Impact: The Last Frontier in Digital Library Evaluation

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ABSTRACT
The NSF-funded National Science Digital Library (NSDL) is engaged in an ongoing discourse about digital library evaluation. The Educational Impact and Evaluation Standing Committee (EIESC) has successfully identified desirable features in digital libraries such as usability and usage, but the hardest measure is impact. What is the impact of a DL? Members of the EIESC have engaged in pilots and feasibility studies using bricolage (a blend of qualitative and quantitative approaches to evaluation), and these activities are moving NSDL toward a richer understanding of impact.

Categories and Subject Descriptors
H.3.7 [Information Storage and Retrieval]: Digital Libraries – collection, dissemination, user issues

General Terms: Measurement, Human Factors, Standardization

Keywords
Community-based Digital Libraries, Distributed Evaluation, Educational Digital Libraries

INTRODUCTION
Impact, like access, is a library value (information and knowledge bestow power and change behaviors) and impact factors have a rich intellectual tradition from bibliometric or informetric studies. Digital library impact often includes both research impact as well as educational impact. Traditional measures of research impact are citation counts for the article, citation counts for the researcher, and co-citation or co-text maps; we draw citation images and other networks to reveal invisible colleges, research fronts, and influences in a discipline. Traditional measures of educational impact include student scores on standardized tests and increased learning outcomes. They can also include web usage measures as well as case studies and stories of improved cognitive thinking, increased scientific reasoning behaviors, greater motivation and the development of similar habits of mind. We describe a few of our activities that strive to build and generate these impact factors.

Project Impact
Two questions raised by EIESC members indicate possible new directions to blend quantitative and qualitative measures of impact and develop new ones such as “cognitive relevance” and “conative impact”: 1) Should EIESC questions be reframed given changes in NSDL and 2) What are the performance measures for NSDL? [4]

The EIESC Impact Taskforce is experimenting in two areas: 1) Building a Digital Library Evaluation clearinghouse. We are using DLIST [3] as a pilot to build an evaluation materials repository. It supports self-archiving of published research as well as evaluation data sets and instruments. 2) Conducting an aggregated and integrated evaluation pilot with NSDL as a test bed for digital library learning research [2]. A pilot using vocabularies for automatic grade classification is using the San Diego Supercomputer Center’s expertise [4]. The EIESC’s evaluation expertise with NSDL users will help identify newer and more meaningful measures of learning behaviors that intersect digital library uses.

Web Analytics
An NSDL community workshop outlined a web analytics strategy for NSDL by illuminating several issues including goals, library queries, business requirements, and the details of a pilot study [6]. Seven NSDL sites have undertaken a pilot study of web analytics, Core Integration (NSDL.org), CSEER (shodor.org/refdesk/), DLESE (dlese.org), ENC (encdl.org), NSDL Archive Service, SERC (serc.carleton.edu), and Teachers Domain (teachersdomain.org), building on earlier EIESC work [5]. Specific metrics of interest to the NSDL community include user paths, multiple simultaneous visits from a single location, and repeat visits. NSDL hopes to use such web analytics measures in conjunction with user profiles, use cases, and in-classroom studies to aid in studying impact.

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References