Data Analysis and Findings

Welcome to Week 6 of our research methods course. This presentation will guide you through the essential aspects of analyzing data and presenting your findings effectively. We'll explore different data types, preparation techniques, analysis methods, and visualization strategies to help you extract meaningful insights from your research.

Types of Data: Quantitative vs Qualitative

Quantitative Data

Numerical information that can be measured and expressed in numbers:

- Survey responses on scales (1-5)
- Test scores and measurements
- Frequencies and counts
- Economic indicators

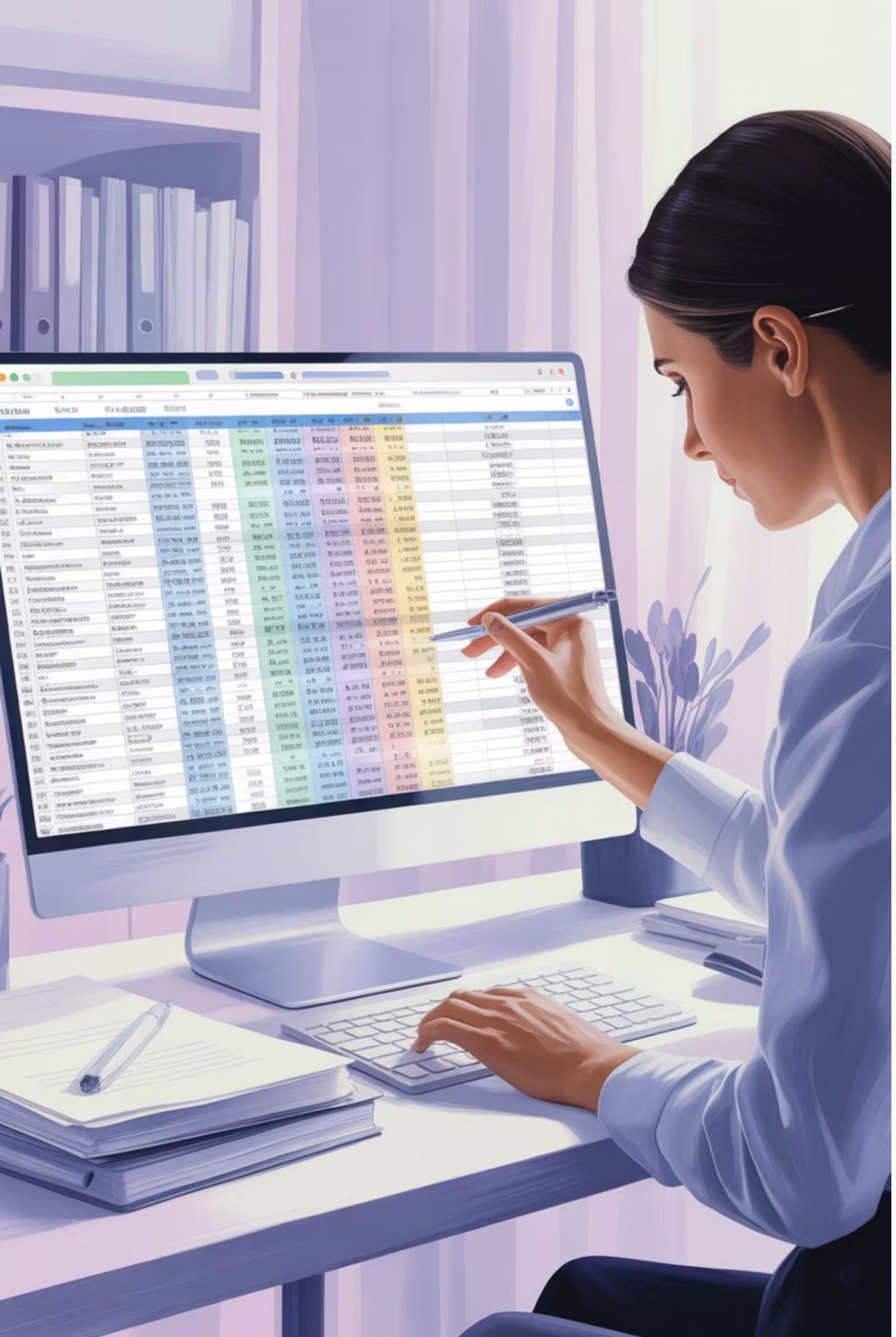
Analyzed using statistical methods and mathematical calculations.

Qualitative Data

Non-numerical information focused on qualities and characteristics:

- Interview transcripts
- Open-ended survey responses
- Observations and field notes
- Documents and artifacts

Analyzed through coding, thematic analysis, and interpretation.



Data Cleaning and Preparation

Collect and Organize

Gather all data sources and create a systematic filing system. Back up raw data before making any changes.

Check for Errors

Identify missing values, outliers, duplicates, and inconsistencies. Document all issues found.

Clean and Transform

Remove or correct errors, standardize formats, and create calculated variables as needed.

Verify and Document

Double-check that cleaning hasn't introduced new errors. Document all procedures for transparency.

Basic Analysis Techniques

Descriptive Statistics

Calculate means, medians, modes, standard deviations, and ranges to summarize data distributions and central tendencies.

Thematic Analysis

Identify patterns and themes in qualitative data through coding, categorization, and interpretation of textual information.

Statistical Tests

Apply t-tests, ANOVA, correlation, regression, and chi-square tests to examine relationships and differences between variables.

Using Excel/SPSS: Introduction to Features

Microsoft Excel

- Data organization in spreadsheets
- Basic calculations and formulas
- Pivot tables for summarizing data
- Charts and visualization tools
- Data filtering and sorting

Best for smaller datasets and basic analysis

IBM SPSS Statistics

- Comprehensive statistical analysis
- Advanced hypothesis testing
- Complex data manipulation
- Specialized research procedures
- Automated reporting features

Ideal for complex research projects

Presenting Findings Clearly

1 Structure Your Narrative

Organize findings logically with a clear beginning, middle, and end. Start with research questions, then present results, and conclude with implications.

2 Use Plain Language

Explain complex concepts in accessible terms. Define technical terminology when necessary and avoid jargon when possible.

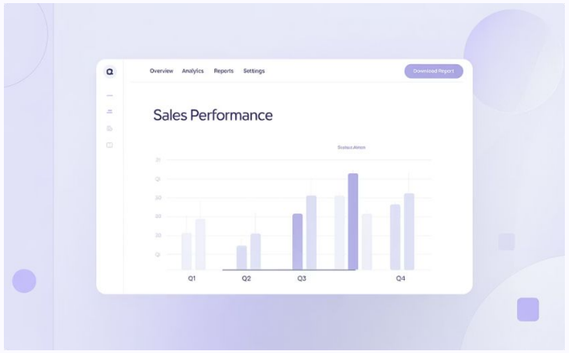
3 Highlight Key Insights

Emphasize the most important findings and their significance. Don't overwhelm your audience with every detail of your analysis.

4 Connect to Research Questions

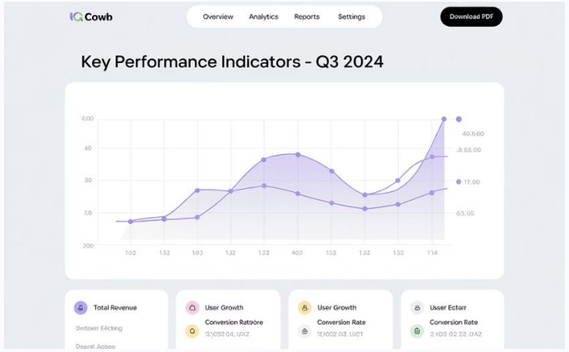
Explicitly show how your findings address your original research questions or hypotheses to maintain focus and relevance.

Visuals: Tables, Charts, and Graphs



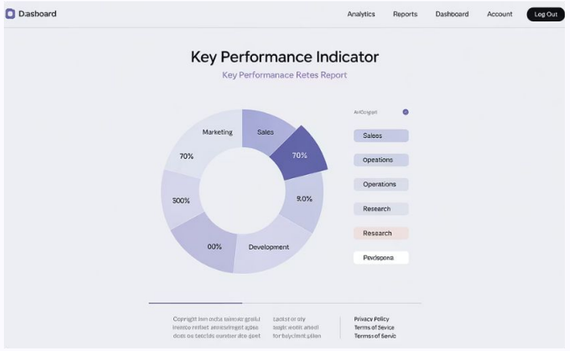
Bar Charts

Best for comparing categories or groups. Use horizontal bars for long category names and vertical bars for time series.



Line Graphs

Ideal for showing trends and changes over time. Can display multiple variables to show relationships and patterns.



Pie Charts

Use for showing proportions of a whole when you have fewer than 7 categories. Always include percentages.

Choose the right visual based on your data type and the story you want to tell. Always include clear titles, labels, and legends.

Interpreting Patterns and Anomalies

Identifying Patterns

- Look for trends, correlations, and recurring themes
- Consider both expected and unexpected relationships
- Compare findings to existing literature and theories
- Triangulate results from different data sources

Addressing Anomalies

- Investigate outliers and unexpected results
- Determine if anomalies are errors or meaningful findings
- Consider alternative explanations
- Be transparent about limitations and contradictions

Remember: Patterns tell the main story, but anomalies often lead to new discoveries and research directions.