Open-access Research Clearinghouse

Report

Committee

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Introduction

The basic idea of a clearinghouse is to collect, maintain, and distribute relevant materials to a community. It plays an important role in a research context and is in a position to support a number of research recommendations proposed by the Road Map report (Bednarz, Heffron, & Huynh 2013). In particular, the features of the proposed clearinghouse (Figure 1) promote 1) two-ways interaction between users and organizer, 2) various levels of access to the materials, and 3) expansive content materials varying from education, tools, and new developments. With these elements in place, it is in a strong position to promote collaboration across disciplines, share resources (e.g., exemplary curricula, assessments) and engage with formal and informal educators, central aspects of recommendations 6, 8, and 9.
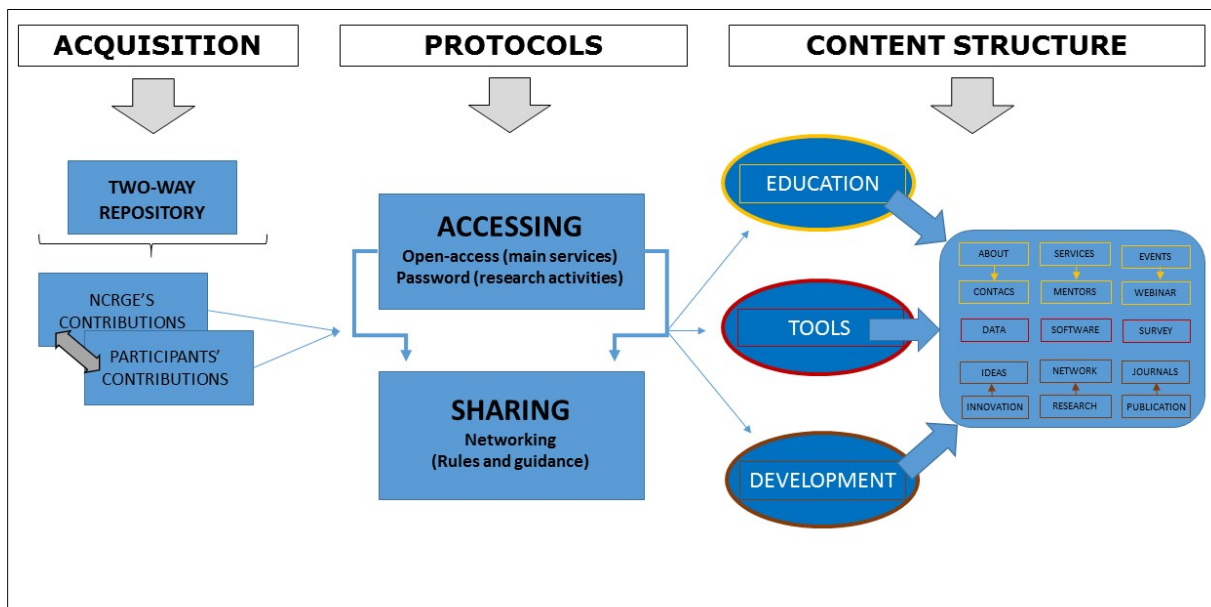

Figure 1. A prospective NCRGE clearinghouse

We surveyed 13 clearinghouses that included disciplines from humanities, sciences to social sciences (Table 1). In the review process, we selected 12 criteria to identify features available: research element, public site, log-in requirement, one way exchange, two-way exchange, contact information, search engine, diversity of material

types, FAG/help section, interactive capability, community building, free to use logo for promotion. The broad themes when aggregated are: 1) user interface, 2) activity level, 3) types of resources available, and 4) connection options. A brief review for each category follows:

User interface: The type of clearinghouse surveyed are for a range of audiences, including researchers, educators, discipline-specific professionals (e.g., transportation), and public consumption. All the websites reviewed have materials that are publicly available. Some websites have a "log-in" area where members (usually free) can access select materials.

Activity level: The level of interaction on a clearinghouse varies. The most common feature is a one-way interaction where users can easily find information or download materials. In a couple of sites, sign-in privilege allows users to upload information (e.g., DOT Transportation and Climate) or create a resource (e.g., Competency Model Clearinghouse). We labelled these as two-way interaction. Most sites include a "Search" engine to narrow resources available.

Types of resources available: The type of resources is wide, with some clearinghouses sharing one type of material (e.g., text) while others include a variety of materials (e.g., video, photos, text).

Connection options: Many sites have contact information for user enquiry and staff contact information for clearinghouses that are being managed. These ways of engagement include connection over social media. Listserv, or to sign-up for updates; in a way is building capacity or a community. A few websites have explicitly stated that users can freely use their logo on their webpage.

A clearinghouse, regardless of topic or audience, includes three key aspects: content, acquisition, and access/sharing. Content encompasses the full universe of materials and resources and can include news items, research reports, downloadable tools, data, surveys, and professional development such as advice or tutorials, recorded webinars, and best practices. The acquisition aspect of a clearinghouse deals with how content is acquired and curated, especially in regards to two-way interaction rather than just simply a static clearinghouse. The access and sharing of components include indexing and search functions, whether part or all of the clearinghouse is open access versus password protected, and metadata and other related contact information for contributors.

Table 1: Elements of select clearinghouse reviewed

Clearinghouse name/organization	Research element	Public Site	Log-in required	One-way exchange	Two-way exchange	Contact info
Geographic Alliance of Iowa		Y	N	Y	N	Y
Competency Model Clearinghouse		Y	N	Y	N	Y
ERIC	Y	Y	N	Y	N	Y
Minnesota Geospatial Commons	Y	Y	N	Y	Y	Y
Google Scholar	Y	Y	N	Y	N	N
Transaction Record Access-TRACS	Y	Y	N	Y	N	Y
The WAC Clearinghouse		Y	N	Y	N	Y
What Works Clearinghouse (IES)	Y	Y	N	Y	N	Y
Natural Hazards Center	Y	Y	N	Y	Y	Y
ECHO	Y	Y	N	Y	Y	Y
EurekAlert!	Y	Y	Y	Y	N	Y
DOT Transportation and Climate	Y	Y	N	Y	Y	Y
Iowa Department of Education Agora	N	Y	Y	N	Y	Y

Clearinghouse name/organization	Search engine	Diversity of materials	FAQ	Interactive capability	Community building	Free to use logo
Geographic Alliance of Iowa	Y	Y	N	N	Y	N
Competency Model Clearinghouse	Y	Y	Y	Y	Y	Y
ERIC	Y	N	Y	N	Y	N
Minnesota Geospatial Commons	Y	Y	Y	N	N	N
Google Scholar	Y	N	N	Y	N	N
Transaction Record Access-TRACS	N	Y	Y	Y	Y	N
The WAC Clearinghouse	Y	N	N	N	N	N
What Works Clearinghouse (IES)	Y	Y	N	N	Y	N
Natural Hazards Center	Y	Y	N	N	Y	N
ECHO	Y	Y	Y	Y	Y	Y
EurekAlert!	Y	Y	Y	Y	Y	Y
DOT Transportation and Climate	Y	Y	N	N	N	Y
Iowa Department of Education Agora	Y	Y	Y	Y	Y	N

Examples of existing research on clearinghouse models include geospatial data dissemination for natural disaster response (Mills, et al. 2008), matching organ donors with recipients (Roth, et al. 2005), and education (Schoenfeld 2006). In each case, the research highlights various aspects of content, acquisition, and access/sharing. Mills, et al. 2008 notes challenges such as public access to restricted data, an issue solved by creating a custom web application for the public so that citizens can still access the larger data set, but not those that have a restricted distribution. Likewise, there are concerns with a clearinghouse based on the contributions of government agencies and

organizations that those who use the data are also contributing, thus avoiding some agencies/organizations bearing the cost of providing the data while others use it for free. Roth et al. 2005 focus more on clearinghouse structure, a highly specialized example of creating a database to match compatible kidney donors. Within the realm of education, (Schoenfeld 2006) explains challenges with making controversial research available in a federal clearinghouse best practices in education, specifically research results that are contrary to the beliefs of the Secretary of Education and similar political appointees. This suggests challenges relating to content, and while politically motivated limitations may be rare, there are differences of opinion about what constitutes viable research: for example, questions about sample sizes, proper use of statistics, replicability, etc.

Acquisition of materials

Acquisition, how content is collected and integrated into the clearinghouse, includes several different aspects and considerations. In a typical clearinghouse, one person or a small group of people serve as curators, deciding which information is uploaded and how it is shared. In our new era of social media, there are expectations that there should not be such "gatekeepers", or that gatekeepers should relinquish some control. In a two-way repository it's critical that users' contributions can be posted or uploaded without delay and without undue scrutiny. Yet, with an academic database, there has to be a balance because the expectation is that there is some sort of curator who has control to maintain quality and monitor decorum.

The Iowa Department of Education AEP PD Online is a Moodle-based platform that provides a potential model for acquisition. Intended for K-12 educators and divided into subject specific portals, this clearinghouse provides an events calendar and then subject specific folders for user contributions. User contributions can include uploaded lessons plans, articles, or other ideas as well as discussion thread and links to external social media for continued discussions. The site has a curator who can add or remove materials so if a user posted material in the wrong folder or area it can be removed, or if a user uploaded something that was not germane to the topic it can be removed. Similarly, the curator can post new content from the Iowa Department of Education or other partner organizations so there is true two-way acquisition. Following Figure 1,

acquisition should be a two-way process with lead researchers or directors of the NCRGE providing content, while simultaneously users generate content.

Clearinghouse protocols

The process of accessing and sharing content on a database hinges largely on the degree of open access permitted in the site. Clearly, there are pros and cons to each as well as published, copyrighted materials is handled such as whether it is permissible to publish abstracts on a clearinghouse. Passwords protection constrains users to known individuals and likely limits the posting of spams, commercial advertisements, or other submissions that are not germane to the topic. Conversely, however, it can discourage the use of a clearinghouse as all can related to username/password fatigue. Other components of access sharing include the ability to collaborate. Such as multiple users contributing to a database as well as contact information and metadata that outlines the origin, collection methods, and correct use of data and whom to contact for further information. Metadata is the central idea in the sharing and distribution of spatial data, and best practices could be adopted from that area of geography.

Among those clearinghouses reviewed for this report, the [Minnesota Geospatial Commons](#) represents a potential template for access and sharing. The site serves as a clearinghouse for Minnesota GIS data, and within the site is a list of organization logos that indicates which organization has contributed and what specific content they added. Example organizations include the county GIS entities, the University of Minnesota, and state agencies. The site includes guidelines for becoming a "publisher", thus having access to contribute data to the clearinghouse. Yet, this type of access limits the two-way collaboration to official entities, appropriate for GIS data but likely too constraining for nascent research or generating ideas. The site is open access and anyone can download data, files, or publications. These elements are captured in Figure 1, suggesting password protected access for research activities and open access for other content such as news and tools. Sharing is guided by established rules and protocol, with some degree of oversight to ensure compliance.

Clearinghouse content

In a traditional clearinghouse, content consisted of one or two types of content. For example, although robust and comprehensive, the ERIC clearinghouse for education research almost exclusively disseminates published research. Similarly, many geospatial data clearinghouses make available spatial data and imagery. A more contemporary clearinghouse includes a variety of content: published and unpublished research, new items; downloadable resources such as tools like scripts or open-access software, data tables, and surveys; and professional development that could include video demonstrations tutorials or recorded webinars. In addition, a new clearinghouse model would have some elements of social media, but with a constrained focus on the academic topic. Examples would include a dynamic space for question and answer and avenues for generating multi-way dialog about topics and ideas.

Among the clearinghouses that were reviewed for this report, the Natural Hazards Center at the University of Colorado is the best example of a clearinghouse that supports a wide variety of content. In terms of research, the site includes access to HazLit, a searchable database for hazards literature. A news and announcement section includes a monthly compilation of disaster related news as well as announcements for job postings and recently published books. A resources section lists education and training, recently awarded grants, and links to other related centers. Despite the range of content, there is no section for downloading tools or data nor is there a two-way repository except that a curator or curators decides which material and resources to add. An additional clearinghouse model could be EurekAlert!, a science news aggregator/clearinghouse that provides short synopsis of published research as well as educator resources, book reviews, and multimedia. EurekAlet! appears more oriented towards media, interested public, and K-12 educators than designed for research collaboration or the dissemination of data and tools.

Figure 1 outlines how content could be arranged in a prospective NCRGE clearinghouse. Consisting of three level--education, tools, and development--this model provides an integrated structure. The educational component includes metadata and contact information as well as links to mentors and professional development such as webinars. The tools element encompasses data, assessment instruments such as

surveys, exemplars, and open-access software or scripts. Development is the capacity building aspect of the content where there is dynamic two-way or multi-way interaction on research projects and generating ideas. The traditional published research dissemination component of a clearinghouse could also be contained within the development structure.

Recommendations

The recommendations for an NCRGE clearinghouse are best reflected in Figure 1. In particular, the committee highlights features to include: 1) user ability to submit or upload both NCRGE content and their generated content, 2) include a wide range of content, 3) ensure there is some curation to maintain quality and ensure professional decorum, 4) provide various access levels with password protected and open access components, and 5) provide a wide accessibility including a robust search engine.

Yet there are still several questions that remain and should be addressed by the larger NCRGE Committee:

- What is the budget for creating a clearinghouse?
- Since the clearinghouse represents an initial NCRGE goal should the design be simple for the initial launch with the goal of additional funding for a more powerful clearinghouse?
- Apparently some clearinghouses, even those funded by NSF money, have "withered on the vine", likely because there was initial funding for creation and short term maintenance but not for long term sustainability. How do we ensure continued funding and support for a clearinghouse?
- Who will serve as curator and how much power will the curator have to decide which content is of high quality and which discussions follow accepted norms?
- Is the clearinghouse more of a "social media" model where there are loose controls on contributions or more of a traditional clearinghouse with some process for establishing pre-approved contributors?
- What is the balance between password protected and open access? Should it be a combination of the two, one, or the other?

References

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