

Return this sheet as your homework

Reliability (Continuous [sort of] Data)

A little more about Cronbach's alpha before you start...

Cronbach's alpha is used to measure internal consistency...does the participant respond similarly from question to question (assuming the questions are asking similar things). Generally, we believe that it is more reliable to ask a participant something multiple times and then average his or her responses rather than ask the participant one question and use that single response.

Suppose we wanted to know if a child liked school. We might ask the child to rate each of the following statements from 1 to 3 with 1 = *Strongly disagree* and 3 = *Strongly agree*:

School is fun.

I like school.

I enjoy going to school.

The average of the student's responses to those three statements is more reliable than asking any one of the statements. Sometimes statements don't work well together...they actually are measuring different things. Cronbach's alpha is used to determine whether the statements work well together and are measuring a similar thing.

A survey may be designed to measure several constructs. In that case, separate Cronbach's alphas are calculated for each construct. In your homework assignment, the survey is designed to measure attitude toward math, attitude toward science, and attitude toward reading. Rather than investigate the reliability of the entire survey, the research should investigate the reliability of each construct separately.

You will find 20 students' survey results are attached. Each survey measures three constructs—attitude toward reading, attitude toward mathematics, and attitude toward science. The statements are mixed for each construct (e.g., math is statement 1, 2, 5, and 12). At the bottom of this page you will find the construct you are to use for this assignment. Enter the data on the Excel reliability spreadsheet for only the construct you are assigned for each of the 20 students whose data is presented on the attached pages. Enter 3 for *Agree*, 2 for *Neutral*, and 1 for *Disagree*. You need to determine which statements apply to the construct you select. Each construct has exactly four questions. For example, enter the first math statement (#1) as Question 1 on the spreadsheet, the second math statement (#2) as Question 2, the third math statement (#5) as Question 3, etc. When you are finished, you will have filled in the cells for Question 1-4, for Subjects 1-20.

Cronbach's alpha is the appropriate reliability to report for this data. Cronbach's alpha is appropriate for continuous data as well as dichotomous (correct (1) / incorrect (0)) data. A reliability of .70 is considered adequate for an attitude instrument. One would want a higher reliability for an achievement test.

Your name: _____

Cronbach's Alpha Reliability for _____

Kristy

Agree

Disagree

1. Mathematics is fun to do.

2. Schools should teach mathematics.

3. I like to read stories.

4. Science is an interesting subject.

5. Students should know how to do mathematics.

6. Students need science classes.

7. Students should read often.

8. I want to take more science classes.

9. I read stories in my free time.

10. Science is important to me.

11. Reading is important to me.

12. I think mathematics is interesting.



John

Agree

Disagree

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Jenny

Agree

Disagree

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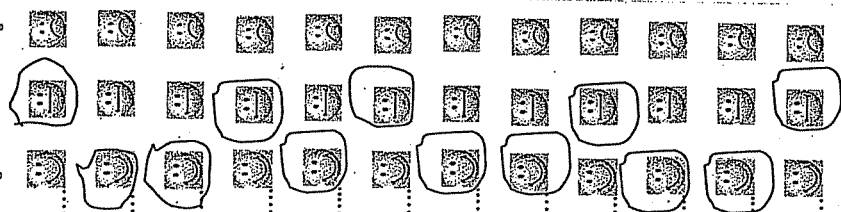
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Jane

Agree

Disagree

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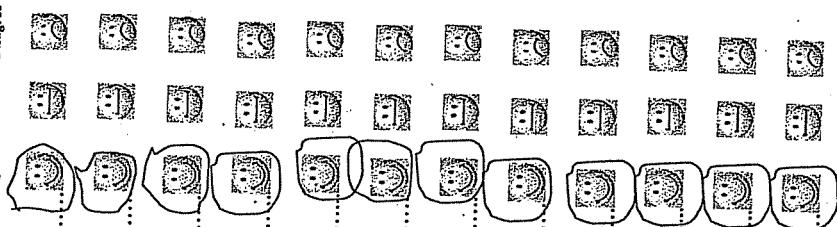
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Bobby

Agree

Disagree

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Chris

Agree

Disagree

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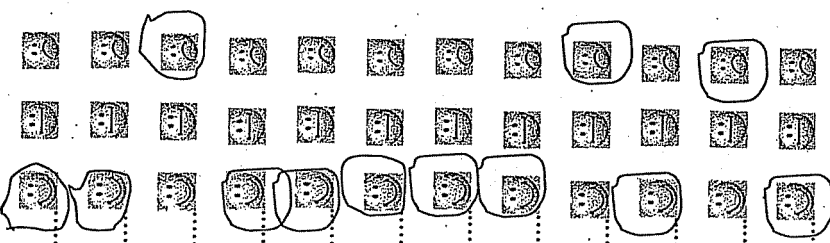
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Sonja

Agree

Disagree



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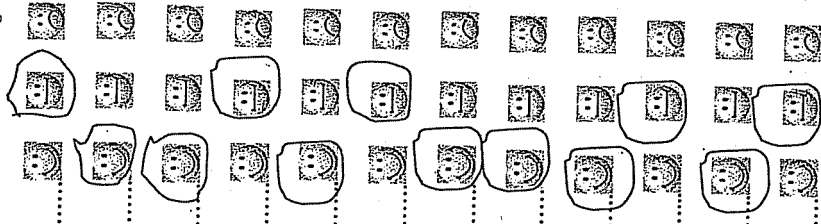
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Paulo

Agree

Disagree



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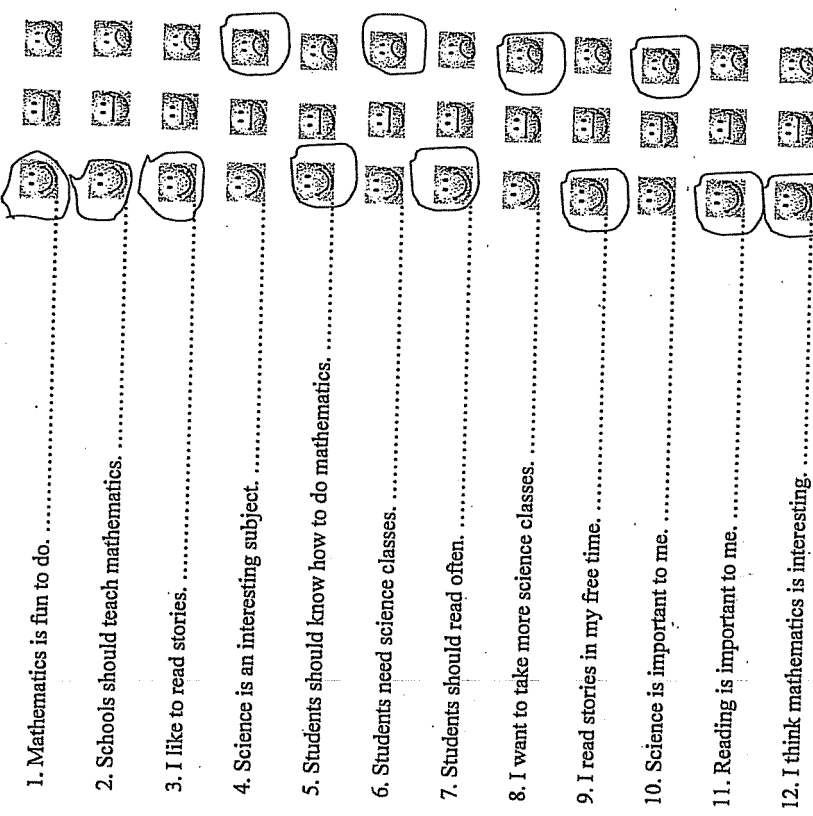
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Ramone

Agree

Disagree

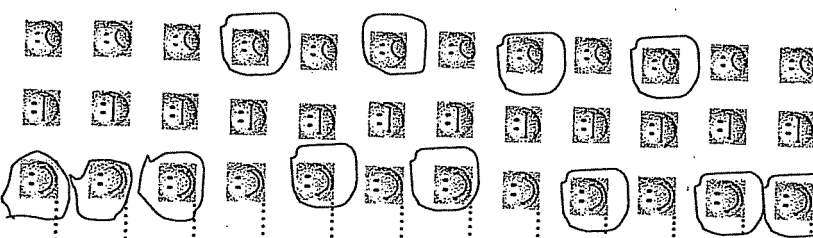


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Maria

Agree

Disagree



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Abdullah

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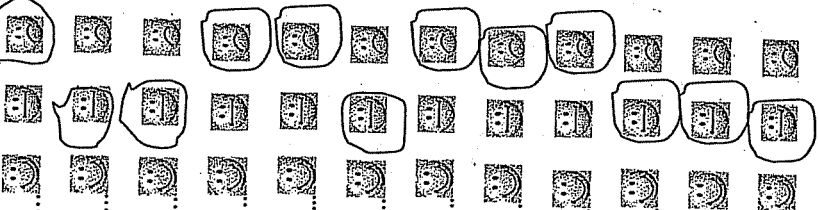
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Alexia

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Disagree

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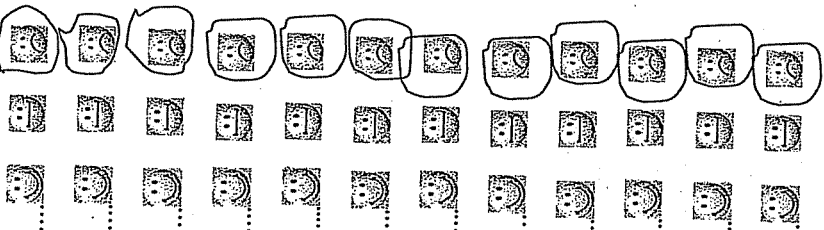
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








12. I think mathematics is interesting.



Jenoah

Agree

























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Jamie

Agree

Disagree

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Susie

Agree

Disagree

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Sandy

Agree

Disagree

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Mike

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Disagree

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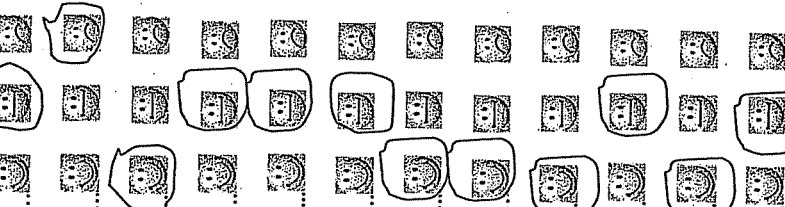
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Mary

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Disagree

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