Advanced and Multivariate Statistical Methods Practical Application and Interpretation 6th edition Mertler Test Bank

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Chapter 2: A Guide to Multivariate Techniques

Test Items: True-False Format

Instructions: Mark the statements "T" for true, "F" for false, or "?" for don't know.

1. The primary factor that determines the statistical test students should use is the number of independent and dependent variables.
   T
   F*
2. When investigating the relationship between two or more quantitative variables, chi-square is the appropriate test.
   T
   F*
3. The Pearson correlation coefficient measures the association between two quantitative variables, distinguishing between the independent and dependent variables.
   T
   F*
4. Multiple regression is used when there are several dependent variables and one independent quantitative variable.
   T
   F*
5. When testing for the significance of group differences, the number of IVs, the number of DVs, and the number of categories in the DV determine the appropriate test.
   T
   F*
6. The most basic statistical test that measures group difference is the *T*-test.
   T*
   F
7. One-way analysis of variance (ANOVA) only determines the significance of group differences and does not identify which groups are significantly different.
   T*
   F
8. One-way analysis of covariance (ANCOVA) is similar to ANOVA but additionally controls for a variable that may influence the DV.
   T*
   F
9. Factorial analysis of variance (factorial ANOVA) extends ANOVA to research scenarios with two or more IVs that are categorical.
   T*
   F
10. Factorial analysis of variance (factorial ANCOVA) examines group differences in a single quantitative dependent variable based upon two or more categorical independent variables, while controlling for a covariate that may influence the DV.
    T*
    F

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11. One-way multivariate analysis of variance (MANOVA) is utilized to simultaneously study two or more related IVs, while controlling for the correlations among the IVs.
    T
    F*
12. One-way multivariate analysis of covariance (MANCOVA) investigates group differences among several IVs, while also controlling for covariates that may influence the DVs.
    T
    F*
13. Factorial multivariate analysis of variance (factorial MANOVA) extends MANOVA to research scenarios with two or more DVs that are categorical.
    T
    F*
14. Factorial multivariate analysis of covariance (MANCOVA) extends factorial MANCOVA to research scenarios that require the adjustment of one or more covariates on the IV.
    T
    F*
15. The primary purpose of predicting group membership is to identify specific IVs that best predict group membership as defined by the IVs.
    T
    F*
16. Discriminant analysis and logistic regression are appropriate statistical techniques when the DV is categorical.
    T*
    F
17. Discriminant analysis seeks to identify which combination of quantitative IVs best predicts group membership by a single DV that has two or more categories.
    T*
    F
18. In binary logistic regression, the DV is a dichotomous variable.
    T*
    F
19. Factor analysis and principal components analysis are different techniques, but they are very similar.
    T*
    F
20. Factor analysis allows the researcher to explore the underlying structures of an instrument or data set and is often used to develop and test a theory.
    T*
    F
21. Principal components analysis is generally used to reduce the number of IVs, which is advantageous when conducting multivariate techniques in which the IVs are not correlated.
    T
    F*

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22. Questions that address structure usually distinguish between independent and dependent variables.
    T
    F*
23. When investigating the relationship between two or more quantitative variables, the *T*-test is the appropriate test.
    T
    F*
24. Prediction of group membership is evaluated by ANOVA, ANCOVA, MANOVA, and MANCOVA.
    T
    F*
25. Significance of group differences is evaluated by discriminant analysis and logistic regression.
    T
    F*

Test Items: Multiple-Choice Format

Instructions: Circle the letter of the best answer. If you do not know the best answer, you may put a question mark to the left of the answers instead of circling a letter.

26. The Pearson correlation coefficient:
    a. Measures the association between two quantitative variables without distinction between the IV and DV.*
    b. Utilizes the relationship between the IV and DV to predict the score of the DV from the IV.
    c. Both (a) and (b) are correct.
    d. Neither (a) nor (b) is correct.
27. In path analysis, path coefficients are calculated:
    a. After the data are analyzed.
    b. To estimate the strength of the relationships in the hypothesized causal model.*
    c. At any time.
    d. None of the above is correct.
28. When conducting MANOVA, if DVs are:
    a. Correlated, then it is appropriate to conduct several ANOVAs.
    b. Not correlated, then it is appropriate to conduct several ANOVAs.*
    c. Not correlated, then there is no relationship between the variables.
    d. None of the above is correct.
29. Factorial MANCOVA requires:
    a. Two or more IVs that are quantitative.
    b. Two or more DVs that are categorical.
    c. Two or more DVs that are quantitative.
    d. Only (c) is correct.*
30. Binary logistic regression requires:
    a. Two or more IVs (categorical/quantitative).
    b. One DV (two categories).

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c. Both (a) and (b) are correct.*
d. None are correct.

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