Making a Statistical Poster – Guidelines

What is a statistical poster?

It is a one-page presentation that tells a story about a set of data.

It should:

- be simple and have a logical progression (contain a goal, an approach, main findings and key conclusions)
- include graphs and descriptive summaries of data
- contain commentary on the meaning of the data
- be self-contained (viewers should not need any extra material or information to understand the poster)
- be visually attractive and creative
- be able to be read from a distance of about 2 meters (7 feet)

Examples

Here are some links to get a general picture about posters. These posters were made following certain competition rules and may not meet the requirements of other competitions.

International Statistical Literacy Poster Competition 2010−2011, 2012-2013:

http://iase-web.org/islp/Competitions.php

Other examples:

http://www.amstat.org/education/posterprojects/index.cfm

http://magazine.amstat.org/blog/2011/08/01/posterandproject/

Steps in Poster Making

Find a question

First, find an issue or question to study. It should be:

- clearly defined to make it easier to collect relevant data
- be interesting so people want to read the poster
- not too difficult but also not have an obvious answer

Collect Data

Before collecting data plan carefully what measurements etc. are needed. More about different types of data collection:

http://www.statcan.gc.ca/edu/power-pouvoir/ch2/types/5214777-eng.htm

When using data from other sources, make sure they are reliable/credible. Also, you have to cite/list in your poster all external sources (i.e., author name, titles of publication, internet address, etc) from which you obtained data or statistics or graphs that you didn't produce yourself.

Do not forget to consider randomness and numbers of measurements or observations. For example:

> If the topic is to find out students' opinions and the study is only made by interviewing two best friends, the results may be severely biased.
>
> If a problem is to measure how far a grasshopper can hop, measuring just one hop from one grasshopper will not give good results. You need a bigger sample. For example, it is better to take 10 grasshoppers and measure 10 hops from each.

More about selection of a sample:

http://www.statcan.gc.ca/edu/power-pouvoir/ch13/sample-echantillon/5214900-eng.htm#a5

Data quality

Many factors may affect the quality of your data and hence the quality of the conclusions you can derive. Here are a few points to consider when you plan your project and your data collection. You can briefly mention these issues when you write the poster, if relevant:

- Do the data represent a general situation? How well does your sample representative the population to which your research question refer? Can you improve the sampling process or sample?
- Since data are variable (which is why we need statistics!) and people are often involved in the data collection, the data may contain errors. What are the possible sources of errors in your data? how can you reduce them?
- Even if you use measurements or observations to collect your data, there may still be some sources of variability or errors. Think about sources of variability or errors, and how to reduce them.

Analyze data

Analyze the data collected either by hand or by using a computer program.

Remember that you are investigating the original issue(s) or question(s).

Use numbers and graphs to describe the data: for example, histograms, bar charts, line charts, pie charts and box plots. Statistical quantities like mean, median or standard deviation are also useful.

Writing your conclusions

After you analyze your data, you have to interpret your findings and explain your conclusions in light of your original issue or question. Think about these questions (though not all of them may be relevant for your project)

- What have you learned from the data or results you obtained?
- Are your data or results important or interesting? to whom? why?
- What are the implications from your findings? can you make any suggestions or recommendations based on your conclusions?
- Are there limitations to your methods or any concerns about the quality of your data (e.g., because of your sample size or data sources)? can you make suggestions for follow-up research or for ways to improve the data in the future?

Please note that the Conclusions section of a poster is important because after all, the purpose of a statistical poster is not to just show graphs or charts or show your ability to conduct statistical calcuations, but as much to show that you can think statistically and that you can communicate your thoughts about the meaning of your findings and how they help answer a research question or issue.

Making the Poster

Physical or Electronic?

Posters can be:

- either physical (on paper) or electronic (for example, made with PowerPoint)
- either vertical or horizontal

Content

Posters are not meant to be looked at for long but should:

- contain at least what was studied and how, the main results, discussion about results and the principal conclusions
- be presented using pictures and key graphs
- have simple text telling the story of the data, and your conclusions
- include summaries but not all the raw data
- Remember that there is only limited space so do not say things twice. Pick only the graphs that best present the results. All graphs should have a title and commented on (i.e., do not just show a graph, but also explain briefly in words what is the key pattern or finding that a graph is showing) .

References

http://www.amt.edu.au/statscomp/ideas/guidelines.html

http://www.catalysis.nl/links/presentations/presentations.pdf

http://www.amstat.org/education/posterprojects/whatisastatposter.cfm