Selection Battery Validation Technical Report

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## Project Background

This project simulates the real-world, day-to-day work of an industrial-organizational psychologist. In this scenario you are a member of a third-party consulting agency: Industrial & Organizational Psychology, LLC. (IOP). Your company has been asked to create a selection system for firefighter officers for the Alexandria Fire Department (AFD). These firefighters have many years of experience and are applying for leadership positions within the fire service.

Assume your selection system is based on a solid job analysis and is a reliable and valid measure of firefighter officer knowledge, skills, abilities, and other characteristics relevant to their job performance. The purpose of this technical report is to document this validation evidence for the client.

Note, AFD previously worked with another reputable I-O psychology consulting firm to develop a firefighter job knowledge test as the sole method for selecting fire officers. However, in recent years, fewer female firefighters have met the selection threshold to become a fire officer. The test is still very much reliable and valid, and AFD still wants to use the job knowledge test, but as a piece of a larger battery instead of the sole criterion for selection.

## Project Parameters

The selection battery IOP developed for AFD includes the following dimensions **(predictors)**:

* A firefighter officer job knowledge test score in percentile format.
* Two dimensions from a personality assessment: conscientiousness and emotional stability.
* A structured interview score representing the average rating from three expert raters.
* The firefighter’s tenure (organizational experience) with AFD in months

Your IOP colleagues collected a few additional variables that may be of use to your validation:

* Latest annual performance rating **(criterion)**
* Sex
* Race/ethnicity
* Age in years
* Veteran status
* Self-identification of disability status

## Project Requirements

### Title and Cover Page (1 Page) – 10 Points

* Must include your company name, the client’s name, the battery name, and the year.
* Feel free to get creative with the cover.

### Introduction & Literature Review (Minimum 6 Pages) – 85 Points

* This section documents the theoretical background of the selection battery.
* Provide theoretical and empirical justification for each of the four elements of the battery.
* Do not cite popular press (e.g., NYT, WSJ) or blogs (e.g., BetterUp) as evidence.
* Only academic, peer-reviewed primary studies or meta-analysis will be accepted.
* Do not directly quote; you must paraphrase in your own words.
* You must include a minimum of eight (8) academic papers in your introduction section.
* Papers must come from the journals below OR be approved by the instructor in advance:
  + Academy of Management Journal (AMJ)
  + Academy of Management of Review (AMR)
  + Administrative Science Quarterly (ASQ)
  + Annual Review of Organizational Psychology and Organizational Behavior
  + European Journal of Work and Organizational Psychology (EJWOP)
  + Human Performance
  + Human Resource Management Journal
  + Human Resource Management Review
  + International Journal of Human Resource Management
  + International Journal of Selection and Assessment
  + Journal of Applied Psychology (JAP)
  + Journal of Business and Psychology (JBP)
  + Journal of Management (JOM)
  + Journal of Occupational and Organizational Psychology (JOOP)
  + Journal of Occupational Health Psychology (JOHP)
  + Journal of Organizational Behavior (JOB)
  + Journal of Vocational Behavior (JVB)
  + Leadership Quarterly (LQ)
  + Organizational Behavior & Human Decision Processes (OBHDP)
  + Organizational Research Methods (ORM)
  + Personnel Assessment and Decisions (PAD: Open Source)
  + Personnel Psychology (PPsych)
  + Psychological Bulletin (PsychBull)

(Hint: Check my recommended reading list: [ajthurston.com/reading](https://ajthurston.com/reading))

### Results (minimum 4 pages) – 55 Points

* This section must include means, standard deviations, and correlations for study variables.
* Provide a visual display (i.e., table or figure format) of the mean/median values for each dimension by sex.
* Provide a written description of these results, discuss any statistically significant differences.
* Can also be figures which count towards the data visualizations requirement described later.
* Discuss the provided regression results, including the standardized beta weights associated with each predictor and the overall R2.
* Provide a written summary of predictor importance and the battery’s incremental validity over the old job knowledge test on its own.
* Compare just the job knowledge test and the whole battery for adverse impact comparing males vs. females using the 4/5ths rule.
* Create an expectancy chart with predicted job performance quantiles on the x-axis and actual job performance on the y-axis and provide a written description of the results.

### Recommendations and Conclusions (Minimum 2 Pages) – 40 Points

* Provide a written explanation of your recommended cut score based on these results.
* Recommend battery dimensions should be combined mechanically (not clinically) and why.
* Provide a one paragraph executive summary of the whole project and its conclusions.
* Provide a recommendation for how the battery could be improved with future research. Don’t overthink this section, have fun with it and practice your business development here. Tell me why AFD should hire IOP for future research and improvement of their selection systems.

### References (Minimum 1 Page) – 30 Points

* Provide all APA style references for any research you cite in this document.

### General Requirements

* **You must include at least three** **(3)** **data visualizations, each worth 10 points** **(30 points total)** and do not count for or against the other sections they are included in. Data visualizations do not count towards the minimum page counts listed above.
* You will lose 2 points for each typographical/grammatical error found (maximum 20 points).
* You must use 11pt, Arial font, single spaced paragraphs.
* You will receive ten (10) bonus points if you come up with a fun name for the selection battery that’s a pun, play on words, or an acrostic for the different elements of the battery (e.g., FIRE: F – fluency [i.e., job knowledge], I - interview, R – resilience [i.e., conscientiousness + emotional stability], E – experience)

## Project Logistics

* This project is **due on DATE @ 11:59pm**.
* You may work in a group with up to two other students. You are allowed to work alone.
* You may divide work equally among group members, for example, one person can write the introduction, one can focus on the methods and references, and another can be responsible for the results.
* If you choose to work as a group, you must complete a peer scoring scale (following page) in conjunction with the delivery of the project and you can be penalized according to this structure:
  + If you work with two peers and one rates your contribution as insufficient, -35 points.
  + If you work with two peers and both rate your contribution as insufficient, -70 points.
  + If you work with one peer and he/she rates your contribution as insufficient, -50 points.
  + You will fail this project (0 points) if your peer(s) report you did not contribute to it at all.
  + A peers rating of sufficient contribution is defined as the answer “yes” to all five questions in the peer rating form as well as the written summary of peer contribution which precedes those questions.
* I’ve allocated the points in such a way as to (nearly) evenly divide the work by either 2 or three peers working together and grouped the work logically; for example, it makes sense if only working with one peer the person writing the introduction is also responsible for the references. I recommend splitting the work as I planned below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Section** | **Points** | **Two Person Split** | | **Three Person Split** | | |
| Title | 10 | 1 |  |  |  | 3 |
| Introduction | 85 | 1 |  | 1 |  |  |
| Results | 55 |  | 2 |  | 2 |  |
| Rec. & Conclusions | 40 |  | 2 |  |  | 3 |
| References | 30 | 1 |  |  |  | 3 |
| Data Visualizations | 30 |  | 2 |  | 2 |  |
| **Total** | **250** | **125** | **125** | **85** | **85** | **80** |

## Project Scoring Rubric - Behaviorally Anchored Rating Scale

This rubric serves as a guide for how I will grade your submission, but it is not exhaustive and does not restrict me from addressing other egregious errors in the technical report. However, I very closely adhere to this rubric as best humanly possible.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | **Below**  **expectations** | | **Meets**  **Expectations** | | **Above**  **Expectations** | |
| **Title and Cover Page 10** | ▢ | Fails to include title or cover page | ▢ | Includes a title page with company, client, and battery name | ▢ | Meets expectations & includes a fun name or image |
| **Introduction 85** | ▢ | No introduction or cites non-empirical evidence or includes less than 8 peer reviewed articles | ▢ | Includes introduction, cites only 8 peer-reviewed evidence from class or recommended reading list | ▢ | Meets expectations, cites over 8 articles including 2 from outside class or recommended reading list |
| **Results 55** | ▢ | Does not discuss the descriptive statistics results | ▢ | Provides descriptive statistics as instructed | ▢ | Provides descriptive statistics with data visualization figures |
| ▢ | Does not discuss the hierarchical regression results | ▢ | Discusses the hierarchical regression results as instructed | ▢ | Provides a visual display of the dominance analysis results and explains them |
| ▢ | Does not discuss changes to adverse impact on females | ▢ | Discusses the changes to adverse impact for females | ▢ | Meets expectations & describes why other tests not conducted |
| ▢ | Does not provide an expectancy chart or provides only one table | ▢ | Provides an expectancy chart and describes where to set the cut score | ▢ | Meets expectations & provides a detailed recommendation |
| **Rec. & Conclusions**  **40** | ▢ | Does not provide recommendations and conclusions | ▢ | Provides conclusions addressing the stakeholder’s needs | ▢ | Provides recs. and conclusions and makes the case for additional work |
| **References**  **30** | ▢ | Does not include an APA formatted list of references | ▢ | Provides APA formatted list of references | ▢ | Meets expectations & links references or DOI numbers |
| **General Reqs.** | ▢ | Product contains more than two spelling, grammar, or typographic errors | ▢ | Product contains no more than two spelling, grammar, or typographic errors | ▢ | Product contains no spelling, grammar, or typographic errors |

## Project Peer Scoring Rubric - Behaviorally Anchored Rating Scale

On this project I [state your name here] worked with [peer #1 name here] (optionally:) and [peer #2 name here]. We divided the labor associated with this project according to this structure:

[Describe the nature of your division of labor here.]

I feel [peer #1 name here] did sufficiently contribute/did not sufficiently contribute/did not at all contribute to the group’s effort by:

[Describe peer #1’s contribution to the project if at all or why they did or did not contribute]

|  |  |  |
| --- | --- | --- |
| [peer #1 name here] did the following: | Yes | No |
| Was responsive to coordination regarding the project |  |  |
| Was willing to complete the work they agreed to in advance |  |  |
| Clearly communicated deadlines |  |  |
| Was an equal partner in contributing to the project |  |  |
| Maintained professional courtesy throughout the project |  |  |

I feel [peer #2 name here] did sufficiently contribute/did not sufficiently contribute/did not at all contribute to the group’s effort by:

[Describe peer #2’s contribution to the project if at all or why they did or did not contribute]

|  |  |  |
| --- | --- | --- |
| [peer #2 name here] did/did not do the following: | Yes | No |
| Was responsive to coordination regarding the project |  |  |
| Was willing to complete the work they agreed to in advance |  |  |
| Clearly communicated deadlines |  |  |
| Was an equal partner in contributing to the project |  |  |
| Maintained professional courtesy throughout the project |  |  |