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The Role of Interdisciplinary GIS and Data Curation Librarians in Enhancing Authentic Scientific Research in the Classroom

Benjamin D. Branch

Purdue University, bbranch@purdue.edu

Michael Fosmire

Purdue University

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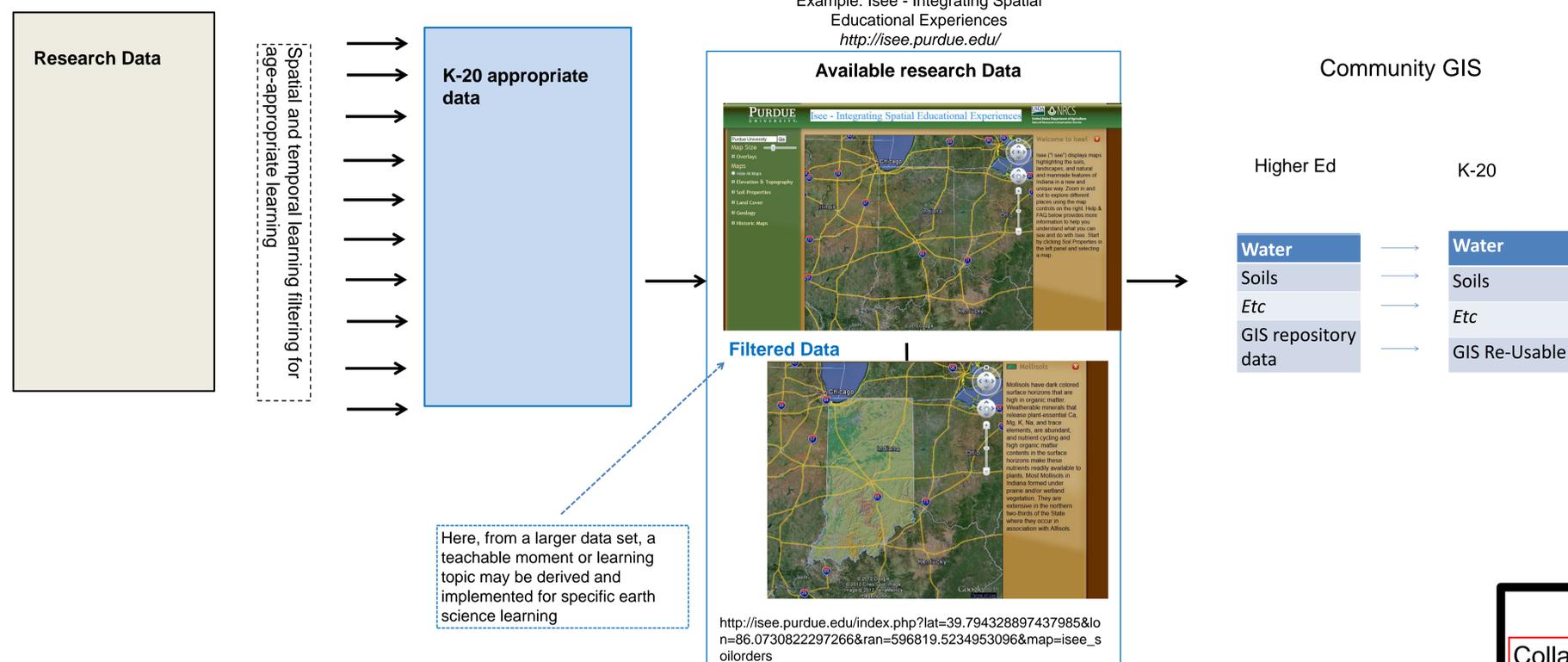
Abstract

Data science is a recently evolved area of scientific inquiry, where data, often collected by others, is analyzed by independent investigators to draw new conclusions. As such, data literacy needs to be incorporated into authentic research activities. The earth sciences in particular have a trove of data that resides in national data centers as well as individual investigators' labs, which can be repurposed to provide the inputs for students to make their own inquiries into the data. With the amount of data available, students can make more substantive conclusions than if relying just on data they've collected themselves.

Research Assumptions

- “Researchers increasingly need to integrate the disposition, management, and curation of their data into their current workflows.” Carlson, et al (2011)
- “Libraries also possess well-developed expertise in several related areas, including collection development, archival practices, cataloging and indexing, development of platforms for discovery and distribution, and education and user support.” Steinhart (2006, p. 267)
- Geographical information systems library services may be utilized efficiently in data repository implementations.

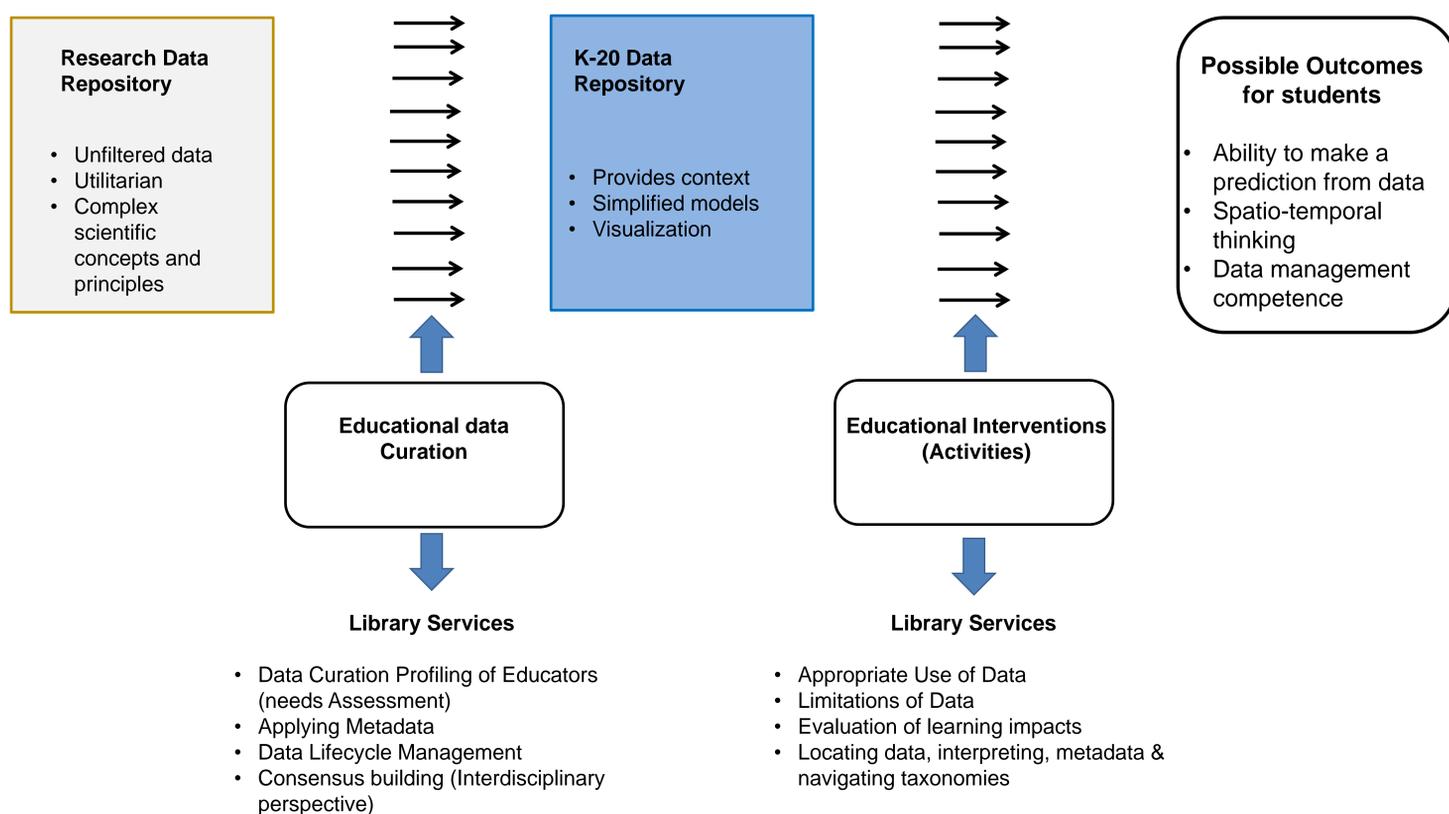
An Authentic Earth Science data flow from Higher Ed to K-12



Obstacles to Next Generation Data and GIS Librarians

- Shared values between Higher Ed, K-20 and the community towards data driven geospatial data, demonstrated learning impact
- Cross-training- metadata, lesson plan per geographical areas, national and regional polished datasets...
- Open Source vs. Proprietary solutions and training
- Geolibraries standards and cross sharing policies
- Geolibraries assessment systems
- Geolibraries data profiles validation
- Geolibraries consensus building (infrastructure)
- Role formalization of interdisciplinary GIS/data librarian
- Spatial and temporal data training as standard GIS & Data librarian training

A Purdue Approach- conceptual data repository and outcomes diagram



Implications or Future considerations

Collaborative higher education and K-12 educational leadership may need to consider joint collaboration with the geoscience data and GIS librarians as data “inter-mediators” for STEM pipeline support.

Simply, such considerations may consist of the following:

- Intense Data, IT, and GIS training for librarians
- Critical 2020 Data and GIS librarian critical mass for national interest
- Data curation profiles needed to baseline and justify GIS and data curation skill development
- Recognition of geolibraries as GIS delivery critical to learning
- Geolibraries with data clearinghouse services may need more research (Goodchild and Zhou, 2003)

References

- Carlson, J., Fosmire, M., Miller, C. C., & Nelson, M. S. (2011). Determining Data Information Literacy Needs: A Study of Students and Research Faculty. *portal: Libraries and the Academy*, 11(2), 629–657. doi:10.1353/pla.2011.0022
- Palacio, D, Cabanac, G, Sallaberry, C and Hubert, G (2011) On the evaluation of Geographic Information Retrieval systems Evaluation framework and case study
- Stienhart, G. (2006) Libraries as Distributors of Geospatial Data: Data Management Policies as Tools for Managing Partnerships
- Goodchild M, Zhou, J (2003) Finding Geographic Information: Collection-Level, *Geoinformatica* 7:2, 95-112, 2003