

Innovative Services Improvised During Disasters: Evidence-Based Education Modules to Prepare Students and Practitioners for Shifts in Community Information Needs

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This paper reports on preliminary findings from the research phase and progress-to-date on the educational module-building phase of a three-year project, "Investigating Library and Information Services During Community-Based Disasters: Preparing Information Professionals to Plan for the Worst" supported by a National Leadership Grant from the Institute for Museum and Library Services (IMLS). The goal of the research project is to provide current and future information professionals with appropriate education and enhanced guidance in planning for and delivering information services to a wide range of users in response to natural or accidental community-based disasters. Using an evidence-based approach for developing the educational modules will allow the researchers to leverage the results of their study to inform future practice and will address the real-world needs of current and future information professionals who are all too likely to face some sort of disaster, whether natural or man-made, during the course of their careers.

Keywords: disaster planning and response, evidence-based education, case studies, information services, library education, emergency preparedness training

Background

When disaster strikes, the information needs of the affected community change dramatically. Residents may suddenly require information about current evacuation efforts, displaced populations may want information about their families and homes, or emergency relief personnel may be looking for information about resources available within the local area. Providing these types of information services is not part of a librarian's customary repertoire. While there are best practices, standards, guidelines, and research in the library literature about

services as diverse as bibliotherapy and term-paper counseling (Bunge & Bopp, 2001, pp. 12–13), there are few if any best practices, standards, guidelines, or even research about providing library and information services in times of community-wide disasters. Because the focus of disaster planning in libraries has often been turned inwards toward the institution rather than outwards towards the community, the typical guidance material for libraries emphasizes how to protect the staff, collections, and physical plant during a disaster as well as how to maintain continuity of services or return to normal services as soon as possible af-

ter the disaster has passed. It does not address the unique services that information professionals could provide during and immediately after community-wide disasters or the benefits to be gained through the opportunistic improvisation of services to meet changes in users' information needs.

Based on a census of current ALA-accredited LIS programs conducted by the authors as part of their current research, it appears that 31 out of 52 programs offer no course or course module specifically focused on disaster planning and response. The remaining 21 programs address the topic at some level, typically in conservation, preservation, or collection management courses. However, the types of disasters envisioned in the scenarios discussed in these courses have typically been of a localized rather than a community-wide nature, and the planning has focused largely on the preservation of physical plant, collections, and staff rather than on the provision of services. The wide-spread disaster faced by information professionals in the Gulf Coast area after the 2005 hurricanes posed enormous challenges in terms of the provision of new and modified information services, and data gathered shortly after the hurricanes demonstrated that the post-Katrina/Rita responsibilities of information professionals went far beyond collection protection to include activities such as helping evacuees fill out FEMA forms and providing critical information to first responders (McKnight, 2006). The lessons learned from these hurricanes and other community-wide disasters around the country need to be included in LIS school curriculum modules to increase the field's understanding of how information professionals can respond and how library and information center resources can be made available more effectively during times of crisis.

In response to this perceived need, the researchers received a National Leadership Grant from the Institute for Museum

and Library Services (IMLS) to support a research project, "Investigating Library and Information Services During Community-Based Disasters: Preparing Information Professionals to Plan for the Worst." Now in its third and final year, the project involves two interrelated tasks: the first is to identify and document how information professionals have responded during and after natural or accidental community-wide disasters, and the second is to use these data to develop appropriate educational modules and enhanced guidance in planning for and delivering information services to a wide range of users. By applying an evidence-based approach for developing the educational modules, the researchers will be able to leverage the results of the research task to inform future practice and will address the real-world needs of current and future information professionals who are all too likely to face some sort of disaster, whether natural or man-made, during the course of their careers. This paper describes preliminary findings and the progress-to-date on the educational module-building activities. The full results of the research will be reported in detail after the completion of the project.

Research

Data Collection and Analysis

The first task of the project was to find evidence of how individual information professionals in a variety of different types of libraries (academic, public, special, etc.) responded to a variety of different natural and accidental disasters and whether they designed and provided new information services under these unanticipated crisis situations. The research design was based on lessons learned in preliminary studies of information services improvised immediately after hurricanes Katrina and Rita. In October 2005, data collected from 269 information professionals in the states of Louisi-

ana and Mississippi showed that almost thirty percent had added new information services as a direct result of the hurricanes. However, fewer than fifteen percent had had a disaster plan in place prior to the hurricanes that addressed the issue of responding to the altered information needs of their user groups during a time of crisis (Zach, 2005).

To identify an initial pool of information professionals who had had first-hand experiences with natural or accidental disaster situations, the researchers developed an on-line survey using SurveyMonkey.com. The survey was designed to collect data related to the nature and duration of the disaster experienced, the extent of the impact of the disaster on the library or information center itself, and the types of new information services, if any, that were implemented in response to the disaster. The link for the survey was sent by email to all the state library associations and major professional associations (e.g., ARMA International, Medical Library Association, Society of American Archivists, etc.) in Fall 2006. The researchers collected a total of 163 responses from information professionals who had had some experience with a disaster situation. Of those responses, 70 contained enough data from which to create a complete respondent profile. Most had carried out collection and staff protection procedures and returned to normal services. Many had performed commendable volunteer services. A minority had improvised new services for the suddenly changed information needs of their client community. The profiles were organized into four categories: excellent candidates for follow-up interviews (8); good candidates for follow-up interviews (12); poor candidates (20); and anonymous or "do not contact" profiles (30), based on the amount of information provided in the response regarding their level of experience in the development of new information services during or after the disaster.

In addition to identifying possible can-

didates for follow-up interviews from the respondents to the online survey, the researchers also conducted a review of the literature and used personal contacts to identify 45 other information professionals who have been described as having responded to community-wide disasters in various ways. These information professionals were used to fill in the cells of the interview matrix to ensure a sample that contained input from different types of libraries and information centers in different parts of the country. Eventually, twenty information professionals who satisfied the requirements of the sample in terms of experience in the development of new information services, type of disaster, type of library, and geographic location were identified for follow-up interviews.

Data collection followed the multiple-case studies method outlined by Yin (1994) and used by the researchers in earlier studies (Zach, 2006). The multiple-case studies method calls for a literal replication phase, in which cases are chosen to be as similar as possible to produce a baseline of responses and concepts for analysis, and a theoretical replication phase, in which cases are selected specifically to fill in missing data and confirm or disprove preliminary findings.

The interviews were conducted using a semi-structured interview protocol that was pre-tested with three pilot interviews in June 2007 (see Appendix A). These interviews were analyzed for preliminary concepts that were used to revise the interview protocol slightly and to guide the remaining data collection. This approach to iterative data collection and analysis is consistent with the multiple-case studies method used in the project. An additional six interviews were conducted in Summer 2007 as part of the literal replication phase of the data collection process. Each interview lasted approximately two hours as participants expanded on their experiences during and after the disasters. As part of the data collection pro-

cess, participants also provided documentary evidence of their new or improvised services. Transcripts of the interviews were made for data analysis. These transcripts were sent to the participants so that the accuracy of the data collected could be confirmed. Based on the data collected during the literal replication phase, the researchers began to develop some rough thematic concepts, which will be coded in further detail using the software package NVIVO.

Data collection for the theoretical replication phase of the project has continued opportunistically during academic year 2008/09 based on the scheduling availability of interview participants. At this point in the data collection process, the researchers are seeking confirming or disconfirming evidence to support the concepts they identified during the first series of interviews. If all or most of the cases provide similar results, there will be substantial support for the development of a set of conclusions about the types of responses provided by information professionals during and after natural or accidental disasters. In the multiple-case studies method, there are no hard-and-fast rules about how many participants or informants should be included in a sample—Yin suggests that six to ten cases, if the results turn out as predicted, are sufficient to “provide compelling support for the initial set of propositions” (Yin, 1994, p. 46). While a target number of twenty interviews was set initially, it was proposed that data collection would end sooner if the results of the *theoretical replication* phase demonstrated that no new information was being obtained. Analysis of the new interview data leads the researchers to believe that they are close to reaching saturation on information about responses to disaster situations.

Preliminary Findings

Based on the interviews conducted

during the literal replication phase of the project, the researchers found little evidence of new information services being provided in the aftermath of community-wide disasters. Frequently, the information professionals interviewed had been too overwhelmed by the situation they encountered to do more than turn off the lights and lock the doors:

. . . what we did was we secured the buildings, closed the buildings as best we could and . . . and, you know, absent any other instructions, we send everybody home. Of course, there was no telephone communication. . . . that’s, basically, all the branch managers did. They secured, acting independently, they secured their branch buildings and sent people home. . . .

Other information professionals described their volunteer activities in the community, which focused primarily on meeting people’s immediate needs for shelter, food, and clothing rather than focusing on any potential role that they might have played based on their unique skills as information providers such as accessing relevant data bases or locating critical information. As one participant explained:

It’s just incredible. We also directed people to the food pantry. We even [chuckles] we even helped to, in conjunction with a church, set up a laundry service. . . . It’s totally out character for a library to do any of this.

What did emerge from the data is that current disaster planning and training provide very little in the way of preparation for a real crisis. Only four of the librarians interviewed during the literal replication phase described having disaster response plans in place; one of these was part of a larger system that developed plans for all its units. Even librarians with disaster response plans in place reported feeling unprepared for the situation they faced:

You know, we have a disaster plan in place. Okay. And we had this in place after 9-11. Okay. We would probably, you probably need to go over it at least once a year, even though you think “Oh, I’m bored with doing this with my staff, and we do this every year” I think you need to go over it once a year with your staff. Because when disasters happen, such as 9-11, you know, Oklahoma City bombing . . . you’re not ready for it.

While the exact nature of possible responses in a disaster cannot be determined in advance, evidence collected from the interviews indicates that improvisation was more successful in meeting users’ needs than trying to replicate pre-disaster services. As one participant described, “We met every morning, I would tell you, for the next weeks, . . . right next to the circulation desk. Every morning we met and said “What works? And what didn’t work? and it changed *every* day.”

Based on the data collected during the literal replication phase, the researchers have reached a preliminary conclusion that information professionals need to be better prepared to respond nimbly to a wide variety of situations that could occur during and immediately after a community-wide disaster. Although these data will be augmented by confirming or disconfirming evidence obtained during the current theoretical replication phase, the researchers feel that there is significant support for the development of a set of conclusions about the types of responses provided by information professionals during and after natural or accidental disasters. It appears that, while information professionals strive to provide timely and relevant services in an appropriate format to meet the needs of their users, they often do not leverage their unique skills because they have not had appropriate preparation for what to do in case of a disaster beyond that focused on preserving the institution itself.

The full results of the research, including data from the theoretical replication phase of the interviews, will be reported in detail after the completion of the project. The second task of the project, to develop appropriate educational modules and enhanced guidance in planning for and delivering information services to a wide range of users, is being carried out concurrently with the theoretical replication phase. The following section describes the conceptual framework in which they are being designed and the progress-to-date on the educational module-building activities.

Evidence-Based Education Modules

Conceptual Framework

All evidence-based activities rely on the best information from the research and literature available on a specific topic. Evidence-based techniques in education have been applied in a wide variety of fields in which research can inform practice. The use of research evidence to support learning and decision making has been studied in fields such as health care, management, social work, and teaching (Flores-Mateo & Argimon, 2007; Howard, McMillen, & Pollio, 2003; Rousseau & McCarthy, 2007; Shuval et al., 2007; Williams & Coles, 2007), and improvements in skills and knowledge have been demonstrated. An evidence-based approach offers an alternative to passive learning and can be a more appropriate preparation for real-world situations in which decisions must be made. It teaches students to “locate, critically evaluate, and apply scientific evidence consistent with their professional judgment as to its validity and pertinence to the practical situation of concern” (Howard et al., 2003, p. 238). The approach reinforces the relationship between research and practice and promotes closer ties among researchers, educators, and practitioners.

The approach of providing real-world problem-solving situations in educational modules is based on strategies for adult learning developed by educators in the 1990s. Research evidence in this area shows that adults learn best when experience forms the basis for learning activities (Knowles, 1990) and when learning is situated in a real-world environment (Lave & Wenger, 1991). These strategies have been used successfully to design realistic, problem-centered simulations for training medical personnel to prepare for disaster situations or for war (Carnevale, 2007; Feletti, 1995; Summerhill et al., 2008). While such full-scale simulations are impractical in LIS education, role playing based on case studies has been used in management education (Herremans & Murch, 2003), and tabletop exercises, in which participants are given roles to play in a pre-defined scenario, have been used to train public health professionals and school staff members to prepare for possible disaster situations (Brunner & Lewis, 2006; Dausey, Aledort, & Lurie, 2006; Dausey, Buehler, & Lurie, 2007; Dorn, 2007). These approaches will be adapted for use in the education modules developed for this project.

Module Design and Development

In the area of information service provision during and after community-wide disasters, no body of evidence similar to that typically used in evidence-based practice currently exists. For example, evidence-based practice in health care looks at sources such as “data from the medical record, quality improvement and risk management work, and findings from infection control, cost-analysis, and benchmarking projects” (Schulman, 2008, p. 302). Evidence for the education modules that are being developed comes directly from the interview data collected in the earlier phase of the research project as well as from other recent studies that

have been conducted on library responses after disasters (Block & Kim, 2006; Dawson & McCook, 2006; Dempsey, 2005; Featherstone, Lyon, & Ruffin, 2008; Fletcher, 2006; Schlotzhauer, 2006). These and other similar descriptions of library responses during and after various types of disasters provide the real-world examples that support the case study materials being developed.

Each case study will include a general description of a particular type of community-wide disaster, the responses that were or could have been made by the information professional(s) involved, and a guide for discussing the issues involved in the situation. The material will exemplify the best practices identified during the data collection and analysis phases and will allow the researchers to use the results of their study to inform future practice. Based on the research evidence collected to date, four learning objectives have been identified to guide the education modules. Upon the successful completion of the module, the student will be able to:

- Creatively respond to changed information needs in the user community
- Design new information services on short notice
- Evaluate and adapt new information services in response to feedback
- Apply unique information skills to support user needs in a compressed time frame

The primary message to be conveyed by the education module is that information professionals have unique skills that can provide critical support to a community during a time of crisis. These skills should be leveraged to meet the changing needs of users during and after a community-wide disaster. The specific content of the modules will help information professionals understand how they can think creatively about information needs and

information services even when there is no time to engage in the textbook approach of designing, testing, and implementing new services. Information professionals who have responded most successfully to the changing needs of their users have agreed that the ability and willingness to improvise is essential in meeting changing information needs.

The education modules are being designed as stand-alone web-based units so they can be incorporated in existing LIS curricula or used by practitioners as part of their continuing education experience. Currently, two pilot modules are being designed for testing in Spring and Summer 2009. The first module will be designed for LIS students and will be tested as a session in a course on information services taught at LSU and in a course on public library services taught at Drexel. The second module is designed for practitioners and will be tested as one of a professional association's options for continuing education credit. Each module will include assigned readings, two or three case study scenarios, and either group or individual exercises in innovative information services design and implementation. In the module for LIS students, the case studies will be taken from a range of library settings; for the practitioners, the case studies will be drawn from their own type of library setting. The primary difference between the two pilot modules will be that the module for LIS students will involve group exercises, while the one for practitioners will focus on individual exercises. Feedback material will be developed as part of the module design process; for the LIS module, feedback will generally be provided by an instructor, but for the practitioner module, feedback will come in the form of structured responses to the exercises. Tools to evaluate the effectiveness of the modules will also be developed and tested during Spring 2009. Evaluation of the evidence-based modules is planned for Summer 2009, and results will be re-

ported in detail after the completion of the project.

Conclusion

Information professionals everywhere strive to provide timely and relevant services in an appropriate format to meet the needs of their users. However, because the focus of disaster planning has been turned inwards toward the institution rather than outwards toward the community, information professionals have often missed the opportunity to provide essential support to a wide range of users in response to natural or accidental community-wide disasters. Like health care professionals who understand that they have skills that are useful during and after a disaster, information professionals could provide specialized assistance to a wide range of users—both those responding to the disaster and those who have been directly affected by it.

Evidence-based education provides an alternative to passive learning and can be a more appropriate preparation for real-world situations in which decisions need to be made. While this approach is not commonly used in LIS programs, it has gained considerable recognition in fields such as health care, management, social work, and teaching, where students need to learn the types of problem-solving skills that they will require on the job.

Providing evidence-based education modules is an effective way to address a gap in the current preparation of many information professionals to provide effective information services during and immediately after community-wide disasters. While there are numerous examples of heroic efforts on the part of individual information professionals to respond to changed information needs, many information professionals have focused on "returning to normal" as quickly as possible rather than on the challenge of improvising new services

for users with changed information needs. While this is a natural reaction in a time of crisis, it may be some time before such a return to normal is possible. In the meantime, information professionals have the ability to provide specialized assistance to a wide range of users—those who have been directly affected by the disaster and those responding to it. The evidence-based education modules will assist information professionals in developing strategies for responding to the changed information needs of their users by providing examples of best practices identified as the result of research. The modules will address the real-world needs of current and future information professionals who are all too likely to face some sort of disaster, whether natural or man-made, during the course of their careers.

Appendix A: Protocol for telephone interviews

Before the interview starts, complete the following housekeeping tasks: confirm that the interview is being recorded, read the consent form, agree to the consent form, and tell participant that he/she will have an opportunity to review the transcript of the interview.

Introductions—repeat a brief description of the project and its goals—describe how the information we are collecting will be used to develop guidance material for other librarians. Ask the interviewee to describe his/her library (type of library, the size of the staff, and the kind of user community).

The following questions are to be used as guidance—the interviewee should be allowed to tell his/her story with minimal interruptions.

1. When and where was the disaster?
2. What happened to the community?

Interviewees seem to need to tell their disaster stories in detail. It's better to let

them begin with this because they will come back to it over and over during the interview . . . and it is easier to get the interview back to library services if they've already discussed the basics.

3. What happened to the library itself?
4. When and how did you (or your library) first respond to the disaster?

Don't ask for the entire timeline at the beginning . . . they will remember much more as the discussion continues . . . keep timeline notes during the interview

The conversation is likely to cycle through these next three questions several times . . . because more will come out as the conversation continues

- 5A. What kind of improvised information services did you provide? [some examples follow]
 - a. Extended hours
 - b. New outreach/satellite locations
 - c. New website with links to disaster relief information
 - d. Additional reference/referral services for displaced/evacuated users
 - e. Special services for displaced/evacuated children
 - f. Other (please describe)
 - 5B. How did you decide that it was needed? [some examples follow]
 - a. Personal observation
 - b. Requests from users
 - c. Discussions with internal/branch staff
 - d. Discussions with library board/advisory committee
 - e. Discussions with other information professionals (outside of organization)
 - f. Other (please describe)
 - 5C. What was the response of users?
6. Prompt the interviewee to differentiate between general emergency volunteer activities and things that required the professional expertise of a librarian . . . what did the librarian(s) do that no one else could have done?

7. In retrospect, what do they wish they had done differently?
8. Ask for documentary records. These might include board minutes, press releases, news reports, published articles, photographs, video recordings, flyers, handouts, etc.
9. Ask if there is anybody else we should talk to who could tell us more about what the library did during or after the disaster.
10. Encourage follow-up emails if the interviewee remembers something else that he/she wants to tell or has additional questions about the study. Give the interviewee an idea of how soon he/she can expect to receive a copy of the transcript.

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