DEFINING THE NOTION OF CONCEPT MAPS 3.0

Jasper Jensen & Lars Johnsen, University of Southern Denmark, Denmark
Email: jasperj@edu, larsj@edu

Web based concept maps can be viewed as reflections of generations of web technology. Thus we define the following generations of concept maps:

- Concept maps 1.0
  - Can be created using dedicated desktop tools (CmapTools, VUE).
  - Utilize web technology to facilitate sharing and collaboration.
  - Are represented in open standards such as SVG (Scalable Vector Graphics).

- Concept maps 2.0
  - Can be created using dedicated online / web based tools (CmapCloud).
  - Can be embedded in web 1.0 formats (GIF, HTML) or XML (Extensible Markup Language).
  - Can be embedded in webpages.

- Concept maps 3.0
  - Can be created using dedicated online / web based tools (CmapCloud).
  - Utilize social web (web 2.0) technology to facilitate sharing and collaboration.
  - Are created using dedicated online / web based tools (Cmap Cloud).
  - Are typically created using desktop tools (CmapTools, VUE).
  - Can be exported to web 1.0 formats (GIF, HTML) or XML (Extensible Markup Language).
  - Can be embedded in webpages.

Defining Five Fundamental Requirements for Concept Maps 3.0

We have adopted the following Web Data Principles (Wilde, E., 2016, http://dret.github.io/withdata/), which outline five recommendations for exposing data on the Web of Data / Semantic Web.

The recommendations state that Web Data should be:

- Usable
- Parseable
- Understandable
- Linked
- Scalable

Based on the Web Data Principles above, we propose five requirements for concept maps 3.0 as data sets:

1. Concept maps should be **Usable**, that is, accessible on persistent and stable identifiers. This obviously applies to the concept map as a whole, but preferably also to its constituent parts. In this way, external resources can be specific entities in the structure.” (Johnson, J. & Jensen, J., 2016)

2. Concept map distributions should be represented in open formats that do not require proprietary software for processing and whose source code is open to inspection.” (Johnson, J. & Jensen, J., 2016)

3. “Concept maps should be parseable by algorithms that do not require proprietary software for processing and whose source code is open to inspection.” (Johnson, J. & Jensen, J., 2016)

4. “Concept maps should be understandable, that is, accessible via persistent or stable identifiers. This obviously applies to the concept map as a whole, but preferably also to its constituent parts.” (Johnson, J. & Jensen, J., 2016)

5. “Concept maps should be annotated by metadata using “well known” and/or “well documented” vocabularies.” (Johnsen, L. & Jensen, J., 2016)

This can be achieved by linking to Wikidata entries, which can act as unique identifiers in an associated semantic web page, which unambiguously indicate the meaning or identity of some concept.

This can be achieved by linking to a Creative Commons license, which allow the concept maps in question to be used under certain conditions.

References:


A simple example of how a concept map 3.0 can be annotated and exposed as web data using the schema.org vocabulary and the format JSON-LD

This particular example includes a snippet of code specifying metadata for a history concept map about the American general George Armstrong Custer.