Enhancing publication reporting with data visualisations: An introduction to VOSViewer

Abstract

Co-authorship and co-citation analysis can be used to understand engagement with and capacity of an institution's published research. This type of business intelligence and reporting increasingly relies on the visualisation of data to more easily communicate the complex relationship of co-authorship and co-citation to diverse audiences. However, many data visualisation tools require knowledge of software libraries, subscriptions to commercial products, and/or the staff resourcing available to operationalise the use of these tools.

VOSViewer is a bibliometric visualisation tool developed and supported by the Centre for Science and Technology Studies, Leiden University. VOSViewer is a free tool, simple to install, integrates with major bibliometric databases such as Web of Science and Scopus, and can be successfully used by individuals with varying technical ability. VOSViewer allows users to visisualse co-authorship and co-citation networks. In addition to network analysis, VOSViewer allows users to text-mine titles and abstracts of research outputs to visualise common and co-occurring terms.

With its low barrier to use, this tool is a good solution to both enhance research output reporting and also understanding of co-authorship/research networks within your institution.

Learning Outcomes

This workshop is targeted to people working with research publication data and who are interested in analysing research networks and presenting network-based data. The target audience for this workshop is those with no-to-limited experience in data visualisation.

By attending this workshop participants will gain a variety of learning outcomes, including:
- an introductory understanding of data visualisation best practice;
- how to better communicate the complex relationships of co-citation and co-authorship networks;
- undertake basic text mining of titles and abstracts;
- practical training and experience in using freely available data visualisation software.

Workshop Overview

This workshop will be in three parts and facilitated by Eleanor Colla (University of New England Library) and Sarah Brown (University of Queensland Library). The total length is 3.5 hours, inclusive of a 30 minute break.

Part 1, 45 minutes
We will discuss what lead us to looking into a programme that would assist us in analysing co-authorship, co-citation, etc., why we wanted this to be in a visual format, and what made us

eventually decide on VOSViewer. We will provide a history and overview of VOSViewer before discussing real life use cases, best practice principles with data visualisation, and limitations of the tool. Participants will be invited to introduce themselves and share their own experiences in this space and what they are hoping to take away from the workshop.

Part 2, 45 minutes
The second part of the workshop will be a series of guided hands-on activities in the VOSviewer interface. They will create their own co-authorship and co-citation visualisations, as well as analyse these in a variety of 'views' such as linked nodes and heat/density maps. We will also introduce participants to the basic text mining tools. Throughout this process they will learn how to visualise different elements of the data being presented (eg, coloured nodes, width of edges, attraction/repulsion ratios).

Afternoon Tea Break, 30 minutes

Part 2 (continues), 60 minutes
As above.

Part 3, 30 minutes
To end the workshop we will hold a general discussion with participants on their thoughts on data visualisation with particular attention to the VOSViewer tool, as well as discussing a variety of relevant topics in data visualisation, ethics of data visualisation, what other institutions are doing and using, and other miscellaneous topics as they arise.

Requirements

Participants **must** bring their own laptop.
Instructions for downloading and installing VOSViewer will be emailed to registered participants prior to the workshop.

The workshop will be capped to 20 participants.