Job Analysis
for
Selection in the Canadian Armed Forces

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Outline

Objective

Phase 1 - Combined Job Analysis Method
  - Overview
  - Process
  - Cognitive Task Analysis (CTA)

Phase 2 - Post Focus Groups - Rating

Phase 3 – Data Analysis
  - Task Importance Value
  - Interrater Agreement (rwg)

Phase 4 – Selection Tool Selection
Objective

- Create Job Description
  - Occupation Level
  - Basic Qualification Level
  - Job specific

- Determine critical KSAO’s

- Create appropriate selection process
Combined Job Analysis Method (CJAM)

- This process utilizes work orientated processes contained in a functional job analysis (FJA – Fine & Cronshaw, 1999) to provide information about the outputs, tasks, and relevant KSAOs required for the job.

- Combined with an importance analysis, during which SMEs rate each task’s and KSAO’s importance for selection (Brannick, Levine, & Moregson, 2007).
CJAM Process – Initial Preparation

- Research available materials
- Determine number of Focus Groups
- Request SMEs
  - 6 to 8
  - Good understanding of the current job
CJAM Process – Day 1 - Staging

- Provide SMEs with overview of:
  - Why they are there
  - The process over the 2 days
  - Scoring
  - End result
CJAM Process – Day 1
Generation of Outputs

- Outputs: a functional category of work under which various task fall
  - “What do you get paid to do?”
  - A baker bakes bread.

- May be started with a suggested list (2 schools of thought)
- Provides a framework
- Recorded with a computer / screen
- Group discussion – consensus is the key
CJAM Process – Day 1

Generation of Tasks

- Tasks: collection of activities that are directed toward the achievement of a specific output.
- All tasks required to complete output
- Recorded by computer / screen
- Group discussion – consensus is the key
CJAM Process – Day 2
KSAO Generation

- KSAOs are generated for all tasks under each output
- Group discussion – consensus is the key
- Less of focus on knowledge
  - Focus is on the knowledge required for selection
Cognitive Task Analysis (CTA)

- Object-orientated cognitive task analysis and design (Wei & Salvendy, 2006)
- Based on human information processing theory
- Decompose tasks identified as crucial for selection entered into the model to identify the cognitive facets of interest (Girard, 2009)
- Process tracing
CTA - Process

- Tasks identified
- Identify heavy cognitive loaded tasks
- Process tracing
  - SMEs describe in detail the steps taken to complete the task
  - No more than 6 to 8 steps
  - Checklist of steps is not cognitive heavy load
- Identify specific cognitive facets
- Selection tests can be identified to measure cognitive domains of interest
Example of CTA

**TASKS**
- Observe battle ground
- Attend to multiple stimuli
- Identify information related to plan
- Analyzes information

**COGNITIVE FACETS**
- Working memory
- Sensory memory
- Long term memory
Post Focus Group – Task Rating

- Serving members are sent surveys for ratings
- Serving members rate all tasks and sub-tasks
  - Task Difficulty: level of difficulty in performing task (7 point scale)
  - Task Criticality: degree that incorrect performance of task will result in negative consequence (7 point scale)
- Task Importance Value (Barrick et al., 2007)
  - Sum of task difficulty and task criticality
  - Sum of greater than 6 considered important
Post Focus Group—KSAO Rating

- SMEs rate final list of KSAOs:
  - Necessary for applicant to possess? (yes/no)
  - Practical to expect in applicant pool? (yes/no)
  - To what extent is trouble is likely if it is ignored in selection? (Scale of 1 – 5)
  - To what extent do the KSAOs distinguish from the superior and average worker? (Scale of 1 – 5)
Criteria for KSAO into Selection

- A clear majority of SMEs must indicate that it was necessary for an applicant to possess the KSAO for selection
- A clear majority of SMEs must indicate it is practical to expect KSAO in applicant pool
- Mean rating on “trouble-likely” must be 3 or greater
- (Brannick et al., 2007)
Criteria for KSAO into Selection

- Majority defined as $m > 0.75$
- Trouble likely defined as $m > 3$
  - $m > 1.5$ recommended by Brannick et al.
- Superior / average worker distinction
  - Mean rating of 2 or less used for screen out measures (pass/fail)
  - Mean rating of 2 or more used to rank order applicants
Interrater Agreement (rwg)

- Disagreement among raters on the importance of a task/KSAO is crucial to the evaluation of ratings.
- Demaree & Wolf’s (1993) single item index of agreement known as within group agreement (rwg) is calculated to identified critical tasks and KSAOs.
- Higher values of (rwg) reflect higher agreement.
- rwg > .70 are acceptable levels of within-group agreement (Lance, Butt, & Michels, 2006).
Summary

- **Combined Job Analysis Method**
  - Identify outputs
  - Identify tasks
  - Identify KSAO

- **Cognitive Task Analysis (CTA)**
  - Identify cognitive heavy tasks
  - Process tracing to identify underlying cognitive process

- **Post Focus Groups**
  - Identify critical tasks & KSAOs
  - Interrater Agreement (rgw)
Questions