Methodology of Educational Research & Educational Statistics

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1. Knowledge:
- Define and explain the concepts of descriptive statistics such as histogram, polygon, bar graph, ogive, pie chart, measures of central tendency, and measures of variability.
- Identify the different types of inferential statistics including parametric testing (t-test, ANOVA) and non-parametric testing (Chi Square test, Median test, Sign Test).
- Describe the various types of correlations (Product moment, Rank Difference, Partial, Multiple, Biserial, Point biserial) and regression analysis.

2. Comprehension:
- Interpret and analyze data presented using pictorial representations such as histograms, polygons, bar graphs, ogives, and pie charts.
- Calculate and understand measures of central tendency (mean, median, mode) and measures of variability (range, variance, standard deviation).
- Explain the significance and application of parametric and non-parametric statistical tests in research.

3. Application:
- Apply inferential statistical tests such as t-test, ANOVA, Chi Square test, Median test, and Sign Test to analyze and draw conclusions from data.
- Utilize correlation and regression analysis techniques to establish relationships and make predictions based on data.

4. Analysis:
- Analyze the results of statistical tests to draw valid conclusions and make informed decisions in educational research.
- Compare and contrast different types of statistical tests and determine the most appropriate test based on research hypotheses and data characteristics.

5. Evaluation:
- Evaluate the reliability and validity of statistical results obtained from descriptive and inferential analyses.
- Critically assess the strength of relationships between variables using correlation and regression analysis.

6. Synthesis:
- Synthesize the findings of statistical analyses to generate insights and implications for educational practice and policy.
- Develop regression equations and use them to predict outcomes and make recommendations based on data analysis.