Activity 77

Using data visualisation tools and software

STUDENT HANDOUT

This activity introduces you to data visualisation tools and software. It builds a useful, student-centred resource on which you can draw throughout your course, when required.

'Data visualisation' is a term that is used to describe the presentation of data in a visual format that helps us to better understand the data, see patterns and recognise trends. It provides insight into data and helps us to develop hypotheses to explore further. Large datasets can often appear overwhelming: data visualisation tools and software help to make them more manageable.

This activity asks you to find a data visualisation tool and/or software that you must then test using suitable data. Information about how to do this is provided below. Once you have carried out your test you will need to review and critique the tool/software and post your thoughts on the digital platform that has been set up for this purpose.

Finding visualisation tools and software

Choose one of the data visualisation tools listed below or, if you prefer, find your own tool to use. It is useful to visit a few sites first, so that you can get an idea of the types of tool or software that are available. Some tools are more complex than others, requiring code-writing and programming skills, for example. Ensure that you only use tools that are free to use (those that are available through your university or those that offer a free trial, for example). Once you have done this, test your chosen tool. You will need to find suitable data that can be used for your test (see below).

Data visualisation tools and software (in alphabetical order):

- Chartblocks (http://www.chartblocks.com)
- Datawrapper (https://www.datawrapper.de)
- Dygraphs (http://dygraphs.com)
- Excel (https://products.office.com/en-GB/excel)
- Gephi (https://gephi.org)
- Paraview (http://www.paraview.org)
- Plotly (https://plot.ly)
- R (https://www.r-project.org)
- Raw (http://raw.densitydesign.org)
- Tableau public (https://public.tableau.com)
- Visualize Free (http://visualizefree.com)

Finding data to test the tool or software

You can find suitable data by using the Google Public Data Explorer (www.google.com/publicdata/directory) or by visiting the following websites.

- The UK Government's open datasets can be found at www.data.gov.uk. This site brings together data from all central government departments and a number of other public sector bodies and local authorities.
- The Economic and Social Research Council (www.esrc.ac.uk) in the UK has published details of almost 1,000 datasets generated by ESRC-funded grants. The data are free to access and use.

- The US Government's open datasets can be found at www.data.gov. Data are provided by a wide variety of organisations, including Federal agencies, the US Geological Survey and the National Aeronautics and Space Administration (NASA).
- World Bank Open Data can be found at http://data.worldbank.org. This site provides free and open access to global development data.

Alternatively, you can use your own data to test the tool, if you have generated suitable data from your research.

Testing, reviewing and critiquing your chosen tool or software

Once you have found suitable data, test your chosen tool or software. When you do this consider the following questions as these will help you to review and critique your visualisation tool/software:

1. Is the tool/software easy to use? Are clear instructions available?
2. Did you encounter any difficulties when using the tool/software? If so, what were they? How did you overcome these difficulties?
3. What do you consider to be the strengths and weaknesses of your chosen tool/software?
4. What tasks were you able to perform? How successful were these tasks?
5. Are the visualisations clear and easy to understand? Do they help you to recognise patterns or trends?
6. Are there any ways in which the tool/software could be improved?
7. What advice would you offer to your peers who may be thinking about using this tool/software?

Posting your review and building a useful resource

Once you have tested, reviewed and critiqued your chosen tool/software post your review on the digital platform that has been set up for this purpose. The aim is to provide a comprehensive, practical and useful resource that you and your peers can access throughout your studies. Therefore, be as detailed and informative as possible. Review the posts given by your peers and ask questions, pose dilemmas, answer questions and help to solve problems. Upload links and sample visualisations, if you feel it will be of benefit to your peers.

Learning outcome: By the end of this activity you will have tried, tested and critiqued a data visualisation tool and/or software and will have developed a useful student-centred resource on which you can draw throughout your course, when required.

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