Largely Ignore Utility

- No review of utility in test technical manual
- Past claims of high utility poorly received
- 1970 EEOC Guidelines called for high utility (Guion, 2011, page 128)
- Superseded by 1978 Uniform Guidelines
 - Business necessity not interpreted as utility
- But utility is the reason we test
 - Validity is important as it contributes to utility

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Some Takeaways

- Lower r can have higher utility
 - Within the ranges of r that we often see
- It depends on the Q for the abilities tested
 - Q = the % of applicants who can do the job
- **Selecting tests based on utility may favor diversity while improving job performance**

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APA: Unfairness is Serious

- “If ... excluding some components ... has a noticeable impact on selection rates for groups ... the intended interpretation of test scores ... would be **rendered invalid**.”
 - Joint *Standards* (AERA, APA, NCME, 2014, page 21, col 1, par 1, emphasis added)
- So, the joint *Standards* say lack of fairness invalidates any indications of validity

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Indications of Unfairness

- d on test of g is larger than d on the job
- Criteria may be contaminated
- Relatively more minority false negatives

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Fairness of Our Tests of g

- Indications of fairness
- Indications of unfairness

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d for g Larger than d for Job

- $d = 1.0$ on tests of g
- $d = 0.5$ on job performance
- Is it explained by the regression formula?
 $y = rx$
- Assume $r = .5$
- We get $.5 = .5(1.0)$
- This seems to work.

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Indications of Fairness

- Same regression line for various subgroups
- Same d for subjective and objective criteria
- Over-predict for minorities

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d for $g > d$ for Job Performance

- But we selected based on a test of g
- So d should be less than 1
- d about .1 (if cut score set at +2 s.d. for W)
- Use the regression formula $y = rx$
- We get $.5 = .5(.1)$
- This math does not work.

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Criteria May Be Contaminated

- Tall people paid more than short
 - Judge & Cable (2004)
- Pretty people paid more than homely
 - Marlowe, Schneider & Nelson (1996)
- Men paid more than women
- Ethnic discrimination on the job
 - Umaña-Taylor (2016)

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Evaluate False Negatives

- How many false negatives?
- How different are the rates by ethnic group?

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Reasons to Doubt Fairness

- There may be bias in supervisor ratings
- Aggressions affect job performance
- We predict unfair criterion accurately
- Indications of differential validity
 - e.g., Aguinis, Culpepper & Pierce (2016)
- If tests of g are not completely fair, try to limit their impact on selection

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False Negative Scenario

- Assume:
 - Hire the top 1% of test takers
 - 10,000 test takers, 100 hires
 - 25% of W test takers can do the job
 - B-W $d = 1.0$
 - $r = .24$ (validity for PO, nationwide)
 - 25% of test takers are black

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More Minority False Negatives

- "... a given selection score ... will often result in proportionately more false negative decisions in groups with lower mean test scores."
 - AERA, APA, NCME (1999, page 79)
- What this means: **Among qualified applicants**, the selection rate will be smaller for the lower scoring group.

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Outcomes

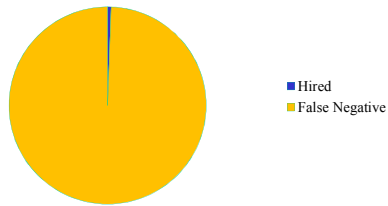
- Hire 2 black POs (out of 100 hires)
- Equity would be 25 black POs
- Adverse impact = .02 (very severe)
- 360 false negative black applicants
 - 360 blacks who can do the job but are not hired
- Hire 2 black POs but miss 360

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Black Candidates

360 Could Do Job but Are Not Hired (False Negatives) and 2 Hired, Using Traditional M/C Test



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Seven Tools in Five Categories

- 15 Tools in my SIOP 2017 Workshop
 - Available online on my website

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Some Takeaways

- There are reasons for disquiet about test fairness
 - Possible bias in criteria
 - Differential validity sometimes if found
 - Smaller proportion of qualified blacks hired

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Description of Tools

- Tool name
- What it is or how it works
- Is it legitimate?
 - Quote and source
- Practicalities (for some tools)
- Pros and cons

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Tutorial Topics

- Appetizer
- Why search for new ways to select police officers (POs)
- Theoretical considerations
- Describe various tools
- Real-life examples

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1: Rank Using Memory of Faces

- Measure face recognition and memory
- Use faces that mirror the community
- Use faces that mirror the offenders

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Expect **Reverse** Impact

- Remembering and identifying minority faces is easier for members of that minority group
 - e.g., Levin (2000)
- I am collecting data on this as we speak.

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1. Rank w/ Face Memory: Cons

- Largely untested
 - No existing tests for large groups
 - No criterion-related validity studies

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Validity

- I expect face memory/recognition would be supported by content validity
 - Likely related to various job tasks
 - Recognizing perps
 - Recognizing residents

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2: Use Short Application Period

- Limit the number of applications
- “The effects of group differences are greater as an organization becomes more selective.”
 - Sackett & Ellingson (1997, page 511)
- Larger applicant pool = more selective
- Larger applicant pools will result in more severe adverse impact

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1. Rank w/ Face Memory: Pros

- Expect content validity, esp. for some tasks
- Expect **reverse** impact (against whites)
- Candidate acceptance likely to be high
- Can be implemented in print form or online

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2. Short Application Period: Pros

- Maintain validity
- There is no professional standard or principle concerning selection ratio (SR)
- Practical to implement
- Candidates accept it as fair

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2. Short Application Period: Cons

- May lower the utility of selection procedure due to higher SR

In Support of Using g P/F for PO

- Schmidt and Hunter (1998) meta-analysis is based on Hunter & Hunter (1984), which in turn is taken from Hunter (1982), in part.
 - Hunter (1982) may have cherry picked studies
 - Not replicable; inadequate study citations
 - Personal communication, L. Hough (2017)
- 1982 was 35+ years ago; studies even older

3. Use Test of g Pass-Fail (P/F)

- Really?
 - Does this fly in the face of all research?
- In support of ranking on g for PO
- In support of using g P/F for PO

In Support of Using g P/F for PO

- “In contrast to Schmidt and Hunter’s ... reporting51 for ability and .37 for ACs, we found ... mean validity of .22 for ability and .44 for ACs.”
 - Sackett, Shewach, Keiser (2017)
- Assessment centers seem to have higher validity than tests of g , in general.
 - Don’t let lower validity tool drive ranks

In Support of Ranking Based on g

- g highly valid for jobs in general
 - Hunter & Hunter (1984)
- Linear relationship between g and job perf.
 - SIOP (2003, page 21)
- M/C g test inexpensive for large groups
- Takeaway: Always rank based on g
 - Adverse impact is unfortunate but unavoidable

In Support of Using g P/F for PO

- 25% of POs needed 2 year degree or more
 - 36% of PDs in cities of over 1,000,000
 - Reaves (2015, page 1, Fig. 7, and Table 7)
- If assume:
 - $r = .4$ for g for the population
 - 40% of population have college degree
- Then validity of g for college grads = .23

In Support of Using *g* P/F for PO

- What of other 75% of smaller PDs
 - with no college degree requirements
- **Low *r* for *g* for PO**
- M/C tests of *g* are deficient
- Questions on fairness of tests of *g*
- Questions on fairness of criteria

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M/C Tests of *g* are Deficient

- Decreasing validity with time on job
- Creative problem solving not measured
- Correlation between *g* and leadership low
- How other fields of psychology view *g*
- There are newer tests of intelligence

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Low *r* for Police Officer

- Hunter & Hunter (1984), $r = .38$ for PO
 - One of the lowest r 's for a specific occupation
- Aamodt (2004a) meta-analysis
 - $r = .27$ (over corrected for practical purposes)
 - $r = .24$ more realistic for practical purposes

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g Less Valid with Passing Years

- GPA as proxy for *g* (and more)
- $r = .49$ at 1 year post graduation
- $r = .33$ at 2-5 years post graduation
- $r = .12$ at 6 years post graduation
- All corrected r 's
- Roth, BeVier, Switzer & Schippmann (1996)

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What is the Mean *g* for POs?

- Mean IQ for police officers = 104
 - Aamodt (2004b, based on total of 4,061 POs)
- What is mean IQ for high school grads?

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Creative Problem Solving

- Cannot fully measure creativity with a M/C test
 - Only open-ended questions allow for original responses
- $r = .07$ to $.29$ for creativity and *g*
 - e.g., Kim (2005), Sternberg (2006, Tables 9, 11.1, 11.2)

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Correlation of g and Leadership

- Intelligence is the ability to deal with the demands of the real world in order to achieve success
- Leading others is a demand of the real world
- $r = .19$ if g measured with M/C
- $r = .6$ if g measured by ratings others make
 - Judge, Colbert & Ilies, 2004 (Table 2)

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Broader Psychological View

- “Standard conventional tests only assess a narrow sampling of the abilities required for success in school and in life.”
 - Sternberg (2015)
 - His are ideas worth exploring

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Broader Psychological View

- “Most current large-scale testing is not well suited to [measure] higher order thinking skills, collaboration, information literacy, etc.”
 - Dolan, Goodman, Strain-Seymour, Adams & Sethuraman (2011, page 5)

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New Ways to Test Intelligence

- There are some newer ways to test intelligence that show lower d values.
 - e.g., Agnello, Ryan, Yusko (2015)

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Broader Psychological View

- “Traditional tests of intelligence are not good proxies for rational thinking skills.”
 - Stanovich, West & Toplak (2012)

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There are Facets to g

- There are facets to g
- Some facets have smaller ds
- Some composites of g yield less adverse impact and more diverse hiring
- Facets of g are not equally valid for various different jobs
 - e.g., Wee, Newman & Joseph (2014)

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102

Questions on *g* Test Fairness

- This was covered earlier

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103

4. Use Test of *g* P/F: Cons

- Does not assure maximum level of *g*
- Validity and utility depend on the availability of other tests
- How to respond to “lowering standards”
 - Measure all the important KSAPs, including *g*
 - Changing standards
 - Goal posts not closer; repositioning goal posts

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106

In Support of Using *g* P/F for PO

- Do not rank candidates based on a low validity test (of *g*) that almost guarantees severe adverse impact.
- Especially since there are unresolved issues of test fairness
- Especially since there are other valid tests/tools that could be used with good utility

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104

5. Rank Based on a Structured Oral Exam

- Highly valid
 - the most valid, $r = .57$
 - Aamodt (2016, Table 5.2, page 194)

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107

4. Use Test of *g* P/F: Pros

- Assure a level of *g* similar to actual POs
- Allows for more diversity in hiring
- Ranking on other KSAPs can increase utility and validity

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105

Managers Like Structured Interviews

- One study found the interview to be the most trusted by police managers of the 10 selection measures administered
 - De Soete, Lievens, Oostrom & Westerveld (2013, Table 2)

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108

Mean d Zero for Structured Orals

- Post-1996 studies
- Race effect size $-.01$, n.s.
- $N=121,000$
- Field study
- Mock studies had similar results
- Levashina, Hartwell, Morgeson, Campion (2014)

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109

5. Rank on Structured Int.: Cons

- Difficult to maintain security of questions
- Lower reliability than a M/C test
- Inter-panel differences must be addressed
- Relatively costly to administer
- Candidate demand for transparency may threaten security

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112

One Study of d for PO

- Structured interview for PO
- $N=1,334$ applicants
- d slightly below zero
 - McFarland, Ryan, Sacco & Kriska (2004, Table 2)

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110

6. Rank on KSAPs with Low d

- Creativity and Problem Solving
- Test of Prejudice
- Integrity Tests
- Other Personality Measures

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113

5. Rank on Structured Int.: Pros

- Validity may be higher than a test of g
- Content validity higher than test of g
- Can measure much more than g
 - e.g., Cascio & Aguinis (2011), p. 268, par. 4
- Likely high candidate acceptance
 - Depends on the questions and interviewers
- Expect low or zero d

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111

Creativity and Problem Solving

- Creativity to reduce AI in college admission
 - Kaufman (2010)
- Oral story-telling and SAT correlate equally with college GPA, but with smaller d
 - $r = .29$ and $r = .26$ or $.28$ for story-telling and SAT V and M, respectively
 - $d = .14$ vs $.74$ and $.67$
 - Sternberg (2006, Tables 11.1, 15)

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114

Test of Prejudice

- Implicit Association Test (IAT)
- Based on reaction time and cognitive choice
- React to ethnic group faces
- React to emotionally laden or stereotypical objects or words
- Can try it on the web:
<http://implicit.harvard.edu>

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115

Other Personality Areas

- Personality factors (e.g., conscientiousness) and facets with r 's in the .15 to .20 range and with small or zero d 's
 - e.g., e.g., Hough & Johnson (2013)
- Extroversion and emotional stability
 - Ployhart & Holtz (2008, Table 1)

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118

Test of Prejudice

- Meta-analyses show IAT validities of .19 for person perception and .14 for microbehaviors. Oswald, et al. (2013)
- The two categories of studies with the largest N 's in their Table 3, excluding EEG studies.
- Expect **Reverse Impact**

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116

Other Personality Areas

- Certain personality facets: achievement orientation, conscientiousness, surgency/dominance/potency facet of extroversion, and adjustment
 - Hough, Oswald & Ployhart (2001, Table 2)
- Effort (care and persistence)
 - $r = .28-.33$ with college GPA
 - Briley, Domiteaux & Tucker-Drob (2014)

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119

Integrity Tests

- d around zero for race
 - Ones & Viswesvaran (1998)
- Validity high ($r = .41$)
 - Highest incremental validity over g
 - Schmidt & Hunter (1998)

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117

Personality Validity Tends to Sum

- Validities for uncorrelated variables sum
- Personality has low correlation with g
- Personality validities should tend to sum
 - Schmitt (2014)

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120

6a. Rank Using Video Test

- Evidence of increased validity and lower d
 - Chan & Schmitt (1997)
 - Lievens & Sackett (2006)
- Likely high user acceptance
- Can have good face validity
- Can assess many different KSAPs
 - Including and beyond g

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121

Real-Life Examples

- Police
- Fire
- Military

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124

7. Add Low d Measures - NOT

- d 's do not average!
- Sum of high and low d 's closer to high d
- Rank on near zero d or will have ad. impact
- Use high d only on pass-fail basis
- Based on Sackett & Ellingston (1997)

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122

Bridgeport CT PD, 2014

- Mayor wanted to hire diverse class, validly
- Consultant proposed: average M/C and personality test to reduce impact of M/C
- Minority union asked my opinion of this proposal
- Opinion: City will hire few minority POs
- City asked for my recommendations

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125

Tutorial Topics

- Appetizer
- Why search for new ways to select police officers (POs)
- Theoretical considerations
- Describe various tools
- **Real-life examples**

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123

Tools Bridgeport PD Used

- M/C exam, as a qualifier
- Ranked candidates on a structured oral exam
- Additional residency points

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126

Bridgeport Outcomes

- "... 61% are ... minorities or women ... a number we have never had before." [46% minority appointees]
- "We couldn't have been prouder of this process. This did not happen on its own; we made significant changes to the process."
Source: Only In Bridgeport (2015)

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127

Oklahoma City, OK, FD, 1990's

- P/F M/C cognitive ability test
- P/F 40 hour, First Responder course
- P/F written workstyle test
- P/F background check
- P/F physical ability test
- P/F medical
- Ranked oral exam

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130

Columbus, OH, PD & FD

- P/F M/C cognitive ability test
- P/F writing exercise
 - Score on information analysis, writing skill
- P/F physical fitness test
- Rank on video test of problem solving
 - Still photos with verbal enactments of scenarios
 - Candidates respond orally
 - Score problem sensing/resolution, interpersonal
 - Columbus Civil Service Commission (2014)

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128

OCFD Outcomes

- Hired 7 black firefighters (48 white)
- Average grade in the training academy similar to previous classes
- Dropout rate from the training academy was a little lower than previous years

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131

Oklahoma City FD, mid-1990's

- FD did not hire any black FFs for several exams
- FD and minority union very concerned

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129

OCFD Outcomes (continued)

- Average quarterly recruit evaluations were high
- All the new firefighters became certified EMTs after being hired
- This selection system was used again in 1996 with similar positive results

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132

Army Assessment of Background and Life Experience (ABLE)

- Personality: motivation and attitude
- Achievement, Adjustment, Agreeableness,
- Dependability, Leadership, and Physical Conditioning
- Predicts attrition and performance, independently of the ASVAB/AFQT
 - Wenger (2010, page 4)

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133

Wrap Up

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136

Army Assessment Individual Motivation (AIM)

- Forced-choice approach employed
 - Less susceptible to faking
 - Behavioral questions
- Same areas as ABLE
- Predicts attrition and performance, independently of the ASVAB/AFQT
 - Wenger (2010, Tables 1 and 2, Figure 7)

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134

If We Are Too Conservative

- If we continue as we have in the past, the adverse impact will continue unabated.

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137

Tier Two Attrition Screen, TTAS

- Personality measure
- Measures adaptability
- Predicts military retention
- Smaller d for gender and race/ethnicity
 - White, Rumsey, Mullins, Nye & LaPort (2014, page 147)

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135

Use of Novel Tests

- Can I use a test that is novel?
- Can I use a test that is controversial?
- Can I choose not to use a new promising test?

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138

Review Learning Objectives

- Four objectives stated in proposal

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139

Second Learning Objective

- Describe at least 2 test areas that generally have **reverse** impact on minorities and 2 test modes with low *d*.

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142

First Learning Objective

- Describe the conditions under which a relatively low validity test (e.g., $r = .15$) is expected to have higher utility than a higher validity test (e.g., $r = .25$).

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140

Second Objective Takeaway

- Test areas
 - Minority face recognition
 - Prejudice
 - Certain personality facets: achievement orientation of conscientiousness, surgency/dominance/potency facet of extroversion, and adjustment
 - Hough, Oswald & Ployhart (2001, Table 2)

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143

First Objective Takeaway

- Conditions: Lower r test has higher Q
- Utility depends on r , SR , and Q
 - Q is the quality of the applicants
- If all applicants have high ability, a test has low utility
 - e.g., college degree as an entrance requirement
- Often there is more candidate variability in personality than in cognitive ability

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141

Second Objective Takeaway

- Test modes
 - Oral/Video
 - Constructed response
 - IAT

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144

Third Learning Objective

- Describe the pros and cons of using tests of g on a pass-fail (P/F) basis.

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145

Fourth Objective Takeaway

- g almost always shows large d
- Composites with g also have sizable d
- Even modest d can result in severe AI

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148

Third Objective Takeaway

- Pros:
 - More diversity
 - Higher utility
- Cons:
 - There is a danger of losing validity
 - There is a danger of losing utility

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146

In Closing

- Goal:
 - Reinvigorate search for alternative selection procedures to maintain or improve job performance and achieve diversity.

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149

Fourth Learning Objective

- Explain why ranking even in part on a traditional test of g generally results in adverse impact on minority candidates.

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147

Summary and Conclusions

- g may not be the most valid test for PO
- g may not have highest **utility** for PO
- Use g cautiously (e.g., P/F)
 - Do not let g drive severe adverse impact
- Ranking based on g will create adverse imp.
 - Even using a composite w/ low weight for g
- Use valid alternatives for tests of g

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150

Summary and Conclusions

- Evaluate utility separate from validity
- Consider utility when choosing tests
- Recruitment often more crucial than testing
- g tests can have high false positive rates
 - Due to modest validity

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151

Do We Face a Moral Issue?

- Are I/O psychologists making errors today similar to those made by the psychologists who supported eugenics and restrictive immigration?

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154

Summary and Conclusions

- Use a content validity approach
 - Due to scarcity of criterion-related research
- Test many job-related abilities
 - e.g., face memory, creative problem solving, conscientiousness, energy, prejudice, etc.
- Rank based on valid tests with d near zero
 - e.g., structured oral exams

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152

More Information on Tools

- Wiesen, J. P. (2016, 2017a, 2017b)

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155

Do We Face a Moral Issue?

- Psychologists in forefront of the **eugenics** movement; pro Immigration Act of 1923
- Limit entry to the USA by country quotas
- Favored England and Western Europe
- Southern and Eastern Europe not favored
- Asians/Jews thought to be low IQ, undesir.
- How could psychologists be so wrong?

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153

Links

- Link: <http://jpwphd.com/ipac2019>
- More information on tools
- Some selection-related formulas
- PO Selection Proposal Evaluation Form
- Email: jw@jpwphd.com
- Telephone: (617) 244-8859 (land/no text)

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156

Q&A's

- Call or write me anytime to talk about this
- (617) 244-8859
- jw@jpwphd.com

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207