Knowledge-Discovery Applications with Environmental and Ecosystem Policy Documents

Abstract

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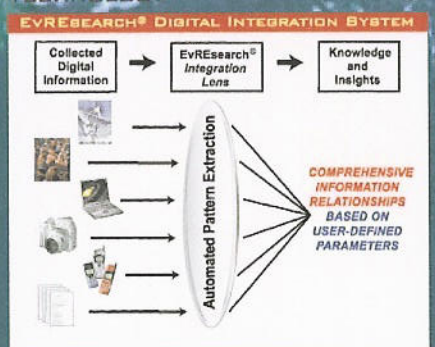
Integration-engine applications for discovering knowledge from environmental and ecosystem policy documents will be demonstrated in the context of Earth system science education. Associated group decision-making activities that provide practical learning experiences to solve interdisciplinary problems in our world also will be illustrated with examples from an undergraduate capstone course that has been taught for the last 22 years (see Berkman, P.A. 2002. Science into Policy: Global Lessons from Antarctica. Academic Press, San Diego).

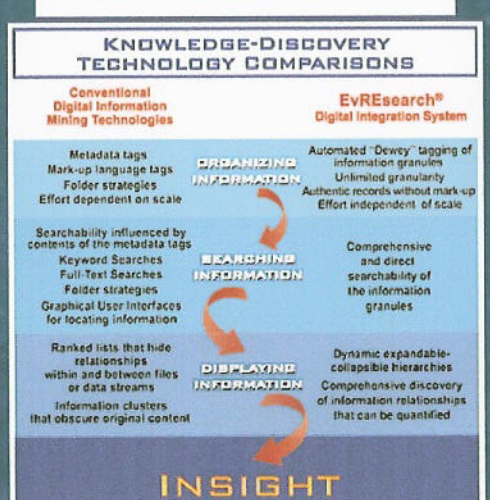
Knowledge involves understanding relationships among different types of information. Currently, search engines are the primary tools for accessing electronic information. However, search engines produce lists that hide relationships within and between different information resources. Such lists are like stacking books in a library rather than organizing them within a building, on different floors, on different shelves.

To overcome the limitations of lists, the EvREsearch® *Digital Integration System* is being used to dynamically generate expandable-collapsible hierarchies that comprehensively display relationships within and between information resources for each search query. The EvREsearch® *Digital Integration System* provides automated solutions for increasing the granularity of digital records at scale without modifying the authentic record with mark-up tags that otherwise would be needed to organize and display the underlying information granules.

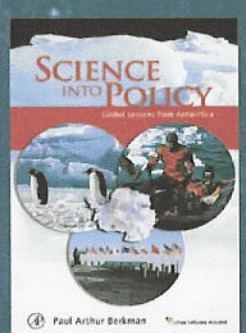
For this project, the EvREsearch® *Digital Integration System* is being applied to the *Marine Mammal Commission Digital Library of International Environmental and Ecosystem Policy Documents* with funding from the National Science Digital Library program. These public-domain documents reflect the scientific, economic, social and government perspectives that have been combined into legal strategies for managing human impacts in the Earth system. Understanding the conceptual trends, solutions and frameworks as well as the overlapping jurisdictions of these Earth system policies is essential for the sustainable development of our society at local to global scales (e.g. attached webCDserver®).

Technology





Pedagogy



Group Decision-Making Pedagogy

Specific Problem or Question
+
Continuous Solution Refinement
+
Relevant Negotiating Forum
=
Effective Educational Experience

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