Factors Affecting Performance

Motivation

Technology

Performance

Environment

Abilities

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 tasks that are performed in the job.
  2. **Functional Job Analysis** (method) – describes the content of the job in terms of things, data, and people.

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**O*NET Basic Skills**

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

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**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?

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**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.

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**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

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.

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<th>Predictor</th>
<th>No. of Studies</th>
<th>Average Validity</th>
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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)

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).

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

Good Reliability, Poor Validity
Good Reliability, Good Validity

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