Guidelines for Writing Data-Based Research Reports

A data-based research report is a piece of writing addressed to other individuals who are interested in data, along with any statistics or statistics-based experiments you conducted. They will want to know why they should consider you data, what you discovered, proved or learned, and whether your findings are significant and useful. Data-based research reports usually follow a standard five-part format:

1. Introduction of data and Research
2. Methods of Collecting, sorting & Organizing and Presenting Data;
3. Results:
4. Discussion of Results-are they statistically significant, relevant, timely…
5. Conclusions and Recommendations

Introduction

Here you explain briefly the purpose of your investigation. what problem(s) or consideration(s) did you address? And why? You will need to provide enough background information to enable the reader to understand the problem or consideration being investigated. Sometimes the introduction also includes a brief "literature review" summarizing previous research addressing the same or a related problem. In many scientific disciplines, it is also conventional to present a hypothesis--a tentative "answer to the question that your investigation with confirm or refute.

Methods

THis is a "cookbook" section detailing how you conducted your investigation, along with any statistical methods and experiments. It provides enough details so that other researchers can replicate your investigation and experiments, to further verify your conclusions and results. Usually, this section includes the following subsections:

- Explanation of how data was gathered, type of data, and how much data;
- Statistical tests, summative descriptors of data, visualizations of data;
- Description of statistical or experimental design (won't be used for research paper this handout originally pertains to).

Results or Findings

This section presents the empirical results of your investigation. Often, your findings are displayed in figures, tables, graphs or charts that are referenced in the text. Even though

the data are displayed in visuals, the text itself should also describe the most significant data (Just imagine that your charts and graphs are being displayed in a PowerPoint presentation and that you are explaining them orally. In that way, your written text in your research paper should be the transcription of what you would say during an oral presentation.) Your figures and tables must have sufficient information to stand alone, including accurate titles and clear labels for the real world and numeral contexts to be apparent to any math or science non-experts reading your research paper.

Discussion of Results.

This is the main part of the report, the part that will be read with them ost care by others. Here you explain the significance of your findings by relating what you discovered to the probelm you set out to investigate in your introduction. Did your investigation, data exploration and experiment accomplish your intended purpose? Did it answer your questions? Did it confirm or refute your hypothesis? Are your results useful? Why or why not? Did you discover information that you hadn't anticipated? Did your investigation raise any new questions? Are there implications from your results that need to be explored further? They key to success in this section is to directly link your findings to the questions, data and problems raised in the introduction.

Conclusions and Recommendations

In this last section, you focus on the main things you learned from the investigation and, in some cases, on the practical applications of your investigation. THis section can also be a summary of your most important findings along with recommendations for further research. If your investigation was aimed a making a practical decision (for example a water filtration decision), here you would then recommend appropriate actions to be taken by water advocates. what you say in this section depends on the context of your investigations and the expectations of your readers. It would also be a good idea to note any shortcomings or limitations int his section, and questions you would have liked to explore further.