

A group of researchers conducted a randomized between-subjects experiment on whether employees who walk to workplaces have a different level of working enthusiasm compared to employees who drive to workplaces. They measured working enthusiasm using a survey with 20 Likert scale questions. The scale score of working enthusiasm (calculated by summing up the 20 questions) is recorded as the “enthusiasm” variable. There were 38 participants in the walking group and 42 participants in the driving group. In the “style” variable, 1 indicates walking to workplaces and 2 indicates driving to workplaces.

1. Please submit your jamovi dataset file with your analyses saved. (5 points)
2. Why do we compute a scale score based on the 20 Likert scale questions instead of just using one Likert scale question? (3 points)
3. Ignoring that there are two groups, please compute the Z score of the “enthusiasm” variable and report the Z score of the first participant exactly as it appears on the jamovi printout (2 points). Interpret this Z score. (3 points)
4. Report the standard deviation of the “enthusiasm” variable in the walking group exactly as it appears on the jamovi printout (2 points). Interpret this standard deviation value using your own words. (3 points)
5. Please define the estimate and parameter in this study (you do not need to actually calculate any numbers for this problem, just report the estimate and parameter of interest). (5 points)
6. Please describe the measurement scale for each variable in your dataset. List the variable and its measurement scale beside it. Do this for all the variables in the dataset. (3 points)
7. What is the analysis that is most appropriate for this data and why? (3 points)
8. What is the null hypothesis for the analysis? (5 points)
9. What is the alternative hypothesis for the analysis? Is it one-sided or two-sided? (5 points)
10. Plot the histogram of the “enthusiasm” variable for the walking group and driving group separately (this means that you should provide two histograms). You can paste screenshots of the plots from jamovi here. (4 points)
11. Please report the skewness and kurtosis of the “enthusiasm” variable in the driving group exactly as they appear on the jamovi printout. (4 points)

12. Please perform the correct test and provide the t-statistic exactly as it appears on the jamovi printout. (3 points)
13. Please interpret the t-statistic in Q12 using your words. (5 points)
14. Please provide the standard error value related to the test in Q12 exactly as it appears on the jamovi printout. (3 points)
15. How can this standard error be conceptually understood? Use your own words to interpret the standard error in Q14. (5 points)
16. Please provide the positive critical value exactly as it appears on the jamovi printout. (4 points)
17. Please interpret the probability value (p value) for the test in Q7. I am not asking whether the result is significant or whether the p value is smaller than 0.05. My question is asking you to conceptually interpret this probability using your own words. (5 points)
18. What is the value of the effect size in this study? Provide the value exactly as it appears on the jamovi printout. (3 points)
19. Based on the benchmarks for this type of effect size, is the effect size negligible, small, medium, or large (3 points)?
20. Interpret the effect size in Q19. I am not asking whether the effect size is large. My question is asking you to conceptually interpret this effect size using your own words. (4 points)
21. Please provide the confidence interval exactly as it appears on the jamovi printout. If you hand calculate the confidence interval you may have some rounding error. To avoid this please obtain the confidence interval directly from jamovi for this question. (4 points)
22. How can this confidence interval be conceptually understood (i.e., what is its interpretation)? (5 points)
23. Please provide an APA-style summary for your analysis results. Note that you should include the following results 1) descriptive statistics table, 2) t statistic, 3) degrees of freedom, 4) p value, 5) confidence interval, and 6) effect size and its magnitude (i.e., negligible, small, medium, or large). You should also interpret your results (e.g. whether the result is significant; what the significant or nonsignificant result indicates). Please create the descriptive statistics table yourselves (e.g., using Word, Excel, etc.) instead of just copying and pasting the table from jamovi. Just listing your numeric results or pasting a screenshot of the jamovi output will lead to losing points. (9 points)

