



### *What is mapping?*

Mapping, mind mapping or concept mapping are all terms for the use of diagrams to express relationships between ideas, arguments and concepts. Mapping can be used as a teaching tool to develop critical and analytical skills and to help students understand relationships in complex topics. It has been shown effective in comparison with more traditional textbook exercises (Chiou, 2009). Mapping can also be used in research, for example to express relationships in data or to plan a presentation. Here we are mainly concerned with the use of mapping to build up a picture of a research area, for example as part of a literature review.

### *Mapping as an approach to literature review*

Literature review is a systematic method for identifying, evaluating and interpreting the work of researchers, scholars and practitioners in a chosen field (Fink, 1998). It is an important part of academic research as it allows the researcher to identify: 1) what has already been written about in the field and 2) what the emerging issues are. The researcher can identify gaps in knowledge that require further investigation, and/or situate a new piece of work in relation to existing literature. New researchers can be overwhelmed by the amount of data they have to work with during this process, and mapping can help to synthesize key findings and represent the complexity of the research topic in a more manageable way.

Mapping techniques are useful at the very beginning of the literature review for brainstorming and scoping. They come into their own again at the end when it comes to planning the write-up. Concept mapping can also be useful throughout the review process to clarify key arguments in the literature.

The following are basic steps to follow when undertaking a mind or concept-mapping activity for organizing literature reviews:

- ✦ Identify your topic and write it in the middle of a blank sheet of paper – this must be kept simple and broad enough to allow for a more detailed exploration. It might be the whole topic of the literature review or just one area or argument
- ✦ Write down all the words and phrases that come to mind in relation to the topic. These are likely to be useful search terms when researching the relevant literature online.
- ✦ Find, read and summarize key findings from journal articles, books and working papers.
- ✦ Most mapping tools will allow you to include links to the relevant articles, or an abstract/summary.
- ✦ Use branches to make connections between the words and references. In the case of concept maps, include a key that explains the relationship of the connecting lines.
- ✦ As you read more, extend your initial ideas using more branches and nodes.
- ✦ If the map gets too big, take aspects of the existing map to start another map and explore further.
- ✦ Consider how you can group your summaries and references in different ways.
- ✦ Build your literature review from closely related summaries and their reference sets, using the map as a guide.

## Which tool should I use?

Although mind and concept mapping can be conducted manually with paper and pens, its effectiveness can be improved by using a computer-based application. The Internet provides access to many such programs: the table below provides a cost-benefit analysis of just a few. This should be enough to give you an idea of which features are most important to you.

Software	Drawback	Benefits
Microsoft Word	<ul style="list-style-type: none"> <li>Requires a lot of effort from the user</li> <li>Process is slower</li> </ul>	<ul style="list-style-type: none"> <li>Free on any Windows computer</li> <li>Easy to use if you are familiar with drawing in word</li> <li>Easy to learn how to use</li> <li>High flexibility in laying out the map</li> <li>Formatting options available</li> <li>Wide range of drawing tools available</li> <li>Easy to list and group literature under specific headings</li> </ul>
<a href="#">Inspiration</a>	<ul style="list-style-type: none"> <li>Around £28 to download</li> </ul>	<ul style="list-style-type: none"> <li>Simple to use</li> <li>Quick, easy to use, navigate and replicate</li> <li>Fun and interactive</li> <li>Can add images, audio, hyperlinks and notes</li> <li>Import and export functions (into/from Word, pdf, PowerPoint)</li> <li>Can convert mind map nodes to headings in a Word document.</li> </ul>
<a href="#">Mind Genius</a>	<ul style="list-style-type: none"> <li>Costly if not provided by the university</li> <li>Limited text formatting options</li> </ul>	<ul style="list-style-type: none"> <li>Quick, easy to use, navigate and replicate</li> <li>Fun and interactive</li> <li>Branches to other concepts and ideas created automatically</li> <li>Import and export functions (into/from Word, Excel, PowerPoint, Outlook etc.)</li> <li>Easy to change map layout</li> <li>Easy to list and group literature under specific headings</li> <li>Easy to compare multiple maps</li> </ul>
<a href="#">Cmaps</a>	<ul style="list-style-type: none"> <li>Cannot list and group articles under various topics on the map</li> <li>Limited text formatting functions</li> </ul>	<ul style="list-style-type: none"> <li>Easy to use</li> <li>Free and open source</li> <li>Available in 19 different languages</li> </ul>
<a href="#">Prezi</a>	<ul style="list-style-type: none"> <li>Primarily a presentation package</li> <li>Web-based – this makes it difficult to edit but can pay for a desktop version</li> <li>Limited text formatting options</li> </ul>	<ul style="list-style-type: none"> <li>Easy to use</li> <li>Fun and interactive</li> <li>Access to basic features is free</li> <li>Templates available</li> <li>Easy to convert map into a presentation</li> <li>Easy to import images</li> </ul>

## Additional information

As a researcher you should be aware of your responsibilities with respect to, amongst other things, IPR, research ethics, information security, data protection and mobile computing. If you need advice please see the Plymouth University [Research Degrees Handbook](#) and ask your research supervisor for guidance.

## References

- Fink, A. (1998). Conducting literature research reviews: from paper to the Internet. Thousand Oaks, CA: Sage
- Chei-Chang Chiou (2009) Effects of concept mapping strategy on learning performance in business and economics statistics. Teaching in Higher Education. Feb 2009, Vol. 14 Issue 1, p55-69.