

Improving Others' Opportunities and Benefits (IOOB)

The Impact of the I-O Psychologist

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- **Why I-O psychology?**
- **Three impact examples**
 - Procter & Gamble (private sector)
 - U.S. Army (military)
 - ATF (public sector)
- **Your questions**

Serendipity*

- HS: Math and science, but . . .
 - Enjoyed psychology course
 - Enjoyed helping others
 - Wanted something other than charts and graphs
- College: Social or Clinical Psychology
 - Can no longer do real social psychology
 - “What’s the most important characteristic of a successful clinician?”

*or, “How I Became an I-O Psychologist”

Serendipity* (cont.)

- Applied Psychology
 - Needed the credit for the major
 - A whole new world!
 - Psychology . . . with math (and charts and graphs)
 - Still help people with problems . . . just different types



Impact

- **Does I-O research really have impact?**
 - What does impact look like?
- **Three examples**
 - Private sector
 - Military
 - Public sector
- **Common theme**
 - Improved conditions for employees, applicants, and stakeholders



P&G: iCAT and SEM Tool

- Procter & Gamble (P&G)

The image shows the iconic Procter & Gamble logo in a large, bold, blue serif font. The letters are thick and have a classic, elegant feel. The ampersand is particularly stylized, connecting the 'P' and 'G'.

Research-driven company

138,000+ employees in 80 countries

Project Goal

- **Develop a new cognitive ability test battery**
 - Given via Internet
 - Unproctored, on-demand (!)
 - Computer-adaptive
 - New content

- **Computer-Adaptive, Unproctored Internet Test**



Why Internet-Based CAT?

- **Convenience and Security**
 - Ever-increasing candidate volumes
 - 500,000+ applicants per year
 - Item exposure control
- **Greater Accuracy per Unit Time**
- **Updated Models of Cognitive Ability**
 - (e.g., Carroll, 1993)
- **Applicant Reactions**
 - Convenience of on-demand online administration
 - Reduced assessment times



iCAT Project Activities

- **Analyze data from extant P&G tests**
- **Identify content domains for tests**
- **Develop test content**
 - NR – drawn from current tests, WestEd
 - FR – new test; Ones/Dilchert; review
 - LBR – new test; Colberg/HumRRO
- **Identify scoring/stopping/exposure rules**
- **Conduct calibration study (numerous 9-item forms)**
- **Establish item timings**
- **Construct item pools**
- **Support parallel DDI platform effort (Irwin)**
- **Conduct QA of testing platform**
- **Contribute enhanced functionality (DIF, IPD)**
- **Develop criterion scales for validation study**

- **Automatic, iterative modeling of climate/ satisfaction survey data**
 - Permits segmentation by numerous target groups
 - Forms covariance matrix
 - Fits single-factor measurement models
 - Transports factor loadings to fully recursive path model
 - Iteratively trims model to provide optimal fit for desired target group




IMPACT: P&G

- **Substantial savings in screening costs**
- **Expanded attraction of top talent**
- **Highly positive organization/brand image**
- **Improved tailoring of intervention strategies for employee groups**
- **Reduced manpower/time requirements to maintain survey program**

Army: NCO Promotion

- **NCOs are first-level supervisors**
 - Ranks of E-5 (Sergeant) and E-6 (Staff Sergeant)
- **Promotion based on Promotion Points Worksheet (PPW)**
 - Weighting of various elements:
Intentions = Reality?

Perception vs. Reality

-  **Perception:** Areas that have higher point limits are weighted more when making promotion decisions
- **Reality:** Areas with higher point limits are not necessarily weighted more
 - Weight is a function of variance of scores within each area, and covariance among scores across areas
- Is the Army weighting these areas like they think they are?
 - **How did we do it?** Conducted a *variant* of dominance analysis (D. Budescu, J. Johnson)
 - Answers the question: What proportion of variance in a composite is attributable to each of its component scores?

Weights and Validity Estimates

| | Awards | Military Ed | Civilian Ed | Military Tr | R | Rc | Est. Validity Gain |
|------------------|--------|----------------|----------------|----------------|-----|-----|-----------------------|
| Perceived Weight | 25.0 | 50.0 | 25.0 | 25.0 | | | |
| E4 Actual Weight | 33.4 | 24.3 | 18.7 | 23.6 | | | |
| E5 Actual Weight | 18.7 | 48.7 | 25.0 | 7.6 | .20 | .14 | |
| E5 Op Limits | 0.5 | 14.5 | 1.1 | 83.9 | .26 | .25 | 30% / 75% |
| E5 No Limits | 2.5 | 13.5 | 1.4 | 82.6 | .26 | .25 | 30% / 75% |
| E6 Actual Weight | 2.7 | 54.8 | 34.6 | 7.9 | .09 | .10 | |
| E6 Op Limits | 3.6 | 9.3 | 48.4 | 38.7 | .11 | .11 | 22% / 5% |
| E6 No Limits | 81.2 | 2.4 | 6.8 | 9.6 | .19 | .21 | 111% / 105% |

• **Relaxing point limits for E5 promotions ~ little impact**

• **Giving more weight to Military Training ~ greater impact**

• **Reweighting areas for E6 promotions ~ little impact**

• **Relaxing point limits and giving more weight to Awards ~ greater impact**

Comparison of Old and New

| Points Categories | Pre 1 Oct E5 & E6 Point Ceilings & Percent of Total | New E5 Point Ceilings & Percent of Total | New E6 Point Ceilings & Percent of Total |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------|------------------------------------------------|
| Commander's Evaluation | 150 pts | Recommends Soldier No points | Recommends Soldier No Points |
| Promotion Board | 150 pts | Go or No-Go No Points | Go or No-Go No Points |
| Awards: Awards, decorations & achievements. Point values range from 5 to 35. | 100 pts | 125 pts | 165 pts |
| Military Education: NCOES completion & NCOES Honor Grads, certain Unit Training, eLearning. | 200 pts | 260 pts | 280 pts |
| Civilian Education: Starting college/trade school, Degree completion, Technical certificates, CLEP, DANTES | 100 pts | 75 pts | 100 pts |
| Military Training: APFT, Weapons Qual, Combat (3 pts per month in combat zone) | 100 pts | 340 pts | 255 pts |
| TOTAL POINTS | 800 pts | 800 pts | 800 pts |



IMPACT: Army

- **Change to promotion weighting**
 - Influences thousands of future Army leaders
 - Aligns processes with organizational goals and empirical data
 - Represents first significant change in NCO promotion system in more than 30 years



ATF: Personnel Systems

- **1996 settlement agreement to change human resource practices for special agents (GS-1811)**
 - Develop unbiased promotion systems
 - Improve performance appraisal system
 - Place within performance management system
 - Based on rigorous job analysis



ATF: Personnel Systems

- **Develop promotion system for**
 - 1st-level Field Supervisor (grade 14)
 - 2nd-level Field Supervisor (grade 15)
 - Senior Field Manager
- **Assessment Center**
 - Some contention, but improved process



ATF: Personnel Systems

- **Develop performance appraisal system**
 - Previous version too unwieldy (prose, scales)
 - Developmental and operational needs
 - Anchored rating scales
 - Numeric scores for developmental use
 - Three-point scoring for operational use



ATF: Personnel Systems

- **Developmental Component**
 - Cooperative effort to improve/enhance each employee's performance
- **Operational Component**
 - Overall judgment of acceptability of performance
 - Used for administrative purposes



IMPACT: ATF

- **Comprehensive job analysis information**
- **Improved promotion system**
 - Developed tests used to evaluate candidates for promotion for two positions
 - Provided technical support on implementation issues
 - Weighting
 - Pass/fail standards
 - Banding
 - Competency profiles
- **Improved performance appraisal system**
 - Formalized process to gather input from employees
 - Clear performance standards
 - Strong developmental component
 - Brief targeted comments supplement ratings; less burden on supervisors
 - Straightforward operational component

Your Questions

- Do we always have an impact?
- Career choices?
- KSAOs for success?
- Things you likely will not learn in graduate school but need to know?
- Others?

