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Determining the Validity of Online Survey Data from Youth

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Forum Objectives

- Participants will be able to describe various ways to evaluate the validity of youth responses collected from an online data collection survey.
- Participants will be able to explain how measures of internal consistency (i.e., reliability) might be used to validate survey responses obtained from high school youth.
- Participants will be able to explain what test-retest reliability is and how it might be used to evaluate the validity of youth responses collected from an online data collection survey.
- Participants will be able to explain how some of the challenges of using an online data collection tool might be overcome using various metrics and processes when collecting survey responses from high

Overview of Presentation

- Reliability
 - Internal consistency
 - Test-retest reliability
- Data validity
- Incentivizing survey completion
- Validity questions
 - Attention check questions
 - Unusual response patterns



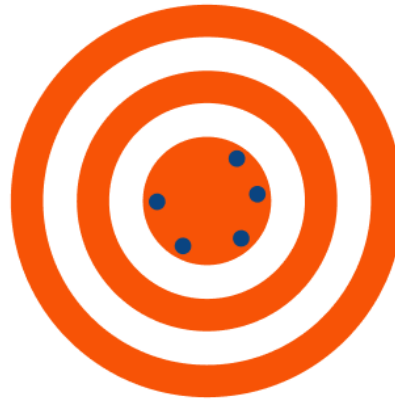
Random vs. Systematic Error

No error



✓ Accuracy ✓ Precision

Random error



✓ Accuracy ✗ Precision

Systematic error



✗ Accuracy ✓ Precision

Reliability

Test Retest Reliability (α)

- How well items in a scale measure the same underlying concept
- α ranges from 0 to 1 where 1 indicates no measurement error

Standard Error of Measurement (SE_M)

- How much scores may differ from “true” scores because of measurement error

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- Example: Intimacy Scale: How often a student has engaged in acts of intimacy in the past 3 months. (Scores range from 7 to 35, with 7 meaning never)
- Internal Consistency:
 $\alpha = 0.86^*$; $SE_M = 1.83$,
 $p < 0.05$

Reliability

Internal Consistency (α)

- Stability of responses over time
- α ranges from 0 to 1 where 1 indicates no measurement error

Standard Error of Measurement (SE_M)

- How consistently students respond to the same survey two weeks apart, measured by correlation (r^2). The higher the correlation, the more consistent responses.

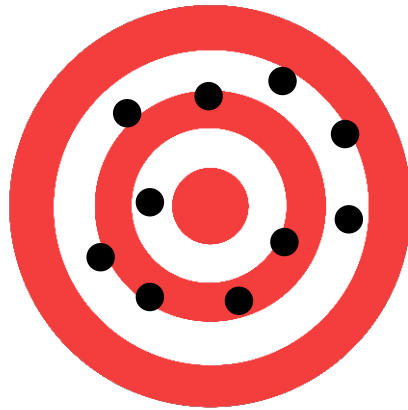
- Example: Intimacy Scale: How often a student has engaged in acts of intimacy in the past 3 months. (Scores range from 7 to 35, with 7 meaning never)

- Internal Consistency:

$$\alpha = 0.78^*; SE_M = 2.12, p < 0.05$$



**Reliable
Not Valid**



**Low Validity
Low Reliability**



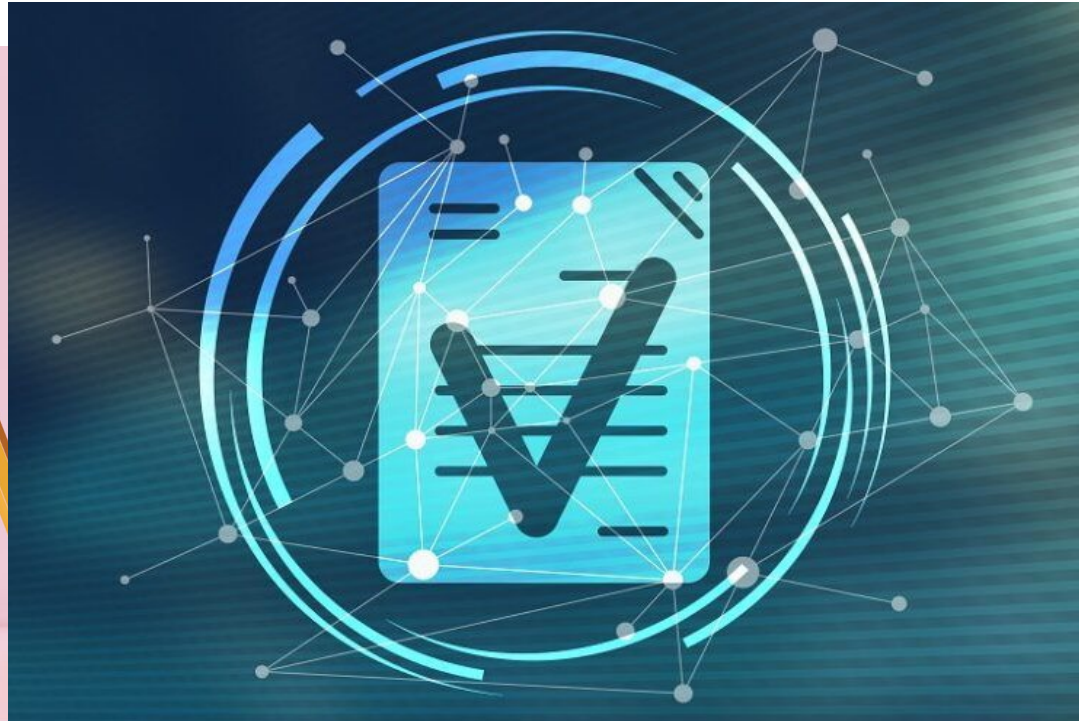
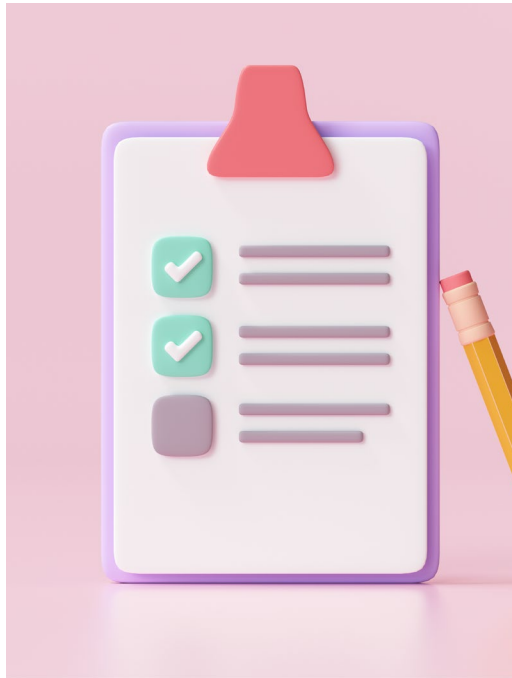
**Not Reliable
Not Valid**



**Both Reliable
and Valid**

A test can be reliable and not valid.
However, a valid test is typically reliable.

Data Validity



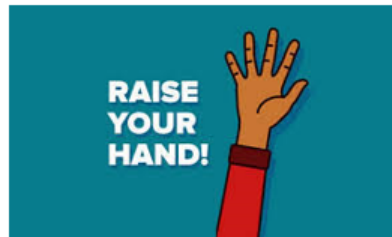
Incentivizing Survey Completion

You have opted out of the survey.



Please raise your hand to let your Educator know you have finished.

Thank You for Participating!



Please raise your hand to let your Educator know you have finished the survey.

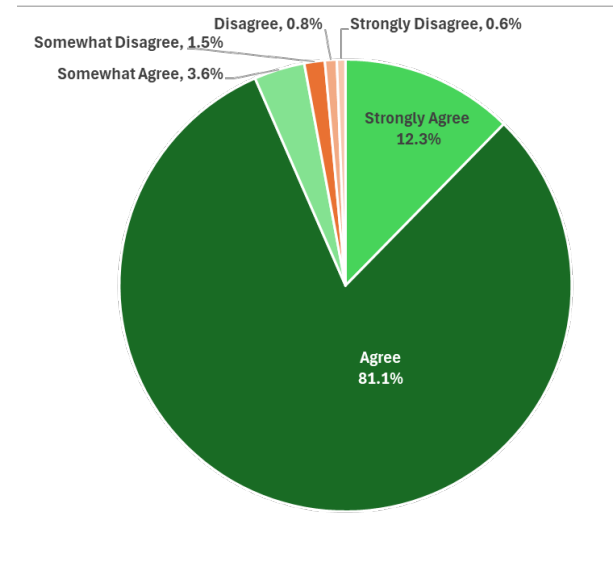
- Students are incentivized for completing surveys
- Obtaining student assent to participate in study is first question on survey
- There are different end of survey pages for students that opt out of the study vs. those that assent to participating
- Allows proctors to know, and be able to record, which students completed the survey and should be given the incentive

Data Validity – Attention Checks

- Can attention check questions help determine if youth are paying attention to what they are filling out?
- We utilized two attention check questions
 - 1/3 of the way through the survey
 - 2/3 of the way through the survey
- Initially coded simply as 0 = Incorrect response and 1 = Correct response
- Initial results were confusing
 - 81.1% of students correctly answered the 1st attention check (n = 1,297)
 - 67.6% of students correctly answered the 2nd

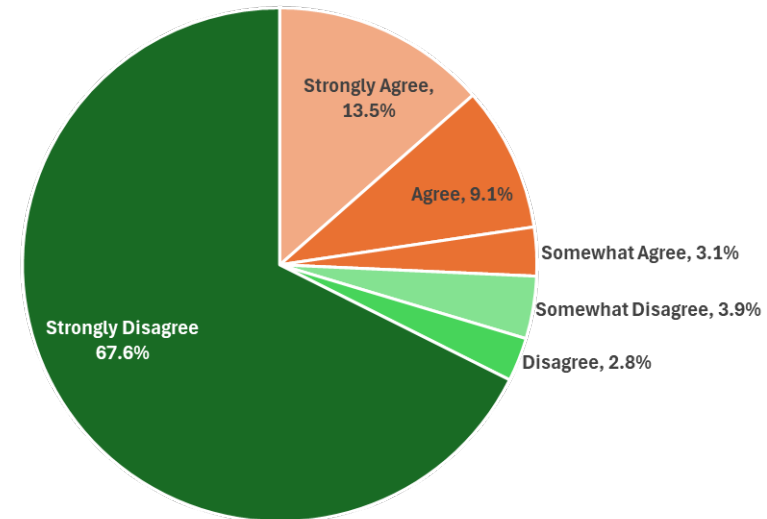
Data Validity – 1st Attention Check (n = 1,297)

- “If you are taking this survey seriously and reading each question carefully, select Agree.”
 - Is the question clear enough? Should it be reworded to make it simpler to read?
 - We did not originally consider Strongly Agree and Somewhat Agree as viable answers
- 97.1% of students answered in the “Agree” range



Data Validity – 2nd Attention Check (n = 1,272)

- “Are you still reading each question carefully? If you are, please select Strongly Disagree below.”
 - Wording of question could be confusing to students because it is asking them to select Strongly Disagree if they agree with the question.
 - Consider rewording to enhance clarity
 - We did not originally consider Disagree and Somewhat Disagree as viable answers
- 74.3% of students answered in the “Disagree” range
- 25.7% of students answered in the “Agree” range which could suggest the question is, in fact, being misinterpreted



Data Validity – Unusual Response Patterns

- Can we identify aberrant or illogical response patterns?

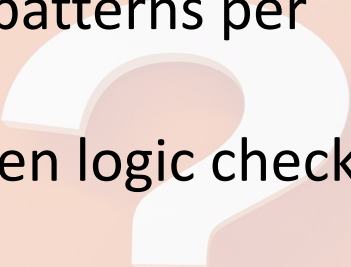
- Item response patterns

- Logical time points

Have you ever had sex? (n = 1,086)			
		3-month survey	
Baseline		Yes	No
	Yes	7.7%	3.5%
	No	5.1%	83.7%

different time

Data Validity Questions

- What can we do with this information?
 - Identify anomalous response patterns per student
 - Determine congruence between logic checks
 - Conduct sensitivity analyses
 - Compare the results using the anomalous responses with the results obtained without the anomalous responses
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Consider the following:



- What other data integrity issues have you faced in your evaluation project?
- How have you resolved those challenges?

Resources

- Abbey, J. D., & Meloy, M. G. (2017). Attention by design: Using attention checks to detect inattentive respondents and improve data quality. *Journal of Operations Management*, 53-56, 63-70.
- DeVellis, R.F. & Thorpe, C.T. (2022). *Scale development: Theory and applications* (5th ed.) Sage Publications, Inc.
- Muszyński, M. (2023). Attention checks and how to use them: Review and practical recommendations. *Ask Research and Methods*, 32(1).
- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing*. American Psychological Association.

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