



# Structured Information in the Digital Library – An Empirical Study

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## Abstract

This paper attempts to the library has properly configured its hotspot for public use (by isolating it from the library's business network), there is no increased risk posed by one accessing the network from the parking lot. Wireless networks intended for library staff use should resemble a network utilized inside a corporate network. The concern focuses on ensuring the data traffic is protected, that traffic isn't intercepted and viewed by an unfriendly third party. Although libraries usually don't deal in top-secret information, some information handled by libraries is somewhat sensitive. Library budget data, personnel information, and patron data should be protected. Even the information from the library's automation system can be too sensitive to expose on an unprotected WLAN. Circulation transactions may include such details as patron names, addresses, phone numbers, materials checked out, or even social security or credit card numbers. The structured information in the digital library is called digital object which includes text, audio, video, image, computer programmes, graphics, and multimedia components in digital form. Almost all libraries now provide Internet access. Most use stationary, specially configured computers—set up with restrictions to prevent tampering and ensure security—to provide access to library resources and the Internet. A recent study conducted by the Information Use Management and Policy Institute at Florida State University included three findings (listed in the Executive Summary of the study) that describe how US public libraries provide Internet access: ■ 99.6% of all public library outlets are connected to the Internet (in 2004). Of those libraries connected to the Internet, 98.9% offer public access computing for their patrons. ■ Nearly 18% of public libraries already have wireless Internet access, and 21% plan wireless access within the next year. ■ Struggling to meet public demand—Public libraries have as many workstations as they can afford or their building spaces will allow, yet more than 85% of libraries report not being able to meet demand for computers consistently or at certain times of the day. From these findings, it's evident that a large portion of public libraries (about forty percent) will offer wireless access to their patrons. This means roughly sixty percent still do not yet have specific plans to do so. Most libraries lack the space or resources to provide enough computers for public use. Since wireless LANs don't require additional space and can be installed relatively inexpensively, they can be considered as an important component for libraries' strategies in meeting their patron's Internet access needs. Wireless access to the Internet is becoming a service with ever-increasing demand. Business travelers, students, and the general public expect and appreciate being able to connect to the Internet through public

wireless hotspots. Some municipalities have deployed or are planning wireless networks. This remains somewhat controversial, given the potential competition with commercial offerings.

*Key words: National Network □ Effective Force □ Library Network □ Development And Evolution*

## Introduction

The privacy policies that most libraries follow require that such information be restricted to library use. To be consistent with such a policy, unencrypted transmission on a wireless LAN is not appropriate. Staff use of a wireless network can be accommodated in at least two ways. One way would involve setting up a different wireless LAN separate from public-use hotspots. The staff-use wireless LAN would at least have WEP-enabled but preferably WPA or WPA2. It would reside on the inside of the library's firewall, associated with an Ethernet switch port on the staff side of the network. The access points on the staff-use wireless LAN could have MAC address filtering enabled as an additional protection layer to limit access to authorized computers and PDAs. The other wireless LAN option (for a WLAN utilized by library staff only) would involve the use of a VPN. In a small library, it might not be practical to have one set of access points for use by staff and another set for the public. In these cases, the library would set up a wireless LAN configured appropriately for public use—well isolated from the staff network. Library staff could make use of this network for library business through the use of a VPN. The VPN would provide adequate security for library business transactions regardless of the security options present on the wireless network.

## Objective:

This paper intends to explore and analyze **Hub Library Networks** ; established with the main purpose of sharing resources so that unnecessary wastage of limited finance with them can be avoided. However, not all networks conform to the essential functions of library networks

## Wireless Policy Development

Given that there are technical solutions to a very broad range of options for implementing a wireless network, the shape of a library's wireless network service can be formed through an administrative process; it need not be dictated by technical or security requirements. If the library administrators, for example, elect to offer a convenient, user-friendly open wireless network, the library's technical staff should be able to design and implement such a service without compromising the security of the library's overall network. If, on the other hand, library management chooses an authenticated and encrypted network, technical solutions are readily available. Technical staff should be consulted regarding the costs and resources involved to implement and support each option under consideration. Wireless Networking Services Most libraries will develop a wireless network Web page that describes the service, presents any policies and restrictions that apply, and usually provides a list of frequently asked questions (FAQ). A representative sample of libraries' wireless network information Web pages (and the URLs)

## The Value Proposition

A successful educational digital library is as much a social process as a technical problem. It requires creation of a culture that fosters contribution to and use of the library (5, 8, 9, 11). We have addressed creation of this culture by working with NSF-funded projects focused on the professional development of geoscience faculty as teachers. Each of these projects partnered with SERC to create its project website. They seek two primary services in this partnership: 1) tools, resources and experts that assist them in creating high quality project websites and 2) placement of their resources in a network that enhances dissemination and use of their work. We created a win-win situation that yields rapid production of content for the library and facilitates use, by allowing our partners the flexibility to meet their own project goals while contributing to the overarching digital library.

While the contributing projects all have different goals and strategies, they share a focus on creating resources that improve geoscience education and bringing them into widespread use by faculty and teachers. Two strategies have been particularly effective in creating content for the library. First, the projects, which bring substantial professional expertise, contribute resources central to their work in geoscience education and professional development to the library. For example, the *On the Cutting Edge* project (19) used the content of a set of very popular workshop notebooks refined over five years of program development to create library contributions on preparing for an academic career, managing your early career, and designing effective courses. These resources are now in widespread use within their workshop series, bringing users to the library as an integral part of their professional development.

Second, a major goal of many of our partnering projects is to draw on the expertise distributed throughout the geoscience community and convert it to forms that are shareable through the digital library. Geoscience faculty rely heavily on informal sharing of information between colleagues to inform their teaching (20). Using workshops, editorships, professional society sessions and collaborations, our partners have engaged more than 400 scientists and educators in writing materials for their project websites. This work is inculcating the use of the web as a vehicle for more widespread sharing among colleagues. By aggregating and integrating these contributions, the library provides a robust source of community expertise, and these contributors become agents for promoting use of the library by their colleagues.

Our work with partnering projects has resulted in robust collections of resources that are rich in the contextual information now recognized as central to the value of educational DLs (10, 11, 20). Developed as tools for professional development aimed at addressing specific issues in geoscience education, our partners have developed a wide variety of mechanisms for linking resources with the context required for their effective use including: tutorials that embed resource references (21, 22), topical collections of resources for specific geoscience courses (23), and modules that link information on pedagogic methods to teaching activities that use these methods

A primary goal of the library is to foster synergistic relationships between contributors. Just as authors of new books and journal articles learn from and reference the work of their predecessors, the library includes a number of tools to promote the ability of new contributions to capitalize on previous ones. These tools help contributors produce quality scholarly materials for their projects and at the same time promote connections between resources in the library in ways that add value for users.

- Contributors have access to a full collection of metadata records describing websites and print references that have been contributed by previous projects (including the full Digital Library for Earth System Education catalog). These records can be selected and organized using either of two tools: a resource list tool and a faceted search tool (26). Faceted search is driven by a set of overarching vocabularies as well as customized vocabularies that can be created by individual projects to address specific needs of highly targeted user communities (37, 26). This strategy has been used effectively to create collections addressing Geology and Human Health, and Geoscience and Public Policy (23, 38).
- The catalog record for each resource displays the location of references to it across the library (26). Thus a user who finds a resource in one context can quickly move to the other contexts within the library where this resource is referenced (39). Similarly, a contributor can understand the previous use of the reference and the implications of that work on the project at hand.
- Contributors can incorporate modules of material created by other projects directly in their project. The information in the module is 'wrapped' with the look and feel of their website and then embedded within that site with conventional links. The service integrates provenance information into the content, attributing authorship with the original source of the module. Projects are now employing this service to reuse modules describing teaching methods in association with discipline specific content. For example, a module on teaching with the Socratic method was developed by the Starting Point project for geoscience faculty. This module has been reused by the Microbial Life Educational Resources project as a resource for biologists (40). As contributors use these digital library tools to their advantage, they enable the development of a networked inter-project digital library where connections, structure and value are embedded at all scales from individual resources up to the overarching portal.

## Conclusion

This structure has been advantageous in building a value proposition for contributors who gain valued services through their participation in the library and for users who can find the integrated resources of leaders in geoscience education in ways that effectively integrate with their use of commercial search engines. As a result, Teach the Earth is sought out as a partner by new projects for the services it provides, and it is used by a significant fraction of the target community (geoscience faculty). While challenges of scalability will face the library as it matures, it provides an example of the ways in which a digital library can create an intellectual commons that is a central part of the work of an educational community. Resource Sharing and Information Networking both are dependable on each other to fulfill the demand of the institutional users. Resource sharing means the existing resources in a comparing system can be accessed or men remotely accessed across multiple administrative domains. Resource sharing is not a new concept in the fields of libraries. The concept was identified by the term of library co-operation. While the resulting library has features that are typical of a digital library (a metadata repository that supports a centralized portal with search and browse capacity) its unique history led to a focus on authoring tools, tools that support reuse and sharing, and a networked structure that promotes the work of individual projects while integrating them into a larger whole.

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