

## EDPS 621 Mid-Term

Name: \_\_\_\_\_ Class Number: \_\_\_\_\_ Your Total Score: / 20

**PART I: Conceptual Part (Total Possible Points: 10)**

I. Answer the questions 1-6 using the statement below:

An elementary school decides to study the relationship between looping (same teacher for multiple years) and student achievement, which is measured by standardized tests. Approximately half of the students are placed in looped classrooms and the other half are placed in non-looped classrooms. Different teachers will instruct the looped and non-looped students. Identify the independent and dependent variables in this study. Which variables are quantitative and which are categorical (qualitative)? What are the possible confounding variables?

1. Independent Variable(s) (0.5 point):

2. Dependent Variable(s) (0.5 point):

3. Quantitative Variable(s) (0.5 point):

4. Qualitative Variable(s) (0.5 point):

5. Confounding Variable(s) (0.5 point):

6. What conditions should the researcher include for this research to become a true experimental study? Explain at least three conditions using this research study as an example (1 point).

1)

2)

3)

Answer the questions (7-13) using the following distribution:

**2, 7, 1, 4, 2, 2, 10, 3**

Calculate the central tendencies (i.e., *Mo*, *Med*, & *M*) and variability (i.e., *R*, *IQR*, *V*, *SD*).

7. Mean (0.5 point):

8. Median (0.5 point):

9. Mode (0.5 point):

10. Range (0.5 point):

11. IQR (0.5 point):

12. Standard Deviation (1 point):

13. Draw a picture of the distribution's overall shape (Symmetric, Negative skew, or Positive skew) and mark where the measures of central tendency (e.g., *M*, *Med*, *Mo*) would be in relation to each other in the distribution (0.5 point).

Questions 14-16:  $M = 100$  and  $SD = 15$  for a distribution of scores on an IQ test that is completed by a large group of college students. Convert 115 to a  $Z$  score and a  $T$  score and find the Percentile Rank.

14. Z-Score (0.5 point)

15. T-Score (0.5 point)

16. Percentile Rank (1 point)

17. In a normal distribution, what proportion of cases fall (report to two decimal places) Above  $Z = +2.00$ ? (0.5 point)

**PART II: SPSS Part (Total Possible Points: 10)**

Using the data set provided, summarize and organize variables by producing graphs or numbers. Find the appropriate tables or figures from your SPSS outputs and “copy and paste” them onto this test form: (2 points each)

1. Split the data set into two different groups (e.g., gender, culture, etc.) and save the file under a different name. Select an interval or ratio scale variable from the data set. Find **three central tendency** measures and **four variability** measures for **both groups** of the variable that you chose. Using the data from this variable create **four** different types of **graphs** (including a boxplot) that are appropriate for the variable for **both groups**. Type the five numbers (accurate to one decimal point) for each position of the boxplot and outlier(s) (if any) on this test form. **Compare the results** between the two groups based on central tendency, variability, and the graphs.

1) Central tendency & variability tables for the two groups

2) Four different types of graphs for the two groups

3) Group A:

- a. Upper whisker:
- b. Top of the box:
- c. Bottom of the box
- d. The line that is in the middle of the box
- e. Lower whisker:
- f. Outlier(s):

4) Group B:

- a. Upper whisker:
- b. Top of the box:
- c. Bottom of the box
- d. The line that is in the middle of the box
- e. Lower whisker:
- f. Outlier(s):

5) Results comparison between the two groups in terms of central tendency and variability:

2. Using the split data set, select a nominal or ordinal variable, find the **Mode** and type it in the form below(1). Make a **frequency table** and create **two** different types of **graphs** (including a bar graph) that are appropriate for the variable for the **both groups** (“**cut and paste**” **these in their appropriate locations below**). **Compare the results** between the two groups based on frequency, Mode, and the graphs. Then modify the bar graph in at least two ways and include the **revised graph** as part of your output below. Your modifications should produce an APA formatted graph with an overall title.

1) Mode for the two groups

2) Frequency tables for the two groups

3) Two different types of graphs for the two groups

4) Comparison between the two groups

5) A modified bar graph

3. From the original data set select 20 cases randomly and save this under a different file name. Make a **frequency table for an interval or ratio variable**. then transform this interval or ratio variable into an ordinal variable **by grouping**. Create **another frequency table for the newly created ordinal variable**.

1) A frequency table for an interval or ratio variable using the randomly selected cases

2) Transformation the interval or ratio variable into an ordinal variable by grouping

3) A frequency table for the newly created ordinal variable

4. Split the original data set into two different **gender groups** and then find the measures of **central tendency** and measures of **variability** for the “**Feeling**” variable for the two separate groups. Explain which group scores higher, on average, for the “Feeling” variable. Split the original data set into two different **culture groups** and then find the measures of **central tendency** and measures of **variability** for the “**Creativity Index**” variable for the two separate groups. Explain which group, on average, is more creative. Type the answer in this test form.
- 1) A central tendency & variability table for “Feeling” of Males
  - 2) A central tendency & variability table for “Feeling” of Females
  - 3) Which gender group is more feeling type in average?
  - 4) A central tendency & variability table for “Creativity Index” of Americans
  - 5) A central tendency & variability table for “Creativity Index” of Taiwanese
  - 6) Which culture group is more creative in average?
5. Transform the six subscales of the TTCT (Torrance Tests of Creative Thinking-Figural) scores into **Z-Scores** in order to compare these six variables in the same scale, then transform the Z-Scores into Percentile Ranks. Find the Mean & SD for each of the six variable using percentile ranks. Find **four reversed items** among the 49 items of the EWPS (Eastern-Western Perspective Scale) and recode them. Create a new variable, “total\_EWPS” for the **sum of the newly recoded 49 EWPS items**. Find who has the **most Confucian** ideas. Explain his or her characteristics using all of the available variables in the data set (culture, gender, age, residence, personality types, creativity subscales, etc.). Find who has the **least Confucian** ideas. Explain his or her characteristics using all of the available variables in the data set.
- 1) Mean & SD for Fluency
  - 2) Mean & SD for Originality

- 3) Mean & SD for Abstractness of Titles
- 4) Mean & SD for Elaboration
- 5) Mean & SD for Resistance to Premature Closure
- 6) Mean & SD for Creative Strengths
- 7) The most Confucian individual
- 8) The least Confucian individual