

Educator-Specific Educational Digital Library Evaluation

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Introduction

Background

- Increasing number of educational digital libraries
- Education materials for teaching and learning
- Educator-focused development
- Digital library evaluations not tailored to educator user group

Before establishing the impact of a digital library we need to evaluate that library based on criteria that cover the many facets of digital libraries and that are important to certain stakeholder groups (i.e. teachers)

Research questions

1. Can the teacher-centric criteria be implemented as a rubric, with measurable criteria?
2. How useful is the rubric, especially for comparative purposes

Teacher information seeking

Teacher information seeking

- Limited number of studies
- Small case studies
- Teachers understand the benefit of digital resources
- Overwhelming number of resources available
- Lack of time to locate and incorporate resources in classroom

Info seeking in context

- Three different contexts for teachers
 - pedagogical, institutional, personal
- Pedagogical context
 - influences what types of resources teachers might be looking for
- Institutional context
 - prescribes what can be taught and what teachers will search for
 - curricula that follow state standards
- Personal context
 - determines how likely a teacher is to use digital libraries and technology in their teaching.

Pedagogical context

- Teachers have diverse goals when searching for materials online
 - lesson plans and activity ideas,
 - raw data
 - pictures and graphics
 - simulations
- Teachers like to search by topic or content area
- Teachers need to determine whether materials are appropriate for grade level

Pedagogical context evaluation criteria

- Ability to specify resource type in search
- Ability to search by subject
- Ability to search by grade level
- Labeling of resource type and grade level has to be correct

Institutional context

- Teaching driven by state or national standards
- Testing and evaluation driven by standards

Institutional context evaluation criteria

- Ability to search by standard
- Ability to determine resource suitability in relation to standard or curriculum
- Standard assignment to resources has to be correct and sufficiently detailed

Personal context

- Teachers have various levels of technology competence and confidence
- Teachers are extremely busy people
- Teachers look for high quality and reliable resources
- Teachers trust judgments by other teachers

Personal context evaluation criteria

- Digital library interface that is easy to use
- Availability of peer assessments of resources
- Ability to comment on or rate resources
- Availability of tips from other teachers tied to resource
- Availability of overview of library content

Digital library evaluation

Digital library evaluation

- Evaluation of specific aspects of digital libraries
 - impact and service quality
 - usage
 - interface and usability
 - cost and benefit analysis
 - resource quality
- Detailed evaluation frameworks

DL Evaluation Holistic Model

- Developed by Zhang (2010)
- Based on literature review, interviews, and questionnaires
- Six stakeholder groups
 - administrators, developers, librarians, researchers, and users
- Various groups have unique and shared evaluation criteria
- Groups rank importance of shared criteria differently
- 37 evaluation criteria for 6 different digital library levels
 - context, user, service, interface, content, technology
- 19 core criteria (shared among all stakeholder groups)
- 18 group-based criteria (shared between some, or specific to a single group).

Teacher-centric evaluation rubric

Teacher-centric evaluation

- Uses 28 criteria from Zhang's Holistic Model
 - 19 core criteria PLUS
 - 9 criteria specific to the user stakeholder group
- Kept 6 levels from Holistic Model
 - context, user, service, interface, content, technology
- Incorporates teacher information seeking criteria
- Criteria were operationalized into 62 unique metrics
 - For details on the metrics see my poster
- Metrics used and tested in evaluation of 4 digital libraries
 - DLESE, NSDL, TeachEngineering, Thinkfinity

Example

- The content level criteria
 - accessibility, **accuracy**, usefulness, comprehensiveness, and ease of understanding of the content of the digital
- Content: Accuracy (1.2)
 - the extent to which any visible errors (e.g. typo, incorrect information) are detected in digital information
 - 1-2-1. In a random selection of n resources how many visible errors in metadata (e.g. type, incorrect information) were found?
 - 1-2-2. In a random selection of n resources how many visible errors in the content itself were found?
 - 1-2-3. Is the source/provider listed in the meta-data?

Metrics findings

- Libraries evaluated by 2 researchers
- Most metrics have checklist or check-off approach
 - easy agreement between researchers
 - in four cases (6.5%) hard to find features missed by researcher
- Six metrics (9.7%) subjective
 - Disagreement on 4 out of the 6
- Four of the metrics (6.5%) required clarification about a teachers' information seeking tasks
 - We established four standard tasks: 1) find materials to use in the classroom; 2) find lesson plans for teaching; 3) find background reading on teachable topics; and 4) find quizzes or assessments.

Findings - Metrics

Metrics findings - II

- Seven metrics (11.3%) required clarification about the meaning of the metric
- 15 metrics (24.2%) had to be answered by DL operators themselves

Research questions

1. Can the teacher-centric criteria be implemented as a rubric, with measurable criteria?
 - Yes. Most metrics worked well. A subset cannot be answered by evaluators themselves. A small set needs to be changed to be less ambiguous.
2. How useful is the rubric, especially for comparative purposes
 - metrics can be applied to a range of digital libraries allowing for easy comparison between libraries

But what about the results?

- All four digital libraries supported teacher users well
- Predominantly free and full text materials
- Collections can be searched by grade level, resource type, and, in some cases, state and national standards
- Technology is relatively easy to use
- Libraries are responsive to teachers' needs
- Sustainability plans are in place providing assurance that these resources will be around in the future

Findings – Educational digital libraries

Required DL improvements

- Help functionalities not tailored to the problems at hand
- Searching by standards needs to become more widespread
- Standards search interfaces need more thought
- Harvested metadata records need accuracy check

Contact and References

- Email Anne for questions and comments
 - anne.diekema@usu.edu
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- Diekema, A.R. and Xu, B. (under review) An educational digital library evaluation rubric: a teacher-centric approach.