



ATP  
Innovations  
in Testing  
Palm Springs, CA

2015

# Five Innovative Practices to Manage and Work with Big Data in the Testing Industry



# Masters & Johnson

lets talk about it:

**SEX**



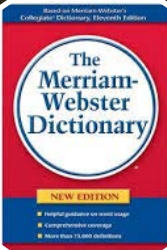
# The Journey

5

Five Innovative  
Practices

example

Examples



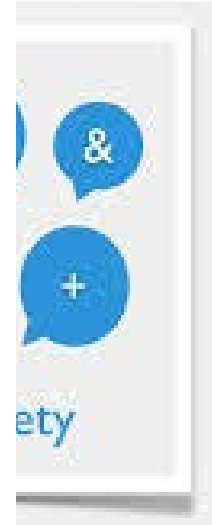
Definitions



# What is Big Data?

## ■ Big Vs

- Volu
- Velc
- Vari
- Vera

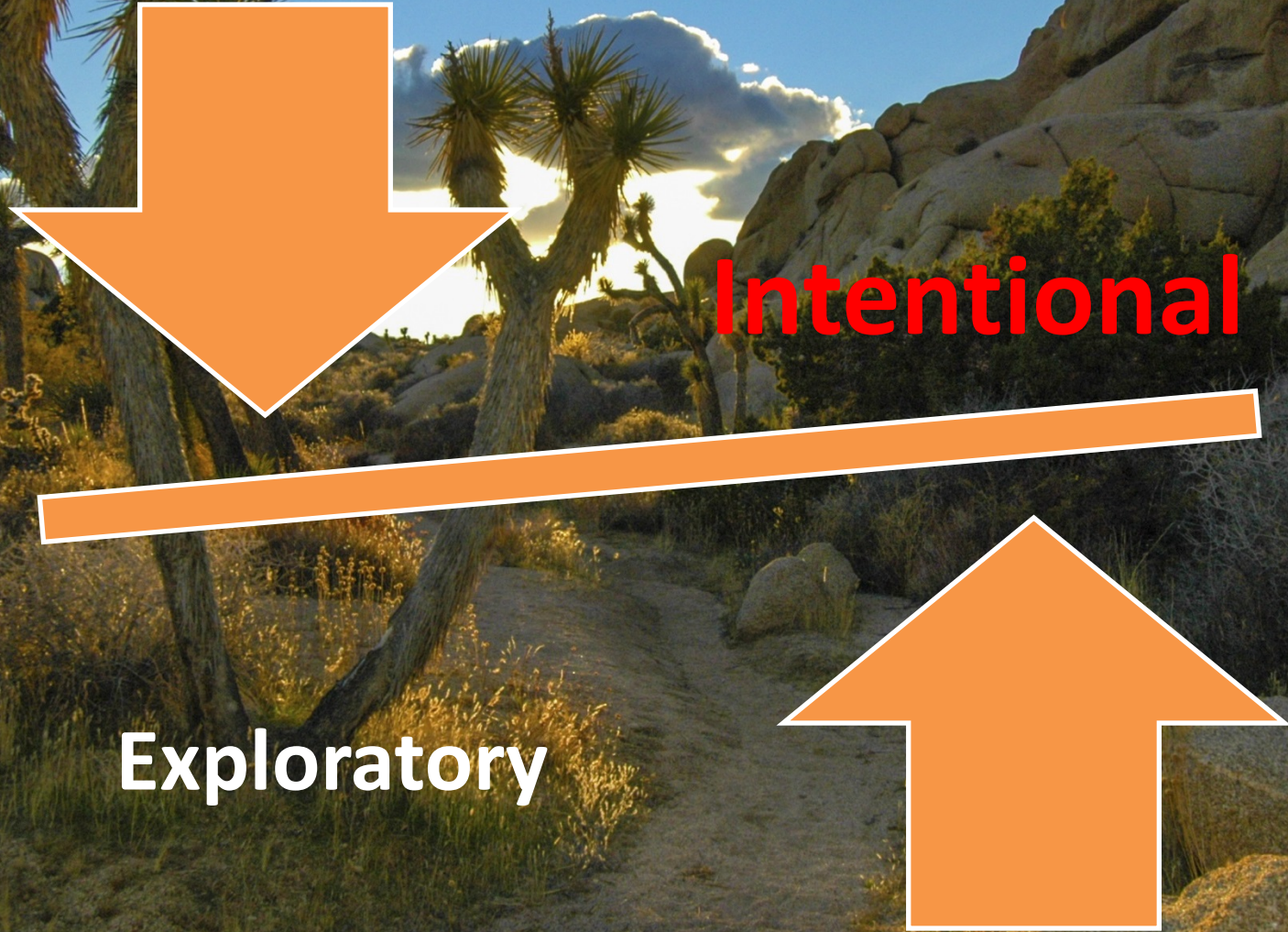


# What is Big Data?





# Let's Pause- The Balance





# Is Big Data New?

lets talk about it:

**SEX**

**BIG DATA?**

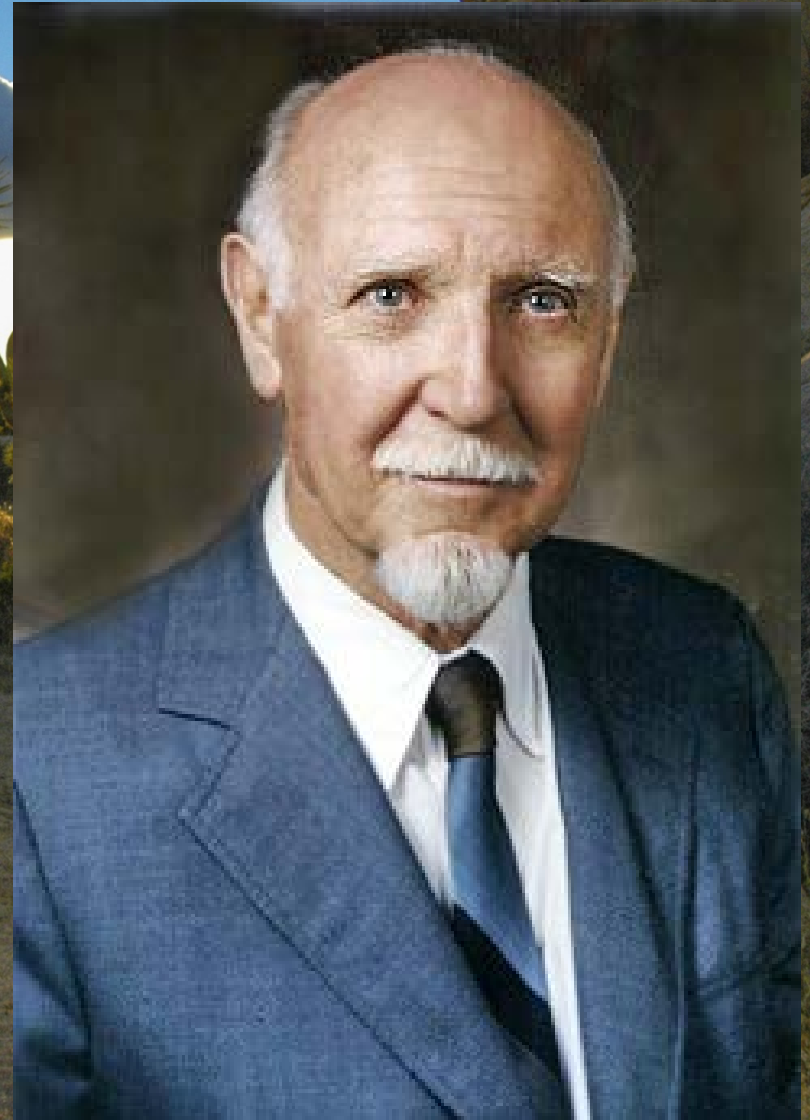
**YEAH I WAS INTO DATA BEFORE IT WAS  
BIG**



# Is Big Data New?

## Cattell's Personality Theory

- L-Data - Life Data
- T-Data -  
Experimental Data
- Q-Data -  
Questionnaire Data





# What are Some Success Stories

## Why did it work?

- ✓ Kevin Spacey films do well
- ✓ British version did well
- ✓ Increase in individuals streaming video media





# Success Stories - Volometrix

MEETING MONDAY - Message (HTML)

**File** Message Insert Options Format Text Review

Clipboard Basic Text Names Include Tags Zoom

To... **1** ALL U.S. SALES DIRECTORS, MANAGERS AND STAFF

Cc... **2** DIRECTOR OF FINANCE, DIRECTOR OF ENGINEERING, HR

Subject: **3** RE: Ongoing Sales Planning

Hi all,

I am calling a meeting for 9 a.m to 11 a.m. **4** Monday to review the sales strategy for our new product lines **5** ( comments). **6** In addition, please weigh in with your comments and survey. **7**

Best,  
The boss

**11**

**1** Inviting too many people to the meeting.  
**2** CC-ing too many people.  
**3** Vague subject line.  
**4** Meetings longer than necessary.  
**5** Unclear agenda frustrates attendees and wastes time.  
**6** Opens the door for too much feedback.  
**7** Fails to make clear what recipients are supposed to do.

management.  
ty of decision-making.



# Big Data in Certification

## ■ Data Sets

- Registration Data
- Exam Preparation Data
- Psychometric Data
- Recertification Data
- Marketing/Financial Data (Volume)
- Other Departmental Data (e.g., Number of Individuals Taking Courses related to exam)

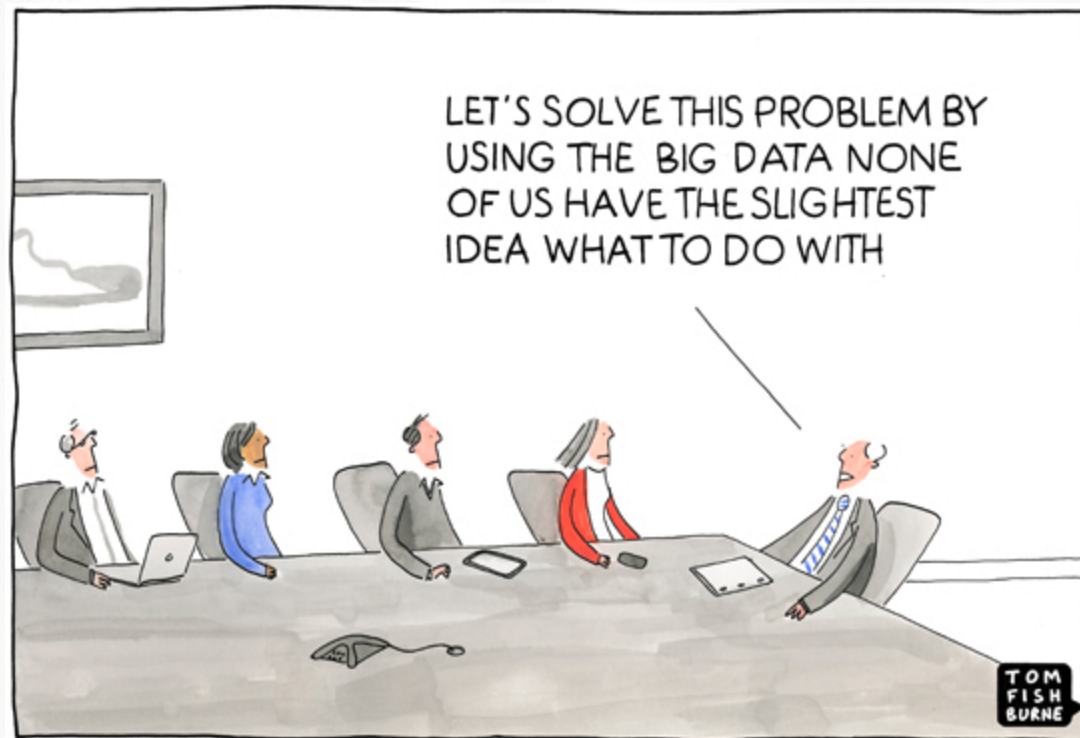
## ■ Data Purposes

- Volume
- Satisfaction
- Competency
- Validity



# The Five Ways

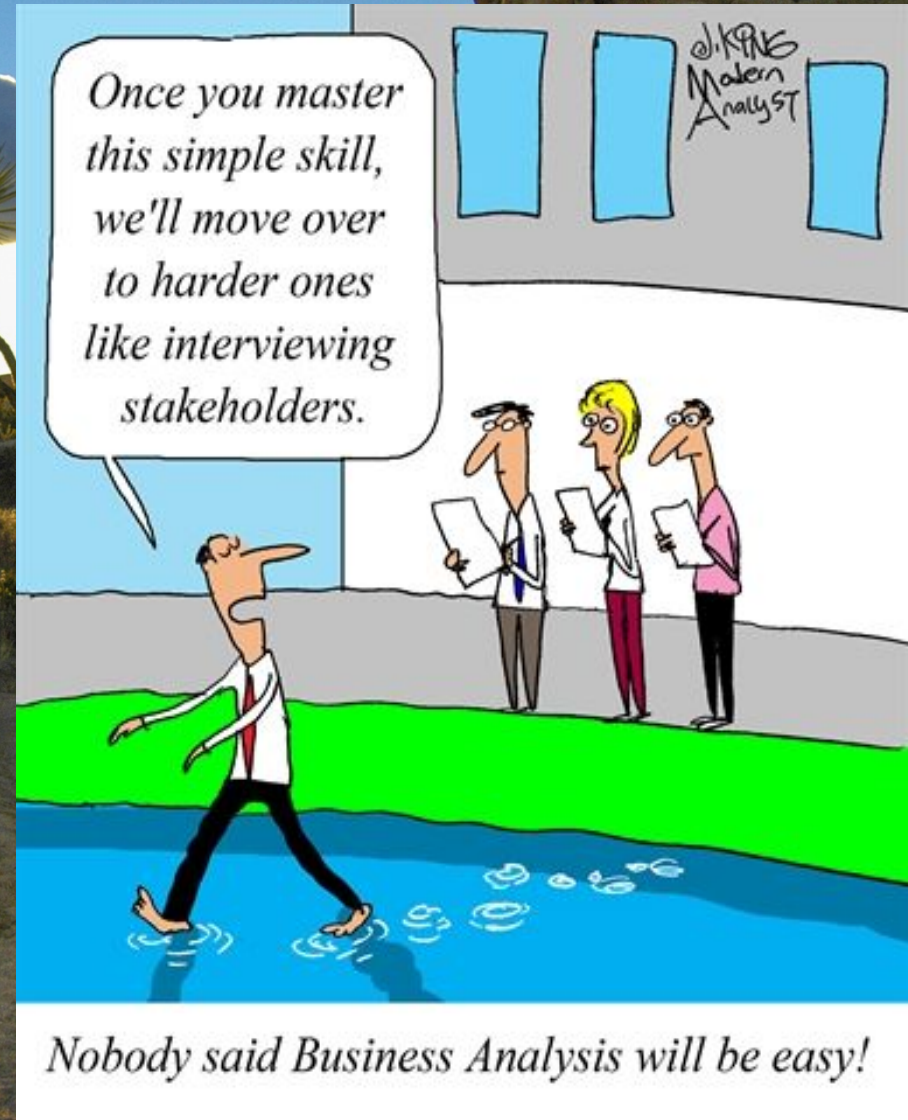
## ***#1 Define and operationalize the question your organization seeks to answer***





# The Five Ways

**#2 Involve multiple stakeholders when discussing Big Data (e.g., vendors, IT, decision makers, certification holders/SMEs)**





# The Five Ways

## ***#3 Identify your data sources and develop a data dictionary***

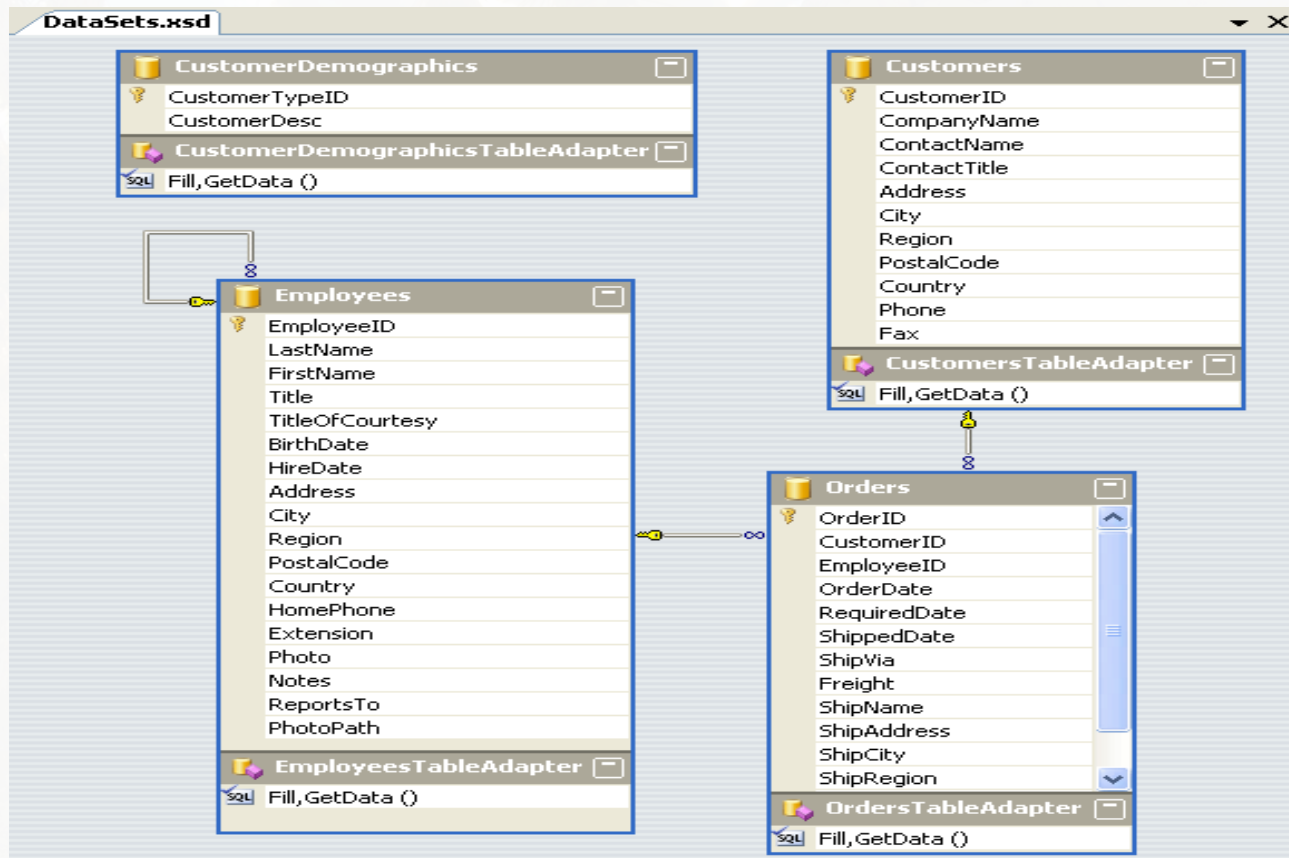


**"It's a dictionary. This is how people used to know how to spell."**



# The Five Ways

## #4 Standardized multiple data sets among common fields

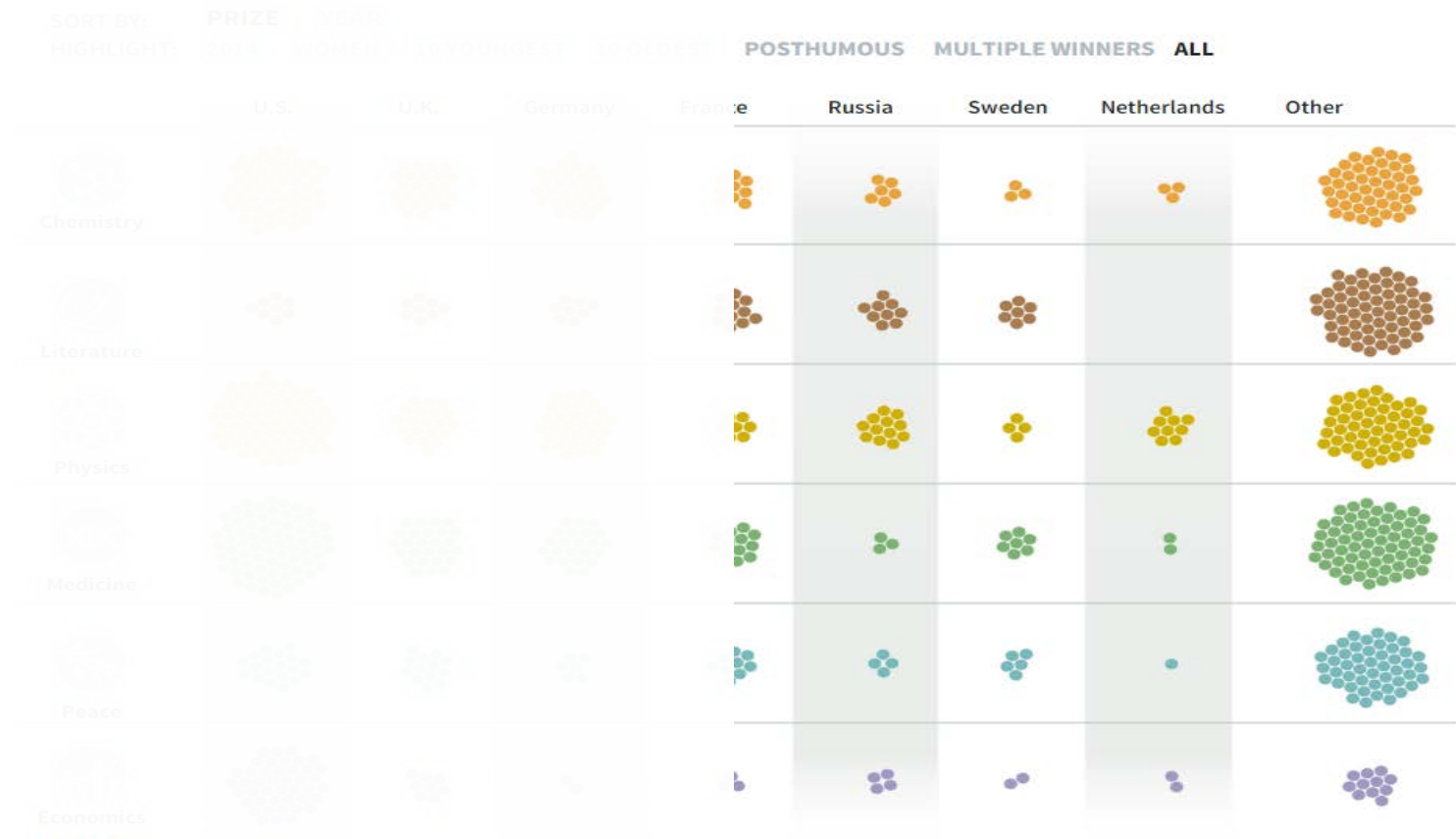




# The Five Ways

## #5 Produce simple reports designed to answer the question across multiple stakeholders

# 114 Years of Nobel Laureates





# Confirmation of Test Keys

This report presents the findings, recommendations and data for three test items. The purpose of the analysis is to identify which test keys to include as distractors or if the test key is in need of revision to attract candidates to distractors as they select their answer. Included is data of how Upper, Middle and Lower third performers answered and the item's analysis score.

## Findings

Item 1



Too hard

Item 2



Acceptable

Item 3



Too easy

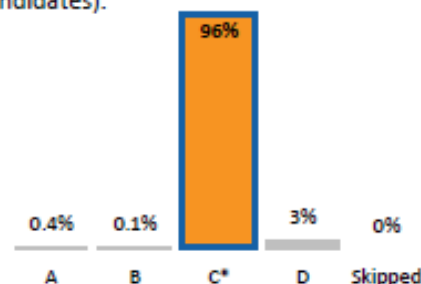
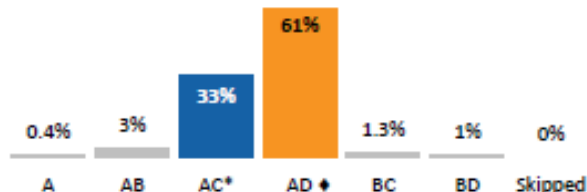
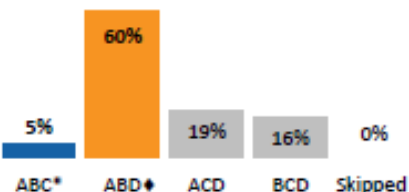
## Recommendations

Confirm key of ABD and review option ABC to ensure that it is incorrect. Statistics suggest that ABD is key.

Confirm key of AC and review option AD to ensure that it is incorrect. Statistics suggest that AD is key.

Revise distractors, particularly A and B (attracting less than 2% of test candidates).

% of candidates



Item 1							Item 2							Item 3						
Performers	ABC*	ABD*	ACD	BCD	TOTAL	Skips	A	AB	AC*	AD*	BC	BD	TOTAL	Skips	A	B	C*	D	TOTAL	Skips
Upper	5%	69%	8%	18%	34%	0%	0%	0%	39%	61%	0%	0%	42%	0%	0%	0%	99.6%	0.4%	32%	0%
	4	51	6	13	74	0	0	0	37	58	0	0	95	0	0	0	261	1	262	0
Middle	6%	54%	16%	24%	30%	0%	0%	8%	26%	65%	0%	0%	32%	0%	0%	0%	98.1%	2%	33%	0%
	4	34	10	15	63	0	0	6	19	47	0	0	72	0	0	0	263	5	268	0
Lower	4%	54%	31%	12%	36%	0%	2%	2%	33%	56%	5%	3%	28%	0%	0.2%	0.3%	92.5%	6%	34%	0%
	3	42	24	9	78	0	3	1	20	34	3	2	63	0	3	1	258	17	279	0
					100%	0%							100%	0%					100%	0%
					215	0							228	0					809	0
	P+ = 0.05		Rbis = -0.06				P+ = 0.33		Rbis = -0.09					P+ = 0.96		Rbis = 0.26				

\*Correct option

♦ Option that completes the form with the correct answer (key).

P+ value: > 0.92, the item is too easy. If < 0.30, the item is too hard.

Rbis value: Correlation between performance on an item and total performance. A value less than .20 is considered to not be discriminating well. In other words, the higher performers tend to answer this item incorrectly and the lower performers tend to answer incorrectly.

Prepared for CUSTOMER NAME, April 2013



# Umm, What About The Other Data?



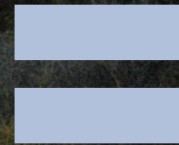


# What is Really Important?

Practical



Replicate



**Good  
Data**