

Identifying Your Story: Analyzing Assessment Data

-CASA Session 7-



Session 7 Overview

- Check-in
- What to do with data?
- Qualitative data analysis
 - Organizing and analyzing qualitative data
 - Coding activity
- **BREAK**
- Quantitative data analysis
 - Common methods of quantitative data analysis
 - Types of data reporting
- For next session...
 - Celebration invitations for supervisors

So... I've got all this data

- Where is the data located?
- What format is it in?
- What do you need to do to make it “ready” to analyze?
 - Quantitative:
 - *Enter the surveys into a computer?*
 - *Export the data into some format?*
 - *Nothing?*
 - Qualitative
 - *Write down my observations, feelings, etc?*
 - *Transcribe interviews, notes, etc?*
 - *Export the data into some format?*
 - *Nothing?*



Finding the Story

- Step back and see the big picture
- Recall your original assessment question(s)
- Identify themes and trends
- Begin by thinking about what you need to report:
 - Format
 - *Written report?*
 - *Presentation?*
 - *Elevator?*
 - Audience
 - *What are your participants wondering?*
 - *What are your stakeholders asking?*
 - *What do you need to tell the campus about your students/program/experience?*



Types of DATA Analysis

Quantitative Approach	Qualitative Approach
Answers specific, narrow questions	Answers broad, general questions
Deductive	Inductive
Collects quantifiable data	Gathers word/text-based data
Uses statistical analysis	Searches for themes
Focuses on numbers, scores, comparisons across and correlations between groups	Listens to viewpoints of participants; Recognizes value of lived experiences
Seeks generalizability	Seeks a detailed understanding of a particular phenomenon

Common Sources of Qualitative Data

- Transcriptions from interview or focus-group recordings
- Student journals and assignments
- Observation notes, field notes
- Written feedback from course, program, or instructor evaluations
- Open-ended responses from surveys

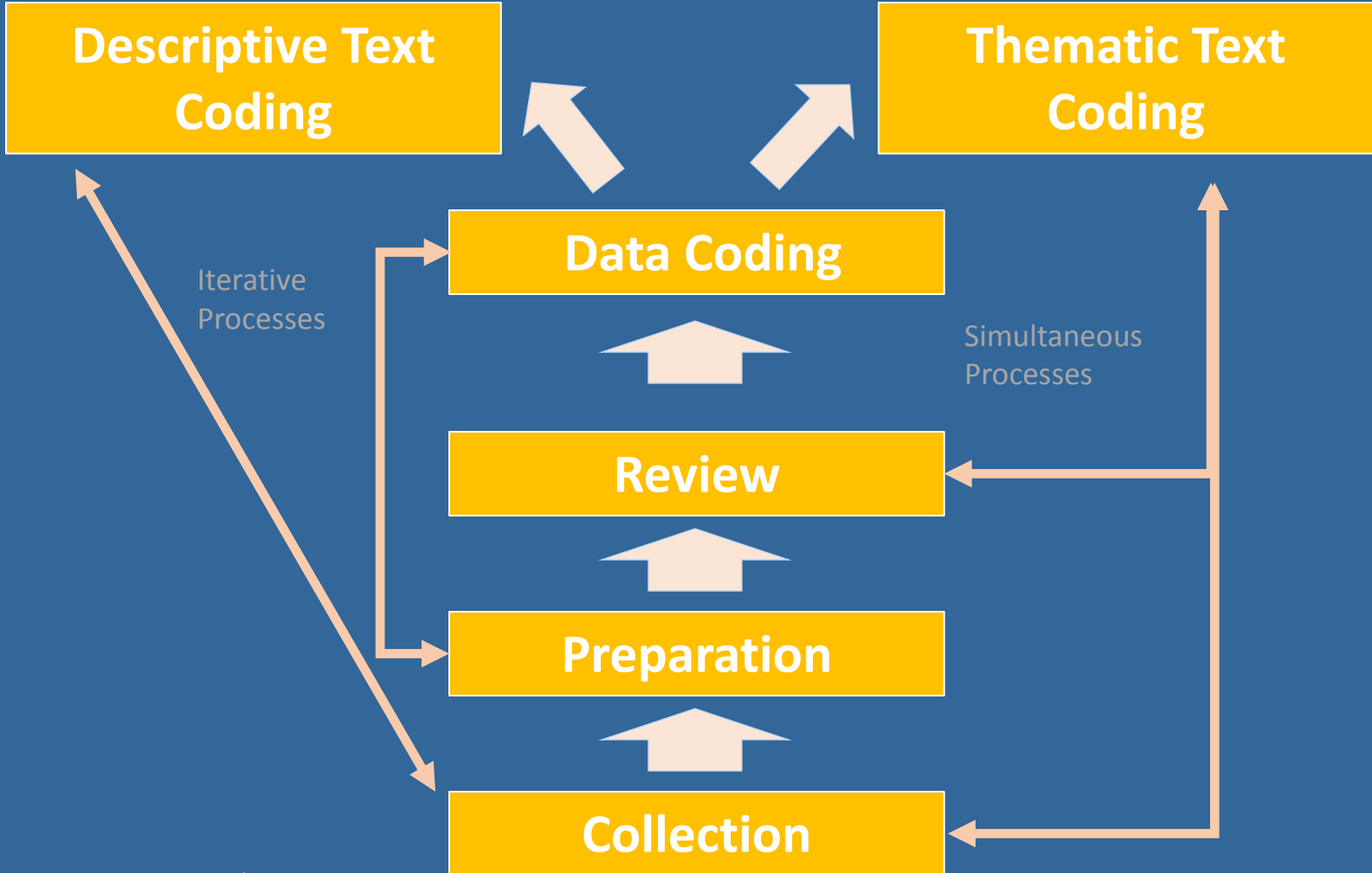


Other Sources of Qualitative Data



- Reflections from staff development exercises or retreats
- Letters or emails from students, parents, or customers
- Official documents: job descriptions, mission statements, archives, memoranda of understanding, proclamations
- Media: photos, news articles, Facebook and Twitter posts, Youtube Videos, forum posts, and user comments

Qualitative Data Analysis



Adapted from Creswell, J. (2008). *Educational Research* (3rd ed.)

Descriptive vs. Thematic Coding

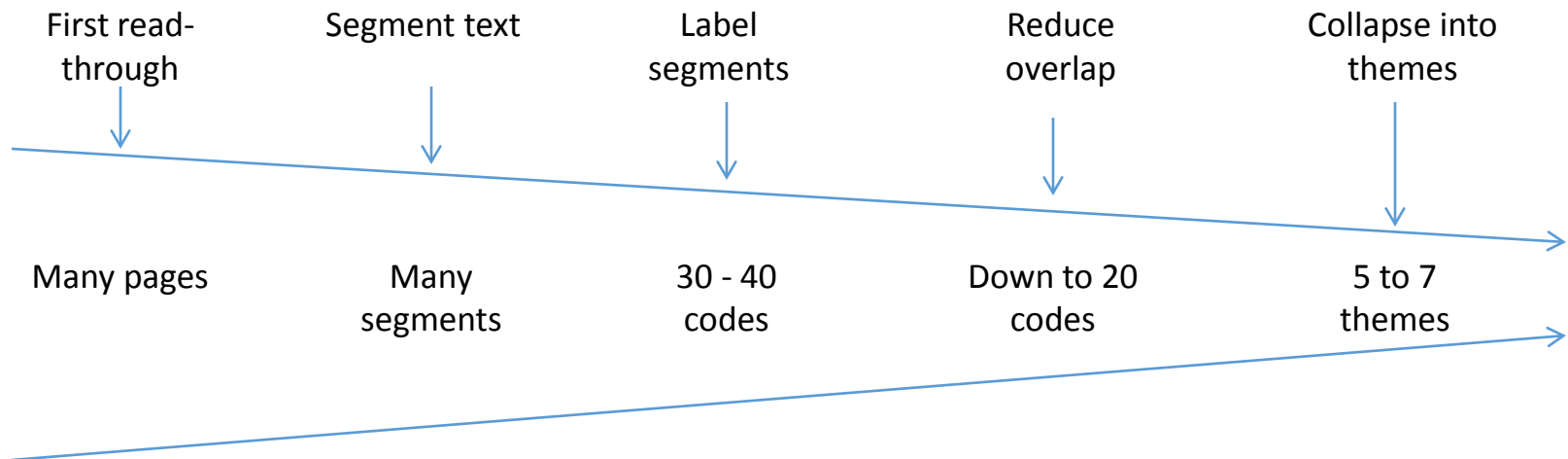
Descriptive Coding	Thematic Coding
Broad-to-narrow descriptions	<i>Ordinary Themes</i> : ones that you expect to find
Gives a vivid rendering of people, places, events in the setting	<i>Unexpected Themes</i> : surprises that you didn't expect to come up
Helps transport the reader to the setting	<i>Hard-to-Classify Themes</i> : ideas that don't easily fit or that overlap too much
Reports "the facts" through quotes and detail	<i>Major and Minor Themes</i> : broad ideas and subsets within them

How-To-Code Qualitative Data

Exploratory Analysis

- Explore all data to get a general sense
- Memo ideas in the margins
- Think about data organization
- Consider whether you need more

Coding Process Model:



Example of Coded Qualitative Data

Descriptive

- Freshman essay about living on your own.
- Student recounts how he feels and his activities being on his own.
- Student reflects on pros and cons of living on his own.
- Student talks about what made him leave home.

When you move into your own home, you're alone. There is no bustle of people around the house. I miss having someone to chat to when I get home. I put the TV or some music so there's some background noise, the silence makes me feel so alone. Sometimes I will be sat watching trash TV and thinking I should be out doing something rather than watching this rubbish. I read a lot but sometimes I am too tired and just want to veg out. But it's been good to move out of mum and dads as it's not healthy to rely on them as they won't last forever. I become independent and made my own decisions. It's good they still there when I need them. It's good to have some distance as when I was at home I was arguing a lot with my dad and that was made me decide it was time to go.

feelings

Living alone

New relationship with parents

Independence

Old relationship with parents

Argument with Dad
Relation with father

Thematic

Feelings

- Loneliness
- Sadness
- Boredom

Living Alone

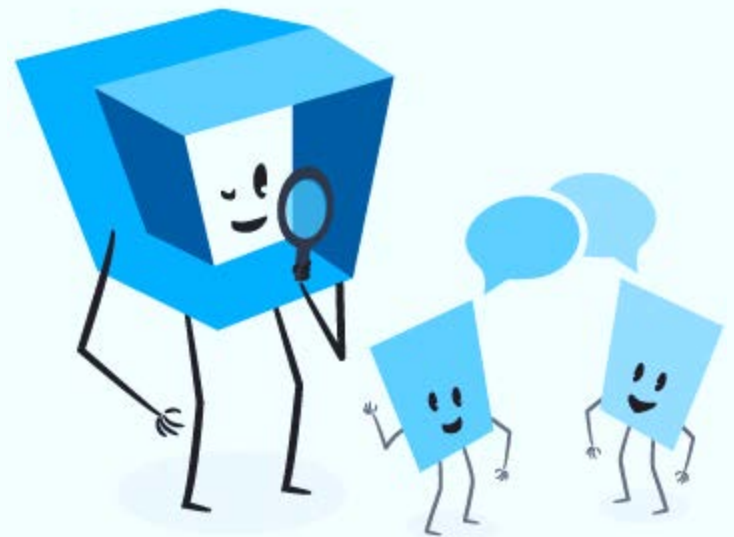
- Things you do in a new situation
- Passing the time
- Independence

Family

- Conflicts
- Growing up
- Changing relationships

Qualitative Data Analysis Exercise

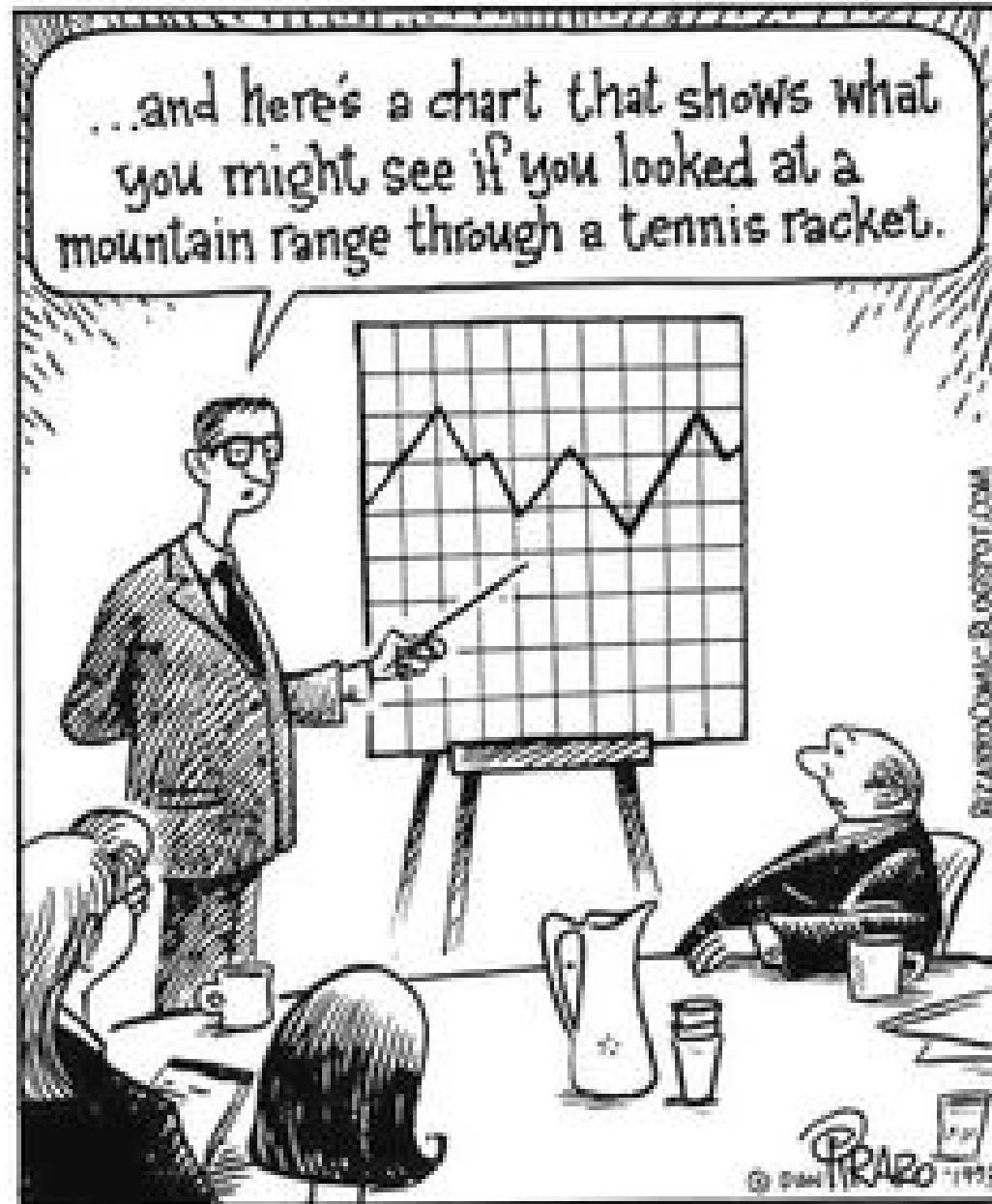
- Split up into groups of 2-3 people.
- Take about 5 minutes to read and code the transcripts individually.
- When you are done, discuss with your group partner(s):
 - 5 minutes:
 - Where do you agree? Disagree? Can you come to a common ground?
 - What are the key items you would include in an assessment report?
 - 5 minutes:
 - Combine your findings into a coherent story.
 - Make at least one implication for practice.
- Discuss with Class



- ~~Check-in~~
- ~~What to do with data?~~
- ~~Qualitative data analysis~~
 - ~~Organizing and analyzing qualitative data~~
 - ~~Coding activity~~

- **BREAK**

- Quantitative data analysis
 - Common methods of quantitative data analysis
 - Types of data reporting
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Common Sources of Quantitative Data

- Quantitative methods generate numerical data
- Quantitative analysis involves use of statistical procedures to interpret numerical data
- Sources of quantitative data:
 - Institutional records
 - Surveys
 - Document/content analysis
 - Scoring of rubrics and portfolios
 - Numerical data from observations (e.g. counts and tallies)



Performance Element	Distinguished	Proficient	Intermediate	Limited
Purpose and Focus	Establishes and maintains clear focus; evidence of distinctive voice and/or appropriate tone	Focused on a purpose; evidence voice and/or suitable tone	An attempt to establish and maintain purpose and communicate with the audience	Limited audience purpose
Development of Ideas	Depth and complexity of ideas supported by rich, engaging and/or pertinent details; evidence analysis, reflection and insight	Depth of idea development supported by elaborated, relevant details	Unelaborated idea development; unelaborated and/or repetitious details	Minimal idea development and/or un
References	Use of references indicate substantial research	Use of references indicate ample research	Some references	Few refer
Organization	Careful and/or suitable organization	Logical organization	Lapses in focus and/or coherence	Random organization
Sentence Structure	Variety of sentence structure and length	Controlled and varied sentence structure	Simplistic and/or awkward sentence structure	Incorrect and/or in

What are Statistics?

The word "statistics" is used in several different senses.

- In the broadest sense, "statistics" refers to a range of techniques and procedures for analyzing data, interpreting data, displaying data, and making decisions based on data.
- In a second usage, a "statistic" is defined as a numerical quantity (e.g., the mean).



The Bottom Line About Statistics...

Statistics are the tools you use to:

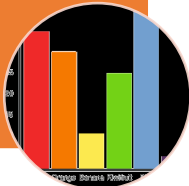
- Put data in summary form
- Transform it either into words or pictures
- Communicate or describe a specific situation
- In other words...they are the means you use to communicate your data or tell your story



Telling the Story with Descriptive Statistics...

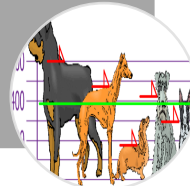
- Count, Percent, Frequency, Crosstabs
- Show how often something occurs
- How many people do/say/think X?

Measures of Frequency



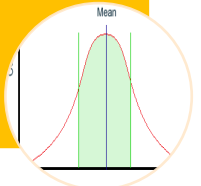
- Mean, Median, Mode
- Show the average or most common response
- What does the average person do/say/think?

Measures of central tendency

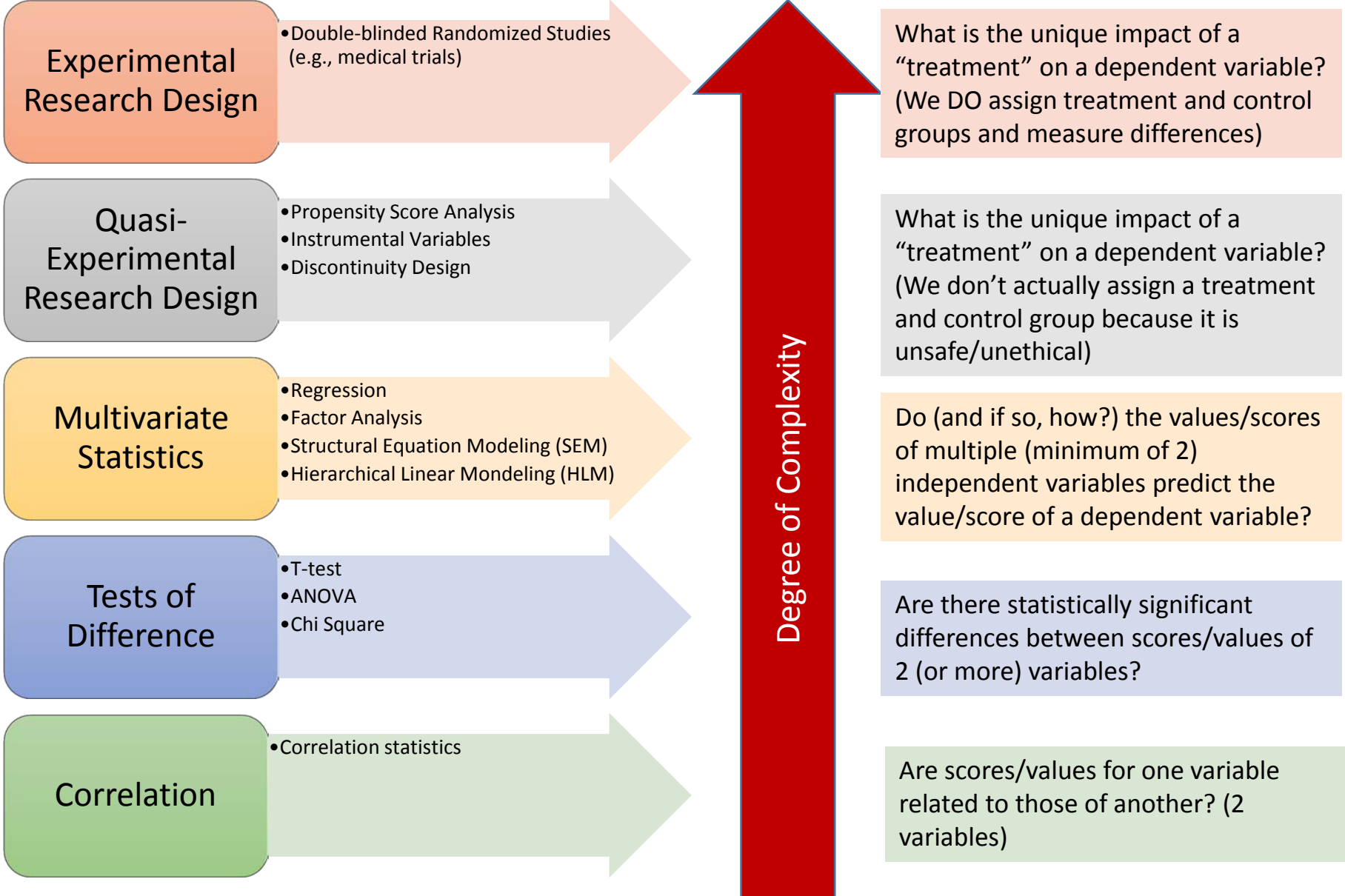


- Range, Variance, Standard deviation
- Show how spread out the responses are
- How consistent were the responses?

Measures of dispersion or variation



Telling the Story with Inferential Statistics...



Experimental Research Design

- Double-blinded Randomized Studies (e.g., medical trials)

What is the unique impact of a "treatment" on a dependent variable? (We DO assign treatment and control groups and measure differences)

Quasi-Experimental Research Design

- Propensity Score Analysis
- Instrumental Variables
- Discontinuity Design

What is the unique impact of a "treatment" on a dependent variable? (We don't actually assign a treatment and control group because it is unsafe/unethical)

Multivariate Statistics

- Regression
- Factor Analysis
- Structural Equation Modeling (SEM)
- Hierarchical Linear Modeling (HLM)

Do (and if so, how?) the values/scores of multiple (minimum of 2) independent variables predict the value/score of a dependent variable?

Tests of Difference

- T-test
- ANOVA
- Chi Square

Are there statistically significant differences between scores/values of 2 (or more) variables?

Correlation

- Correlation statistics

Are scores/values for one variable related to those of another? (2 variables)

Degree of Complexity

What does the average person do, say or believe?

This question is generally answered using measures of central tendency:

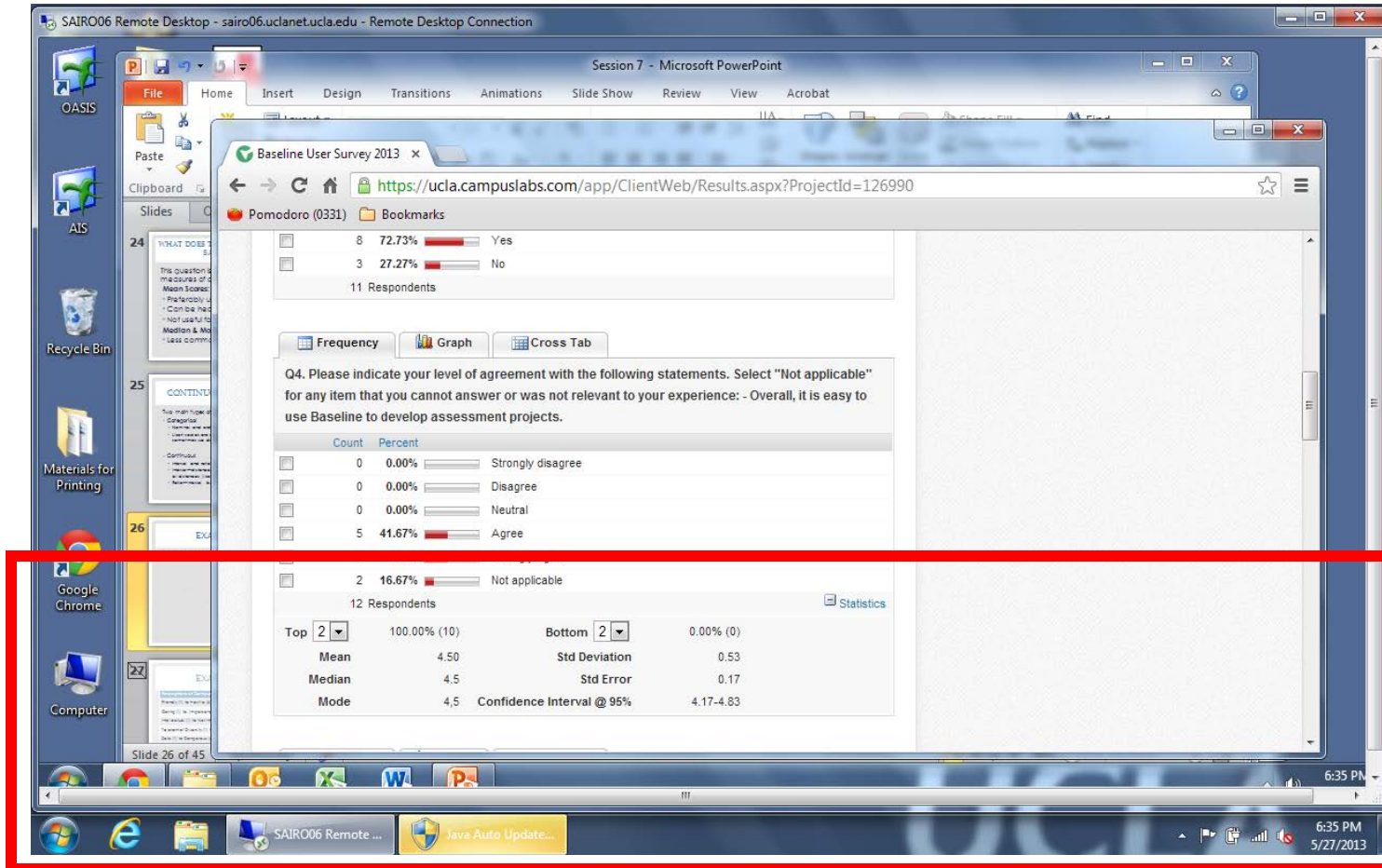
Mean Scores:

- Preferably used with continuous variables
- Can be heavily influenced by “outliers”
- Not useful for dichotomous variables

Median & Mode:

- Less common in assessment reporting

Means: baseline example

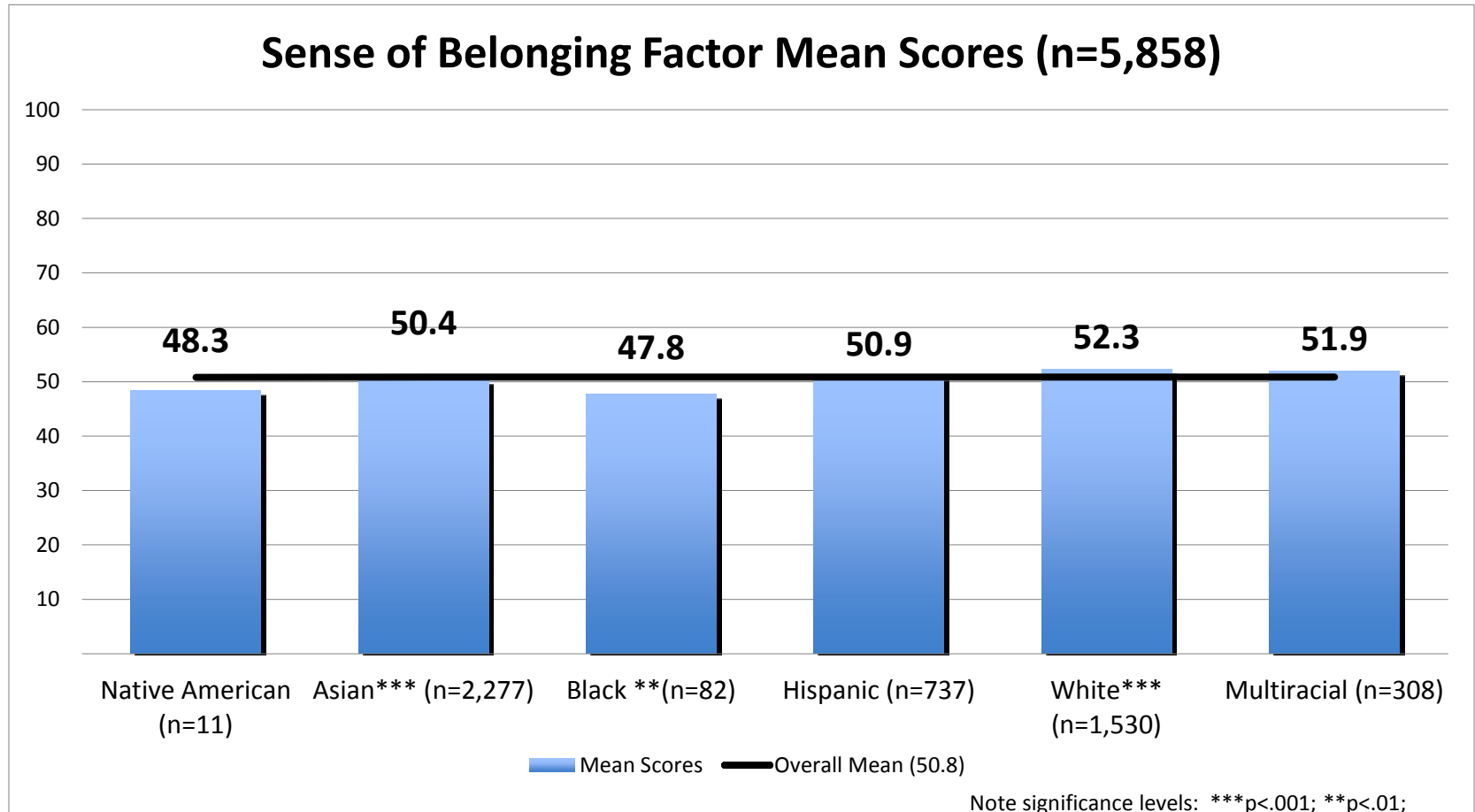


Means: table example

Perceptions of Campus Climate	Mean
Hostile (1) to Friendly (6)	4.7
Impersonal (1) to Caring (6)	4.2
Not Intellectual (1) to Intellectual (6)	4.9
Intolerant of Diversity (1) to Tolerant (6)	4.6
Dangerous (1) to Safe (6)	4.8
Too Difficult Academically (1) to Too Easy (6)	4.4
Not Affordable (1) to Affordable (6)	3.2

Source: UCUES, 2014

Means: chart example



How many people do/say/believe X?

This question is generally answered using measures of frequency:

Counts:

- Use to convey information about the total number of responses

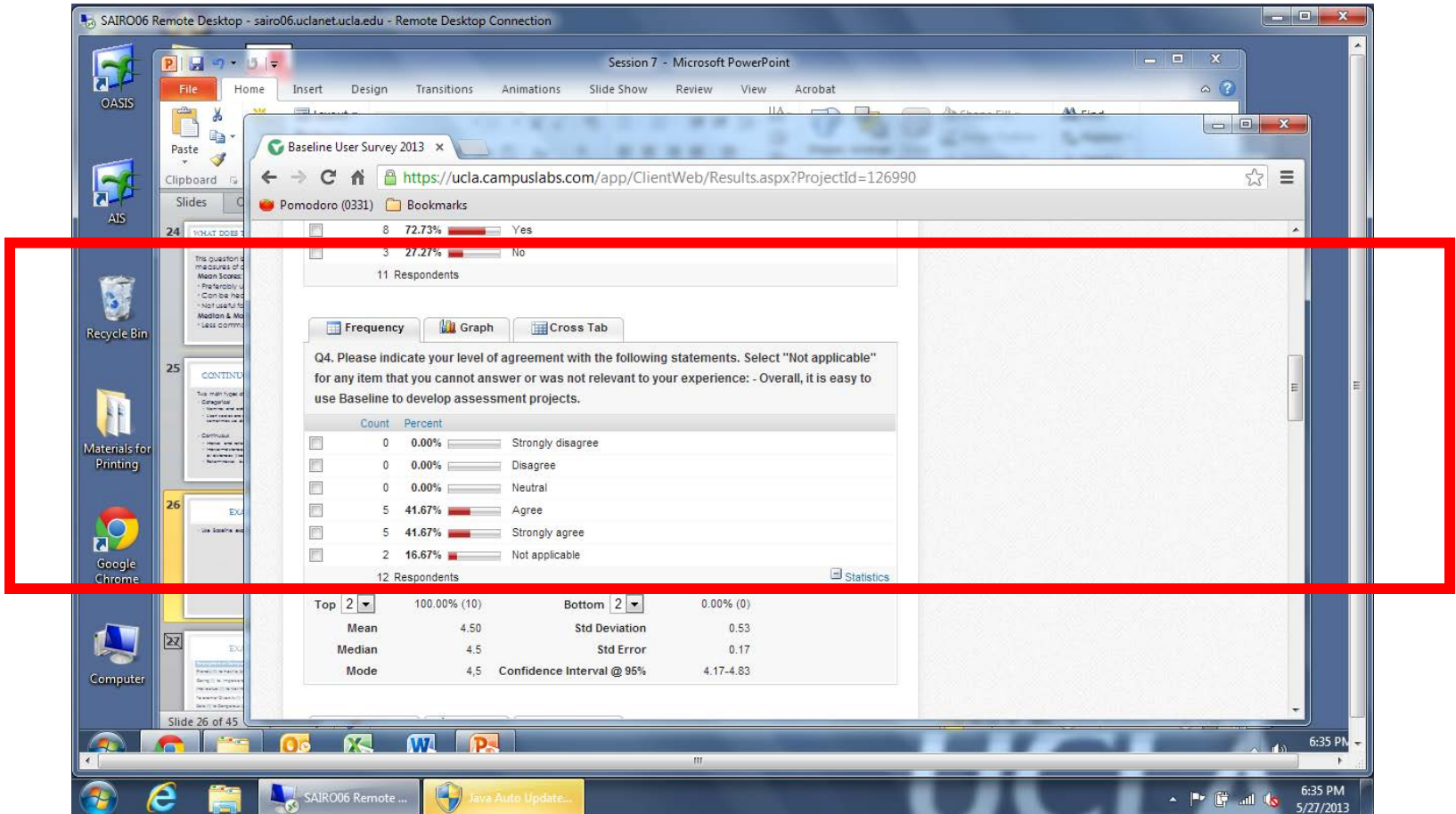
Percentages/Proportions:

- Best to use when comparing data (especially if groups are not the same size)

Crosstabulations:

- Use to combine data from multiple questions

Percentages: baseline example



Percentages: table example

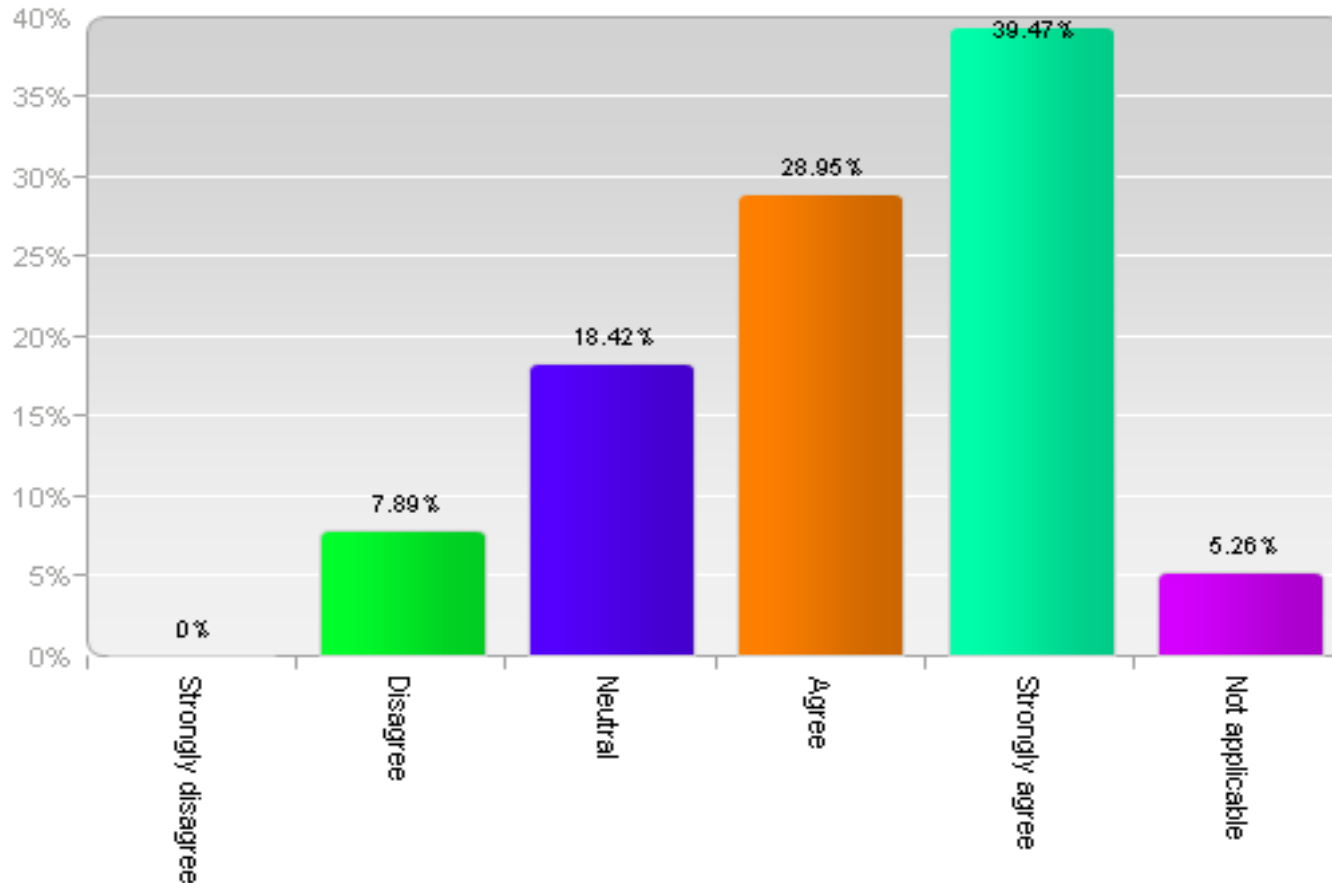
Rate current skill level compared to other people in your field including peers, faculty, post-docs, etc.

	Percent rating self as “Below Average” or “Lowest 10%”
Conducting research in my field	17.0
Writing a journal article	30.0
Writing a thesis/dissertation	28.0
Writing a grant	46.0
Writing a course paper	7.0
Giving a formal oral presentation	13.0
Professional networking	31.0
Understanding relevant ethical concerns in my field	5.0

Source: UCLA Student Affairs Graduate and Professional Student Survey, 2010


Percentages: chart example

Q28. Please indicate your level of agreement with the following statements. Select "Not applicable" for any item that you cannot answer or was not relevant to your experience: - Baseline products serve as a valuable resource for UCLA Student Affairs staff and community.



Aggregation and Disaggregation

- Aggregation:
 - How to do in Baseline
 - Why do it? Manageability of your data
- Disaggregation:
 - Crosstabs (later)



			Statistics
6 (10)	Bottom	2	0.00% (0)
4.50	Std Deviation		0.53
4.5	Std Error		0.17
4,5	Confidence Interval @ 95%		4.17-4.83

Comparison: Table example

	Transfers	Freshmen
	% “agree” or “strongly agree”	
The federal government should do more to control environmental pollution	40%	85%
Dissent is a critical component of the political process	40%	76%
A national healthcare plan is needed to cover everybody’s medical costs	43%	70%
Through hard work, everybody can succeed in American society	49%	78%
Undocumented immigrants should be denied access to public education	50%	46%
Realistically, an individual can do little to bring about changes in our society	54%	22%
Racial discrimination is no longer a major problem in America	57%	17%

Source: 2009 CIRP; 2009 UCLA Transfer Student Survey

Crosstabs: Baseline example

SAIRO06 Remote Desktop - sairo06.uclanet.ucla.edu - Remote Desktop Connection

Baseline User Survey 2013 x

https://ucla.campuslabs.com/app/ClientWeb/Results.aspx?ProjectId=126990

Pomodoro (0331) Bookmarks

38 Respondents Statistics

Frequency Graph Cross Tab

Report your level of agreement with the following statements. Select "Not applicable" for any item that you cannot answer or was not relevant. - Baseline products serve as a valuable resource for UCLA Student Affairs staff and community.

	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Not applicable		Count	Percent
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent		
I am a registered user with a login ID, but I haven't used it yet.	0	0.00 %	1	33.33 %	2	28.57 %	4	36.36 %	5	33.33 %	2	100.00 %	14	36.84 %
I currently do not have an assessment project in Baseline but I am familiar with it (e.g., attended webinars, browsed through the resources).	0	0.00 %	1	33.33 %	5	71.43 %	4	36.36 %	3	20.00 %	0	0.00 %	13	34.38 %
I have used/am using Baseline for an assessment project.	0	0.00 %	1	33.33 %	0	0.00 %	3	27.27 %	7	46.67 %	0	0.00 %	11	28.77 %
Total	0	0.00 %	3	100.00 %	7	100.00 %	11	100.00 %	15	100.00 %	2	100.00 %	38	100.00 %

Reported are percent responses.

Frequency Graph Cross Tab

6:56 PM 5/27/2013

Charting crosstabs: BAseline

Frequency Graph Cross Tab

Q10. Is English your native language?

Summary View

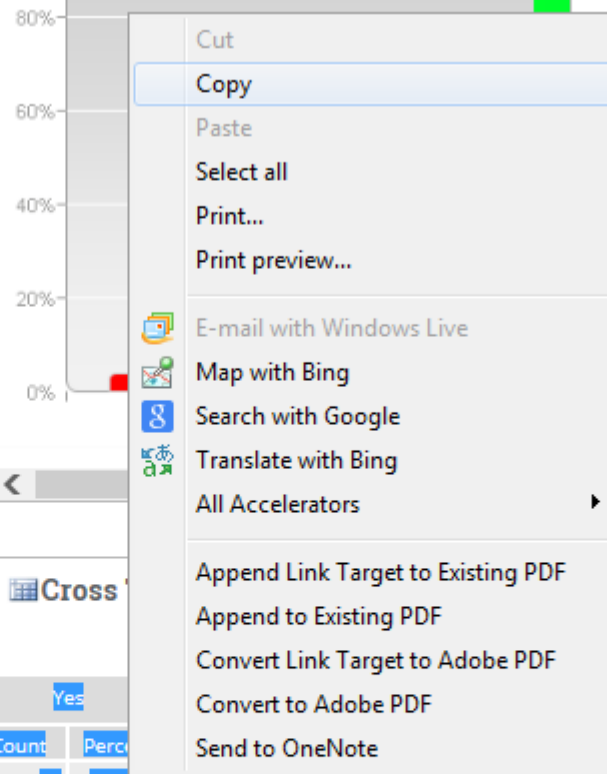
		Yes		No		Total	
		Count	Percent	Count	Percent	Count	Percent
✘ Q123. Think about your current abilities and tell us how strong or weak you believe you are in each of the following areas: - Foreign language ability	A major strength	86	15.64 %	231	41.47 %	317	28.64 %
	Somewhat strong	127	23.09 %	185	33.21 %	312	28.18 %
	Average	131	23.82 %	113	20.29 %	244	22.04 %
	Somewhat weak	123	22.36 %	24	4.31 %	147	13.28 %
	A major weakness	83	15.09 %	4	0.72 %	87	7.86 %
	Total		550	100.00 %	557	100.00 %	1107

Note: Percentages reported are percent responses.

Add Question.

Select Question

Move the data to Excel!



Frequency Graph Cross

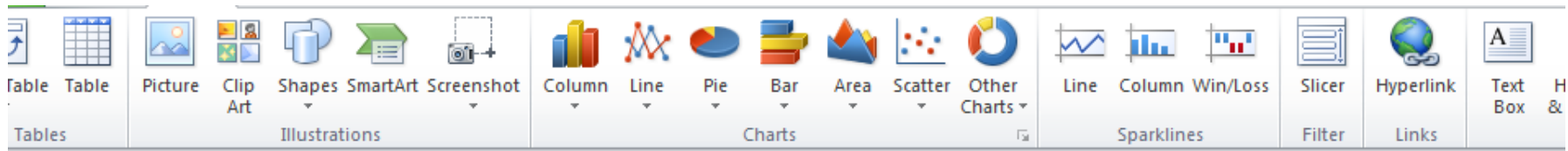
Q10. Is English your native language?

Summary View Yes

	Count	Percentage		Percentage		Percentage
A major strength	86	15.64 %	231	41.47 %	317	28.04 %
Somewhat strong	127	23.09 %	185	33.21 %	312	28.18 %
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Total	550	100.00 %	557	100.00 %	1107	100.00 %

Note: Percentages reported are percent responses.

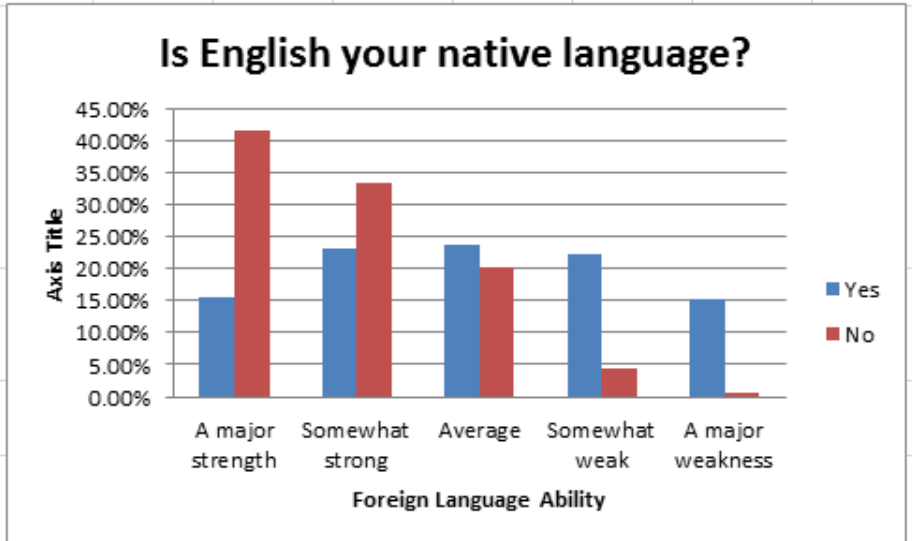
Add Question:
Select Question



R4														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	

Q10. Is English your native language?

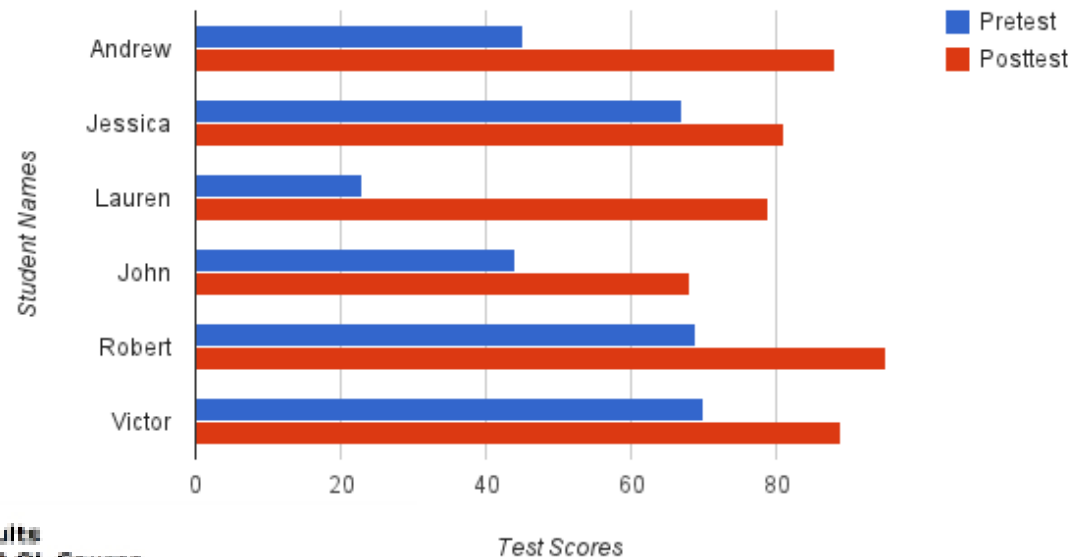
Summary View	Yes	No	Total
Q123. Think about your current abilities and tell us how strong or weak you believe you are in each of the following areas: - Foreign language ability			
A major strength	15.64%	41.47%	28.64%
Somewhat strong	23.09%	33.21%	28.18%
Average	23.82%	20.29%	22.04%
Somewhat weak	22.36%	4.31%	13.28%
A major weakness	15.09%	0.72%	7.86%
Total	100.00%	100.00%	100.00%



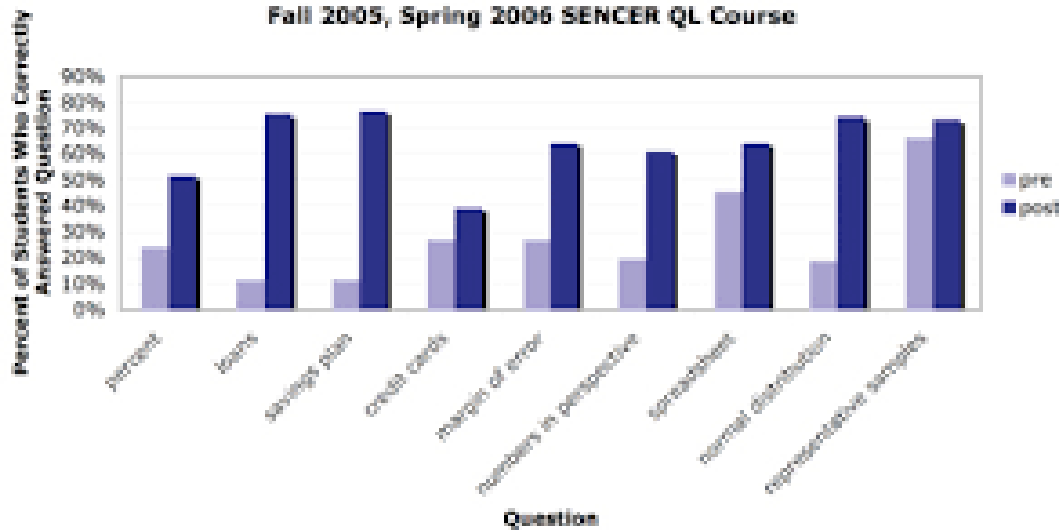
Create your chart!

Examples of Pretest and Posttest comparisons

Intervention Pre and Post Test Data

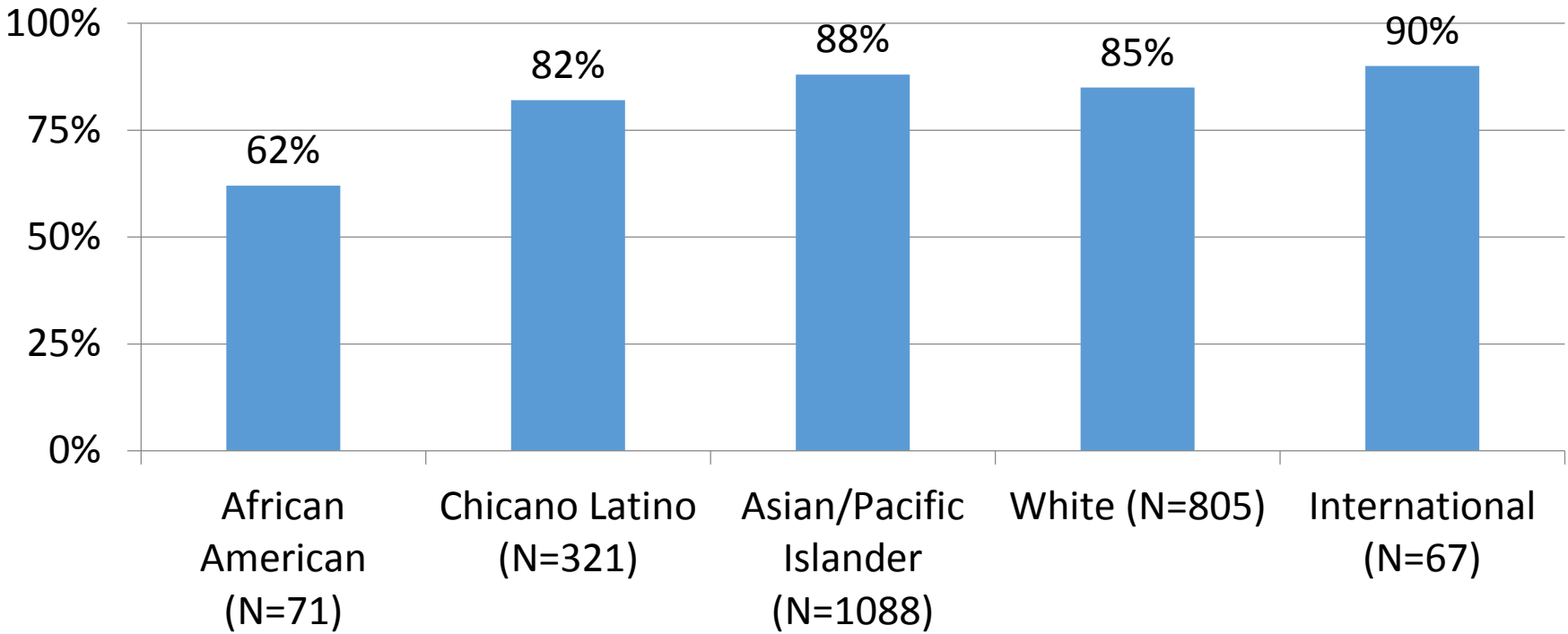


Pre and Post Test Results
Fall 2005, Spring 2006 SENCER QL Course



Crosstabs: Chart Example

Diversity is Important to this Campus
Percent "somewhat agree," "agree" and "strongly agree"



Source: UCLA, UCUES 2008

Quantitative Data Analysis Exercise

- Review the results from two questions on the handout
- Consider the means: what do they mean?
- Consider the scales: what is the data telling you about the outcomes of the workshop?
- How would you present this data?



Preparing to Tell Your Story

- Consider your audience
 - What sub-populations are important (if any)?
 - What types of data does your audience want to know?
 - Program improvement
 - Satisfaction
 - Needs analysis
- Organize your results logically
- Share your results locally before creating a report
- Jot down your notes about your data/findings



Resources for Analysis

- Focus Group analysis: <http://www.youtube.com/watch?v=Vft9sDzMoJQ>
- Baseline webinars (need baseline acct):
<http://baselinesupport.campuslabs.com/home>
- Research Methods Knowledge Base:
- <http://www.socialresearchmethods.net/kb/analysis.php>

For next session:

By next month's session, you should have the following assessment plan sections **fully drafted** OR **partially outlined/notated**:

Assessment Purpose

- Assessment Plan Design
- Background and Purpose
- Assessment Question(s)
- Context and Stakeholders

Methods and Implementation

- Assessment Method
- Resources
- Implementation and Design

Planned Analysis and Reporting

- Planned Analysis
- Plan for Reporting
- Implications for Improvement

Remember to bring a hard copy of these sections!



Directly following Session 9 on June 6th we will be having our end of Curriculum Celebration.

Please make sure I know the name and contact information for your supervisor so we they have the opportunity to join the celebration of your success!