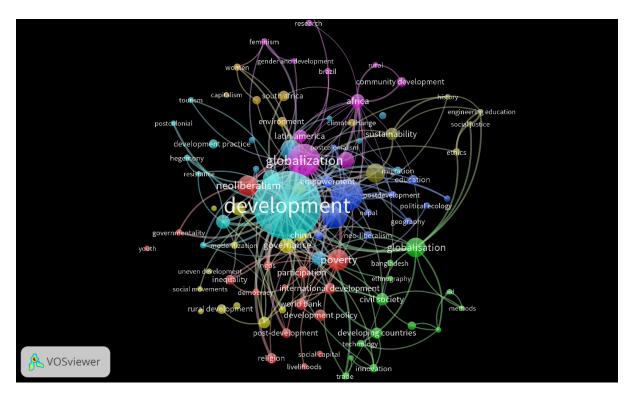
VOSviewer Keywords map

VOSviewer¹ is a tool, created by the Centre for Science and Technology Studies (CWTS) of Leiden University. This tool can be used to create and visualize bibliometric networks. These visualizations are often called maps.

You can create a network, based on the references in a list of publications: which publications/journals/authors are co-cited? Or which publications/journals/authors are related because they share a number of references?

In this exercise you get to know a different application of VOSviewer: you will create a map based on the author keywords – the keywords given by the authors. You can use the map to find additional search terms or to limit the scope of your topic. In this exercise we start with a search in Scopus, but you can also use data downloaded from Web of Science or PubMed. Other databases might be used as well, as long as you can export data in RIS-format and the file contains keyword-data.



An example of a co-occurrence map for author keywords. Scopus was used to collect publications on the topic of Development studies and the global South. Our goal was to get an overview of the keywords authors used and we hoped to identify subtopics. The term Development studies (or synonyms) and global South (or similar terms) had to appear in the title, abstract or keywords. 2098 keywords were identified by VOSviewer, we selected a threshold of 6 occurrences, which left 95 keywords. This map revealed many subtopics related to development studies. Global South did not appear often as it is a relatively new concept.

L'apris

¹ VOS stands for 'visualization of similarities'

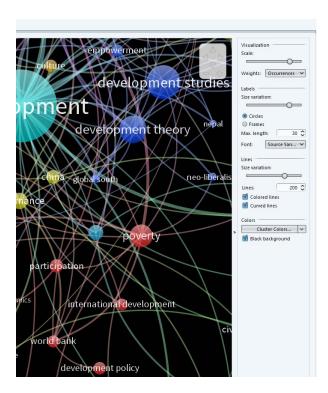
How to read the map

• The bigger a circle, the more frequently the keyword appears in the publication set from Scopus.

Check: Do you see surprising or new keywords in your map? They can be terms you can add to your own search terms.

• The keywords are assigned to a cluster, based on a computer algorithm. Each cluster has its own colour. When the colours are mixed, than the algorithm couldn't make clear distinctions between the clusters.

Check: Can you distinguish clusters in your map? Do they make sense?



By adding lines, you can see the relation between two keywords: how often do they appear together?

You can add lines in the VOSviewer options panel on the right side of the screen.

Collecting the data in Scopus

- 1. Perform a search in Scopus this can be a general search, you don't have to be too specific.
- 2. You can export up to 2.000 results from Scopus. If you have more results, you can add a search term or use the filters on the left side of the screen (for example, publications from the last 10 years, only articles).
- 3. Select all results (this options is hidden under the arrow next to Export)



- 4. Choose Export > mark CSV (Excel) > and select all options under Customize export.
- 5. Download the CSV file and save it on the desktop of your computer (this makes it easier to find when you want to upload it to VOSviewer). Downloading the file can take some time (due to the size, several MB).

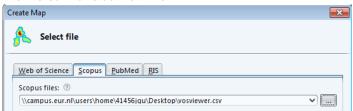


VOSviewer

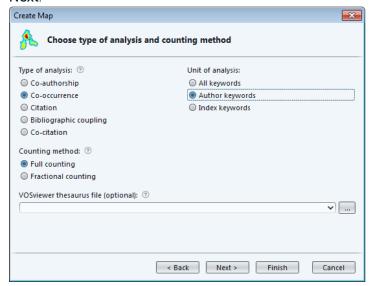
- 1. Go to www.vosviewer.com.
- 2. You can download the program or open it directly from the website. Here we use the second option: click **Launch VOSviewer**. Follow the directions on the screen. If you get a JAVAwarning, select 'Later'. VOSviewer opens with a big blank screen.
- 3. Click Create on the left side of the screen.
- 4. Choose the option in the middle: Create a map based on bibliographic data. Click Next.

VOSviewer will lead you through a number of steps. We advise you to write down your choices - that will help to recreate a map later.

5. <u>Select File</u>: Open the tab **Scopus** and browse to the downloaded CSV file. Click **Next**. Loading the file can take some time.



6. <u>Choose type of analysis and counting method</u>: Choose as 'type of analysis' **Co-occurrence**, as 'unit of analysis' **Author Keywords** and as 'counting method' **Full counting** (this means that every keyword counts has the same weight, regardless of the number of keywords given to a particular article). We don't have a thesaurus file yet, you can leave that option empty. Click **Next**.

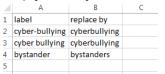


- 7. <u>Choose threshold</u>: How many times does a keyword have to occur in your dataset to be used in the analysis? When you change the number of occurrences, the number of keywords in the row will change accordingly. Make a choice, write it down and click **Next**.
- 8. <u>Choose number of keywords</u>: for all keywords a relevance score will be calculated. In this step you enter the number of keywords you want to see in your map. Adjust the number at 'Number of keywords to be selected', write down your choice and click **Next**.
- 9. <u>Verify selected keywords</u>: the list of keywords is generated. You can scroll through the list and unmark terms. Click **Finish**.
- 10. The map is created.



Tips for VOSviewer

• In the map you will often see terms in singular and plural form or with/without a hyphen (-), etc. You can merge these keywords by using a thesaurus file (in the step Choose type of analysis and counting method). Create a two-column table in Excel. Name the first column label and list the keywords you want to delete. Name the second column replace by and enter the replacement keywords. If you leave the cell in the column 'replace by' empty, the keyword in the column 'label' will be removed.



Save this file as a text-file (tab delimited). You can upload the file in the step 'Choose type of analysis and counting method'.

- If you want to save a picture of the map, click **Screenshot** on the left side of the screen and choose **Save to File**.
- You can adjust the clustering: under Analysis > Clustering the default clustering resolution is 1.00. When you enlarge the resolution (for example 1.20), you get more clusters. With a smaller value, you get less clusters.
- You can see the keywords under the tab Items.
- Click Save > Map to download the list of keywords in the map.

Want to try more?

• Create a citation map on the journal or author level: Which journals or authors within your set of publications cite each other?

Questions?

• Please contact the University Library via <u>informationskills@ubib.eur.nl</u>. You can also contact us if you want to know how to use data from another database as input in VOSviewer.

