

LEARNING FROM DOCUMENTS USING MULTIPLE VIEWS PRESENTED AS CONCEPT MAPS

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Abstract. Learning about a subject from multiple documents, either printed or in an online format can be taxing and confusing. Learning involves constructing a mental/cognitive representation about the information in the document and combining it with previous learner's knowledge representations. When it comes to study multiple documents, in addition to constructing representations for each document, an additional representation, a documents model, is constructed, describing interrelations among documents and the situations they describe. Consider studying an historical subject, where numerous documents are available and (nowadays) easily accessible. But how these resources should be accessed and in what sequence, in order to promote their study and to contribute to the development of integrated knowledge representations about the subject? The common method of presenting documents is to list them, as in a library catalogue. The list can be alphabetical by authors, or another sequencing mode, available in the interface. Each list is a view about a subject, based on some organizing principles, which can guide the learner's behavior. Generally, there are two classes of views: Metadata (e.g., author, publication, year) and Data (content aspects: title, key words, abstract, summary, outline, event list, etc.) views. An experienced learner, such as an expert historian, can use the available views, in the formats they are presented, in order to decide how to proceed with the documents, i.e., in what sequence to review them, what documents to compare and how. The expert is an autonomous learner, having available a learning management package developed from experience and evolved study methods. The novice student can be confused about the management of the learning situation. The student, and perhaps the seasoned learner, can benefit from a graphical presentation of available views, in order to reduce the cognitive load of the learning situation.

Consider, as an example, the Cmap describing the 7th International Conference on Concept Mapping (<http://cmc.ihmc.us/>). Some of the map nodes refer to documents (texts, maps, and web sites). The map's graphical layout presents a particular view about the conference, by guiding how to inspect the referred documents. A different layout may have produced a different inspection behavior. In our exploration study, we examined learning about an historical event, consisting of eight episodes, describing the blockade running of one of many ships carrying illegal immigrants from Europe to Palestine after the Second World War, which was then opposed by the British Government. The event was described in many documents, of which we selected ten. We mapped these documents by several aspects, each serving as a view about the documents and presented as a map or a list, using Cmap. The views presented (1) different genres: historical accounts, biographical accounts, journalism and poetry; (2) events chronology: which document mentions an episode; (3) Number of episodes mentioned in a document; (4) bibliographic information about each document. The views were presented to first year education students as a list with adjacent study tasks: (1) write the story of the ship from two different points of views represented by different characters in the story; (2) Write about three contradictions found in the different documents. We compared the students' behavior and their tasks performance, with students who just receive a list of the ten documents for study.