How People Learn

Exercises for Week 3

Last week you completed a questionnaire called the Metacognitive self-regulation inventory. This week you will analyze that questionnaire and present data from it.

The questionnaire had the following questions.

1. During class time I often miss important points because I'm thinking of other things. (REVERSED)
2. When reading for this course, I make up questions to help focus my reading.
3. When I become confused about something for this class, I go back and try to figure it out.
4. If course materials are difficult to understand, I change the way I read the material.
5. Before I study course materials thoroughly, I often skim through it to see how it is organized.
6. I ask myself questions to make sure I understand the material I have been studying in this class.
7. I try to change the way I study in order to fit the course requirements and instructor's teaching style.
8. I often find that I have been reading for class but don't know what it was all about. (REVERSED)
9. I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.
10. When studying for this course I try to determine which concepts I don't understand well.
11. When I study for this class, I set goals for myself in order to direct my activities in each study period.
12. If I get confused taking notes in class, I make sure I sort it out afterwards.

Each question is scored from 1 (Strongly Agree) to 5 (Strongly Disagree). The correlation between this scale and academic attainment is moderately high: people who have a lower score (closer to strongly agree with positively phrased items) tend to do better academically if all other things are equal.

Question 1

(a)

Questions 1 and 8 are phrased in a negative way while all the others are phrased in a positive way. Before going further, reverse the scoring for these two questions. Then calculate the mean average score of each person across all 12 items of the scale (using the reversed scoring for items 1 and 8). Calculate this average score for each respondent to 1 decimal place. (Note that while the 12 components that contributed to this average score are categorical (ordinal), the data has now become more or less continuous and so it will be treated as interval level data).

What does this average score represent? What would you name it?

Represent this overall score for the class on a stem and leaf plot. I suggest each stem should represent half a unit (i.e. a stem for 1.0 – 1.4 and a stem for 1.5-1.9).

(b)

Make a histogram of this distribution. How would you describe this distribution in terms of shape (unimodal? bimodal? multimodal?) and skew? In your chart include:

- A chart number
- An appropriate title
- Clear titles for axes

What is the mean average score for this distribution?

Question 2

Using the stem and leaf plot, identify the lowest value, first quartile, the median, the third quartile and the highest value (these constitute a five figure summary of the distribution).

How does the mean compare to the median? Which measure of central tendency is more appropriate in this case and why?

Where does your own score fit in relation to this five figure summary? Based on the information about the scale (above) and its correlation with attainment, how do you interpret this finding?

Question 3

Using this five figure summary, represent the distribution of this overall as a box plot. Make sure to include:

- A chart number
- An appropriate title
- Clear titles for axes