

# Using Self Efficacy Measures to Select Employees

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# Introduction

- Self-efficacy has a strong relationship to job performance
  - Theoretical
  - Empirical
- Assessment procedures based on self-efficacy have not been attempted
- Fear that applicants may respond untruthfully

# Objectives

- Show you three measures of self-efficacy
- Discuss how they worked relative to existing measures
- Discuss how the most promising measure could be implemented in actual high-stakes testing situations

# Based on the Project: Expanding the Concept of Quality in Personnel (ECQUIP)

- Sponsored by the Army Research Institute
- Conducted by American Institutes for Research and Human Resources Research Organization
- Principal researchers included:
  - Norm Peterson (Project Director)
  - Lance Anderson
  - Jennifer Crafts
  - Donald A. Smith
  - Stephan J. Motowidlo
  - Rodney L. Rosse
  - Gordon W. Waugh
  - Rodney McCloy
  - Douglas H. Reynolds
  - Michelle R. Dela Rosa
  - Clint Walker
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# Research Tasks

1. Develop or identify traditional predictors
2. Develop self-efficacy instruments
3. Develop criteria
4. Collect data
5. Conduct data analyses

# Develop or Identify Traditional Predictors

<b>Input</b>	<b>Process</b>	<b>Output</b>
<ul style="list-style-type: none"><li>• Previous research identifying relevant constructs and measures:<ul style="list-style-type: none"><li>– Cognitive ability</li><li>– Temperament</li><li>– Situational Judgment Testing</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Identify measures to cover the constructs and measurement types</li><li>• Develop SJT<ul style="list-style-type: none"><li>– Gather 1200 critical incident reports</li><li>– Edit to produce 195 problem stems</li><li>– Obtain open-ended responses and write items</li><li>– Pilot test, refine, and key</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Armed Forces Qualification Test (AFQT) scores</li><li>• Word Knowledge Test</li><li>• Arithmetic Reasoning Test</li><li>• Assessment of Background and Life Experiences</li><li>• SJT</li></ul>

# Develop Self-Efficacy Instruments

<b>Input</b>	<b>Process</b>	<b>Output</b>
<ul style="list-style-type: none"><li>• SJT as a measurement platform</li><li>• 195 problem stems</li></ul>	<ul style="list-style-type: none"><li>• Design and apply response scale to items on the SJT</li><li>• Design and apply response scale pertaining to SJT performance</li><li>• Select problem stems</li><li>• Design and apply response scale to problems</li></ul>	<ul style="list-style-type: none"><li>• Item Performance Self-Efficacy (IPSE)</li><li>• Test Performance Self-Efficacy (TPSE)</li><li>• Situational Self-Efficacy (IPSE)</li></ul>

# Example SJT/IPSE Item

During a training course with your unit you notice that some of your soldiers actively participate, while others don't say a word. You would...

- a. talk to those who do not participate and encourage them to speak out.
- b. change the training plan so that participation is required.
- c. make those individuals who don't talk teach the course.
- d. let those who participate leave early and keep the others for more training.
- e. do nothing; if they don't learn they will only be hurting themselves.

## Response:

Choose the most effective and least effective responses

Rate your confidence that you picked the most effective and least effective responses

**Most Effective**    **A**   **B**   **C**   **D**   **E**

**1**   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**   **10**

**Least Effective**    **A**   **B**   **C**   **D**   **E**

**1**   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**   **10**

# TPSE Response Format

Considering the questions in the Situational Judgment Test, do you think you got the right answer to...

How sure are you?

			How sure are you?								
			Not Sure						Very Sure		
1.	At least 50% of them?	yes no	1	2	3	4	5	6	7	8	9
2.	At least 75% of them?	yes no	1	2	3	4	5	6	7	8	9
3.	At least 85% of them?	yes no	1	2	3	4	5	6	7	8	9
4.	At least 95% of them?	yes no	1	2	3	4	5	6	7	8	9
5.	All of them?	yes no	1	2	3	4	5	6	7	8	9

# Example SSE Item

You are a sergeant in charge of another sergeant. Although you both have the same rank, you are in the leadership position. Today when you arrive at work, you find out that the other sergeant “blew off” a priority directive that you gave yesterday.

**As an NCO, how often do you think you could deal effectively with a problem like this?**

**How sure are you?**

				<b>Not Sure</b>					<b>Very Sure</b>				
1.	At least 50% of the time?	yes	no	1	2	3	4	5	6	7	8	9	
2.	At least 75% of the time?	yes	no	1	2	3	4	5	6	7	8	9	
3.	At least 85% of the time?	yes	no	1	2	3	4	5	6	7	8	9	
4.	At least 95% of the time?	yes	no	1	2	3	4	5	6	7	8	9	
5.	All of the time?	yes	no	1	2	3	4	5	6	7	8	9	

# Develop Criteria

<b>Input</b>	<b>Process</b>	<b>Output</b>
<ul style="list-style-type: none"><li>• Literature on management and supervisory performance</li><li>• Input of roughly 500 NCOs</li></ul>	<ul style="list-style-type: none"><li>• Gather 2000 critical incident reports</li><li>• Develop performance dimensions</li><li>• Develop instruments</li><li>• Pilot test</li><li>• Develop a composite</li></ul>	<ul style="list-style-type: none"><li>• Structured Interview</li><li>• Supervisory BARS scales</li><li>• Supervisory Situational Ratings</li><li>• Composite</li></ul>

# Collect Data

<b>Input</b>	<b>Process</b>	<b>Output</b>
<ul style="list-style-type: none"><li>• Predictor and criterion instruments</li><li>• Archival data</li></ul>	<ul style="list-style-type: none"><li>• Develop protocol<ul style="list-style-type: none"><li>– Paper and pencil testing</li><li>– Structured interview</li><li>– Supervisory ratings</li></ul></li><li>• Collect data at 5 sites</li></ul>	<ul style="list-style-type: none"><li>• Data on 691 NCOs</li><li>• Various ranks</li><li>• Various occupation types</li><li>• Various race and ethnic groups</li></ul>

# Conduct Data Analyses

- Compute reliability coefficients
- Calculate bivariate correlations between predictors, criterion composite
- Multiple regression to show incremental validity of new predictors over selected set of existing measures
- Correct multiple R statistic for measurement error, shrinkage, and multivariate range restriction.

# Results: Selected Correlations

	AQFT	WOR	DOM	LOC	SJT	IPSE	TPSE	SSE	Crit
AQFT	1								
WOR	-04	87							
DOM	02	61	80						
LOC	05	38	24	68					
SJT	27	15	14	09	71				
IPSE	04	19	21	08	09	96			
TPSE	08	13	17	12	10	18	67		
SSE	11	28	27	12	17	17	27	86	
Crit	11	36	31	16	20	09	10	21	66

Note: Diagonal provides the reliability coefficients.

# Results: Simultaneous Regression of All Predictors

Corrected Multiple R: .49

## Standardized Regression Weights

Self-Efficacy		ABLE	
IPSE	-.05	Adjustment	-.11
TPSE	-.03	Cooperation	-.08
SSE	.15	Dependability	-.09
Cognitive Ability		Dominance	.19
AFQT	.13	Locus of Control	.05
AO	-.01	Physical Condition	-.01
SJT	.15	Work Orientation	.26

# Results:

## Selected Multiple Regressions

Basic Prediction Equation	Basic Equation	Basic Equation+SSE	<i>Incremental</i> <u>R</u>
Y=SSE	.27		
Y=Cognitive	.12	.28	.16
Y=Cognitive+SJT	.23	.32	.09
Y=Cognitive+SJT+Temperament	.48	.49	.01

Note: Statistics corrected for shrinkage, range restriction, and measurement error in the criterion.

# Summary of Results

- SSE predicted performance beyond that predicted by cognitive ability and SJT
- Self-efficacy in test and item performance did not predict job performance

# One Way of Using Self-Efficacy in A Selection Setting

- Use mail-out or Internet medium to present questions and gather information
- Tell candidates that you will interview top candidates to verify responses
- Use the SSE method to present a rich scenario
- Define success in terms of multiple concrete objectives
- Reduce faking by asking them first if they had ever encountered a similar situation

# One Way to Use Self-Efficacy in A Selection Setting (Continued)

- Obtain rating on confidence of candidate to achieve each objective
- Interview top candidates, ask them to describe:
  - the similar situation they encountered and how they dealt with it
  - how they would deal with the situation and achieve each objective

# Pros and Cons of Using Self Efficacy to Select Employees

## Pros

- Demonstrated to have high validity
- Fair
- Appropriate to assess variety of skills, for example:
  - Interpersonal skills
  - Ability to handle high stress situations
  - Complex problem solving
- Provides RJP
- Data collection convenient for candidates

## Cons

- Faking and response distortion may affect validity
- May require two stage selection process to address response distortion