Data Curation Education in Research Centers: Formative Evaluation Findings from Years One and Two

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Data Workforce Problem

The current data curation workforce consists primarily of:

- Scientists and technical experts who receive little formal training in data management
- Data managers educated through on-the-job training

Few education programs exist that provide formal training specifically related to data management and curation.

DCERC Model

DCERC is developing a new model for educating data professionals that:

- Introduces library & information science students to data curation practices and issues in a research center environment.
- Designs and presents foundational courses in data curation.
- Provides Masters and Doctoral internships at data-intensive research center.
- Builds community among students, science and data mentors, and faculty.
- Contributes to data curation research results, documentation of curation best practices, and advances in practitioner training.

Masters Internship Experience

- Masters students intern at NCAR for two months in summer.
- Summer internships are launched with an introductory workshop.
- Students learn current data management practices and challenges while developing expertise and conducting research.
- Each student is paired with two mentors:
  - Data mentor – provides data management expertise
  - Science mentor – provides expertise of the scientific domain, and real-life data management challenges

Formative Evaluation Questions

- How well does the internship experience match the needs of the students? The mentors?
- Which elements of the internship did the students find most valuable? Least valuable?
- Which areas of the internship experience can be improved?

Data Collection Methods and Sources

- Participants: 5 Master's students and 12 mentors from 2012 & 2013 internships
- Student Feedback: Pre-internship survey; a post-workshop survey; student e-journal entries; post-internship survey and focus groups
- Mentor Feedback: post-internship survey and focus groups

Participant Feedback and Program Adjustments

Year One Feedback

- Positive experiences
  - Foundational course and internship experience were extremely valuable, and in line with student career objectives.
  - Students described their mentors as great, accessible, supportive, and enhancing the learning experience.
  - Mentors appreciated the information science perspective.
  - Students valued professional development opportunities.
- Adjustments needed:
  - Opening workshop, while informative, was overwhelming.
  - Student project organization needed improvement:
    - Students needed better orientation to NCAR or mentors.
    - Mentors had limited understanding of student skills.
  - Internship timelines were very tight.

Year Two Adjustments

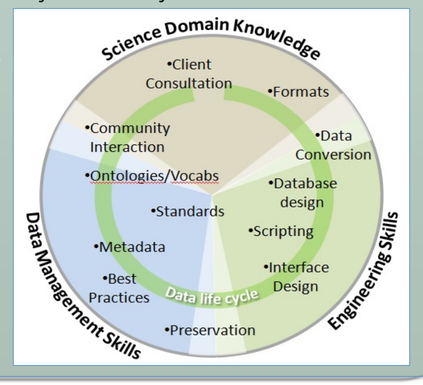
- Do more project development before the students arrive:
  - Earlier pairing of students with mentors.
  - Discuss possible projects with students and mentors.
- Streamline kickoff workshop to focus on student projects.
- Evolve project aims and activities:
  - Seminars on NCAR science and engineering.
  - Combine final poster presentations with other NCAR internship programs.
- Provide additional professional development opportunities:
  - Visit to National Snow and Ice Data Center.
  - Attend Science Boot Camp for Librarians.

Year Two Feedback

- Positive experiences
  - Projects had better alignment between student/mentor goals and student skills.
  - Students valued the additional professional development opportunities.
  - Mentors appreciated the students' analytical approaches.
- Adjustments needed
  - Mentors noted the significant time commitment.
  - Data mentors stressed importance of computing skills, which Library & Information students may not have.

Year Three Adjustments

- Give mentors opportunity to provide feedback on student applications.
- Develop projects early, before the students arrive.
- Provide additional professional development opportunities:
  - Participate in upcoming GeoData II meeting.
  - Visits to local data centers.
- Work with mentors to identify the variety of skills involved in data curation:
  - Skill spectrum model.
  - Guide intern projects.



Testimonials

"I had a chance to follow the complete data curation process rather than doing one piece... I had a chance to see the big picture and appreciate the time and energy it takes to do the job right." - Student

"I learned how the new generation of data curators thinks, design solutions, and how they perceive the expected audience of their work." - Mentor

Next steps

- Additional cohorts of Master's students at NCAR in 2014 & 2015.
- Evaluate the sustainability of the internship model over time within a research center environment (e.g. NCAR)
- Investigate need for data curation expertise & viability of internship program with broader set of scientific data centers.
- Continue to inform curriculum development with evaluation results.
- Extend and sustain the DCERC model beyond the initial partnership.

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