Principles of Scientific Personnel Selection:

Fair & Effective

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What is Fair?

In the context of Personnel Selection:

- Fair
- Valid
- Effective
Model of Fairness
Cleary (1968)
(Partially paraphrased in conceptual terms)

A test is biased to members of a subgroup if, in the prediction of a criterion “for which the test was designed,” consistent errors of prediction are made for members of the subgroup.
Conceptual Model Only
Biased Prediction Errors

Job Performance Measure ($Y_i$)

Personnel Selection Test Score ($X_i$)

Regression Model ($\beta$)

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Conceptual Model Only

Random Errors

Job Performance Measure ($Y_i$) vs. Personnel Selection Test Score ($X_i$) with a regression model ($\beta$) showing the relationship.
Basic Principles

- Personnel Selection is Prediction

- Selection tests need to be designed to predict Specific Criterion

- "Test the Test": Determine if test scores are actually valid predictors of job performance.
“Consistent use of criterion valid employee selection has been shown to increase both individual and organizational effectiveness . . .”

David Scarborough, PhD
Mark John Somers, PhD
“Neural Networks in Organizational Research”
Organizational System

Input

Resources:
- Talent
- Technology
- Training
- Materials
- Partnerships
- Consulting, etc.

Work Process

Output
- Products
- Services
- Information

Goals
- Benefit Customers
- Pride in Work
- Market Growth

From Fair to Goals

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“Selecting individuals with the desire and the ability to attain job performance goals. This is fair to the individual and the organization.”

Trelitha R. Bryant
V.P. Field Testing & Research
Behavioral Sciences Research Press
Selection System: Based on Theory Job Performance

**Predictor Measures**

**Work Dimensions**
- Task Performance
- Contextual Performance

**Criterion Measures**

**Construct Domain**
- **Predictor**
  - Job Attributes & Traits

**Construct Domain**
- **Criterion**
  - Job Success

**Theory**
- Goals

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Theory of Job Performance

Guides

Recruitment
Recruitment

Acquisition of talent to supply applicant pool

Applicant Pool
You cannot select anyone more qualified than the most qualified person in your applicant pool.
Assessment

Gathering, Assembly and Interpretation of Information . . .

For the Purpose of Forecasting Employee Effectiveness

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Selection

A Decision based on a Formal or Informal Assessment System
Selection

Three Critical Questions

A Management Discipline

How Much?

How Soon?

What Cost?
Three Questions

Personnel Selection is: Prediction

Personnel Selection is: Hypothesis Testing

Does the Test Measure Key Attributes & Traits that:
• Help you Make Correct Predictions
• Fair & Effective Selections?
  • “Test the Tests”
  • Test your “Theory of Job Performance”
Using Tests to Improve Predictions

Test: Any procedure utilized to obtain information for the purpose of making a selection decision

Multiple Tests:

Job Performance

- Contextual
  - General Personality
  - Cognitive Tests

- Task
  - Work Simulations
  - Task-Specific Tests

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“Cognitive ability is a necessary, but not sufficient, determinant of success in school and in life.”

“They should never be used as the sole criterion for a decision . . .”

(Halpern, 2000)

Schmidt & Hunter: Most Recognized Authorities on GMA:

Use Cognitive Tests PLUS Other Assessments

(Schmidt & Hunter, 1998)
85 Years of Research

Schmidt & Hunter - Recommendation

Work Sample

Structure Interview

Integrity Test

→ Specific Assessment

Specific/(Broad)

Specific/(Broad)

Why Use Specific Assessments?

Improve Accuracy of Predictions:
Fairness, Effectiveness and Predictive Validity

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Lessons Learned (85 Years)

**Broad Test:**
- GMA

- 80%
- 50%

*(Corrected)*

**Validity Coefficient:**
- $\rho = 0.3$ to $0.5$

**Productivity Range**
- Average
- n.s.

**Specific Job Behaviors**
- w/ Specific Assessment
  - $\rho = 0.63$ - $0.65$

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Typical Validity Coefficients

Validity Coefficients (Ability to Predict Job Performance)

Typical Validity

Corrected Validity

“98% Accuracy ???”
Construct-Oriented Approach

➤ Recognize Construct-Method Distinction

Tradition: Assume ALL Constructs are Method Invariant

Example: Cognitive Ability Tests

• Math & Science items from College Admissions Test
• Multiple Choice vs. Constructed Response Format
• Differences in Mean Test Scores Decreased by 39% using Opened-Ended Format (Recall vs. Recognition)
• Why? Found Negative Perceptions & Reactions to Traditional Test and a “Stereotype Threat Effect”
Construct-Method Distinction

Example: Cognitive Ability Test

Challenges: Separating Sources of Variance

- Total Predictive Validity (Corrected)
- "Method Variance"
  - Extraneous Validity
  - Construct Validity
Construct-Oriented Approach

- Conceptually Define Predictor and Criterion Constructs.
- Specifically Explain How Predictor Measures Relate to Criterion Measures.

Tradition: Study Global or Overall Job Performance
Construct-Oriented Approach

Job Performance Tasks

- Develop MORE Refined Theories of Performance
- More Testable
- Refine Assessment Information Collected and/or Interpreted

- Greater Accuracy in Predicting Job Performance
- Selection Systems with Typically Lower Adverse Impact (i.e., More Diversity)
“Choosing valid predictors of employee performance is the central and perhaps most fundamental challenge in personnel psychology.”

Craig Olson & Brian Becker
School of Management
State University of New York at Buffalo
A Research Focus: Example

12 Specific Forms of Coping Behaviors

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Coping Behaviors are Prevalent in Industries World-Wide

We are All in Sales

- Advocate or Promote Our Ideas or Strategies
- Give a Voice to our Skills & Accomplishments
  Consideration for Pay Raise or Promotion

Selling is giving a **VOICE** to something we believe in

**AND**

Something which may be of service to **OTHERS**
How Does Fear Influence Business Results?

Input
Resources:
- Talent
- Technology
- Training
- Materials
- Partnerships
- Consulting, etc.

Work Process
- Job Performance

Output
- Products
- Services
- Information

Sold

Goals
- Benefit Customers
- Pride in Work
- Market Growth

12 Coping Behaviors

Create New Jobs

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