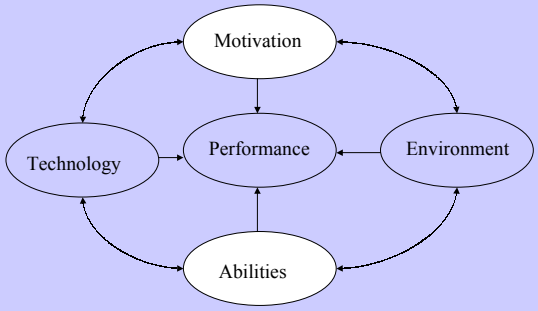
Factors Affecting Performance



Job Analysis

- A job analysis generates information about the job and the individuals performing the job.
  - Job description: tasks, responsibilities, working conditions, etc.
  - Job specification: employee characteristics (abilities, skills, knowledge, tools, etc.) needed to perform the job
  - Performance standards

Job Analysis Methods

- Job Analysis can focus on the job, on the worker, or both
  - Job Oriented: focus on work activities
  - Worker-oriented: focus on traits and talents necessary to perform the job
  - Mixed: looks at both

Uses of Job Analysis

- Information from a job analysis is used to assist with
  - Compensation
  - Performance appraisal- criteria
  - Selection- identifying predictors
  - Training
  - Enrichment and combination

Some Job Analysis Procedures Worker Oriented

1. PAQ (Position Analysis Questionnaire)
   - **Information input** (what kind of information does the worker use in the job)
   - **Mental Processes** (reasoning, decision making, etc.)
   - **Work Output** (what machines, tools, or devices are used)
   - **Relationships**
   - **Job Context** (environment)
   - Other Characteristics

Threshold Traits Analysis

2. TTA: Measures 33 Traits in six areas
   - **Physical** (stamina, agility, etc)
   - **Mental** (perception, memory, problem solving)
   - **Learned** (planning, decision making, communication)
   - **Motivational** (dependability, initiative, etc)
   - **Social** (cooperation, tolerance, influence)

Other Job Analysis Methods

- **CIT-** (Critical incidents technique) collects and categorizes critical incidents that are critical in performing the job.
- **Task Oriented Procedures**

1. **Task Analysis-** compiles and categorizes a list of task that are performed in the job.
2. **Functional Job Analysis** (method)– describes the content of the job in terms of things, data, and people.

Occupational Information Network (O*NET) U.S. Dept. of Labor

- O*NET
  - Worker Requirements (Basic skills, Knowledge, education)
  - Worker Characteristics (abilities, values, interests)
  - Occupational Characteristics (labor market information)
  - Occupation-Specific Requirements (tasks, duties, occupational knowledge)
  - Occupational Requirements (Work context, organizational context)

O*NET Basic Skills

- Reading
- Active listening
- Writing
- Speaking
- Critical thinking
- Repairing
- Visioning

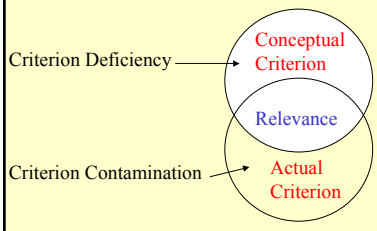
Issues to Consider in Developing Criteria for Performance

- Long term or short term performance
- Quality or quantity
- Individual or team performance
- Situational effects
- Multidimensional nature of performance at work
- What do we want to foster? Cooperation or competition, or both?

Conceptual versus Actual

- Conceptual Criterion– the theoretical construct that we would like to measure.
- Actual Criterion– the operational definition (of the theoretical construct) that we end up measuring.

Criterion Deficiency



We want the conceptual criterion and actual criterion to overlap as much as possible.

Criterion Deficiency

- Criterion Deficiency– the degree to which the actual criterion fails to overlap with the conceptual criterion.
- Criterion Relevance– the degree of overlap or similarity between the actual and conceptual criterion.
- Contamination– the part of the actual criterion that is unrelated to the conceptual criterion.

Types of Performance

- Task Performance– generally affected by cognitive abilities, skills, knowledge & experience.
- Contextual Performance– generally affected by personality traits and values includes helping others, endorsing organizational objectives, & contributing to the organizational climate. Prosocial behavior that facilitates work in the organization.
- Adaptive Performance– engage in new learning, coping with change, & developing new processes.

Criteria

- Criteria Should be
  - Relevant to the specific task
  - Free from contamination (does not include other factors relevant to task performance)
  - Not deficient (must not leave out factors relevant to the performance of the task)
  - Reliable

Criteria Used by Industry to Validate Predictors

- Supervisory performance ratings
- Turnover
- Productivity
- Status Change (e.g. promotions)
- Wages
- Sales
- Work samples (Assessment Centers)
- Absenteeism
- Accidents

Personnel Psy, by Schmitt, Gooding,Noe, & Kirsh (1984)

Predictor	No. of Studies	Average Validity
Special attitudes	31	.27
Personality	62	.15
General mental Ability	53	.25
Biodata	99	.24
Work samples	18	.38
Assessment Centers	21	.41
Physical Ability	22	.32
Overall	337	.28

Reliability

- Classical Model
  - An observation is viewed as the sum of two latent components: the true value of the trait plus an error,
- $$X = t + e$$
- The error and the true component are independent of each other.
- The true and error component can't be observed.

Types of Reliability

- **Test-retest reliability**
- **Alternate-form reliability**
- **Split-half reliability**
- **Internal consistency (a.k.a., Kuder-Richardson reliability; a.k.a., Coefficient Alpha)**
- **Interrater reliability (a.k.a., interscorer reliability)**

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Test-Retest Reliability

- ***Test-retest reliability*** **is estimated by comparing respondents' scores on two administrations of a test**
- **Test-retest reliability is used to assess the** ***temporal stability*** **of a measure; that is, how consistent respondents' scores are across time**
- **The higher the reliability, the less susceptible the scores are to the random daily changes in the condition of the test takers or of the testing environment**
- **The longer the time interval between administrations, the lower the test-retest reliability will be**
  - The concept of test-retest reliability is generally restricted to short-range random changes (the time interval is usually a few weeks) that characterize the test performance itself rather than the entire behavior domain that is being tested
  - Long-range (i.e., several years) time intervals are typically couched in terms of *predictability* rather than reliability
  - Test-retest reliability is NOT appropriate for constructs that tend to fluctuate on an hourly, daily, or even weekly basis (e.g., mood)

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Reliability

- How consistent is a measure over repeated applications.
- Consistency is a factor of the error in the measure.
- If we view an observation as X=T+E, we can define reliability as the ratio of two variances.

Signal to Noise

- Under the assumption of independence, we define reliability as

$$\rho = \frac{\sigma_t^2}{\sigma_t^2 + \sigma_e^2}$$

Job Analysis of the Student Development

- Cognitive skills– Analysis, innovation, ability to learn
- People skills– Cooperation, conflict resolution, & emotion intelligence
- Communication– Written and verbal communication skills
- Motivation and commitment

Sources of Unreliability

- Item sampling
- Guessing
- Intending to choose one answer but marking another one
- Misreading a question
- Fatigue factors

Methods of Estimating Reliability

- Test-retest
- Parallel (alternate) -forms
- Split-half (must use adjustment Spearman-Brown)
- Kuder-Richardson (Alpha)
- Inter-rater

Problems With Reliability

- Homogenous groups have lower reliability than heterogeneous groups
- The longer the test the higher the reliability
- Most reliability estimates require that the test be one-dimensional

Validity

- 1. Whether a test is an adequate measure of the characteristics it is suppose to measure.
- 2. Whether inferences and actions based on the test scores are appropriate.
- Similar to reliability, validity is not an inherent property of a test.

Establishing Validity

- Content validity– The degree to which the items in a test are representative sample of the domain of knowledge the test purports to measure
- Criterion Related Validities– the degree to which a test is statistically related to a performance criterion.
  - Concurrent Validation
  - Predictive Validation
- Construct Validity– the degree to which a test is an accurate measure of the theoretical construct it purports to measure.
  - Multi-trait Multi-method approach

Poor Reliability, Poor Validity

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Good Reliability, Poor Validity

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Good Reliability, Good Validity

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Performance Appraisal Goals

- Assessment of work performance
- Identification areas that need improvement
- Accomplishing organizational goals
- Pay raises
- Promotions

Potential Problems

- Single criterion- most jobs require more than one criterion
- Leniency- inflated evaluations
- Halo- one trait influences the entire evaluation
- Similarity effects- we like people like us
- Low differentiation- no variability
- Forcing information- making our minds too soon.

Possible Solutions

- Use of multiple criteria
- Focusing on behaviors
- Using multiple evaluators
- Forcing a distribution
- Important Issues:
  - Training the evaluators
  - Rater's motivation

Methods of Performance Appraisals

- Basic Rating Forms
  - Graphic forms
  - BARS (Behaviorally anchored ratings scales)
  - BOS (Behavioral observation scales)
  - Check lists (based on ratings of CI)
  - Mixed scales
  - 360 degree feedback
- None have shown overall advantage

Assessments

- Supervisor's assessment
- Self-assessment– generally people recognize their own strengths and weakness, but they are generally a bit inflated.
- Peer assessment– very accurate in predicting career advancement.

Performance Appraisals

- PA systems that have failed in court generally were
  - Developed without the benefit of a Job Analysis
  - Conducted in the absence of specific instructions to raters
  - Trait oriented rather than behavior oriented
  - Did not include a review of the appraisal with the employee