

Teams, Video Games, Consolidation & More

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Teams, Video Games, Consolidation & More

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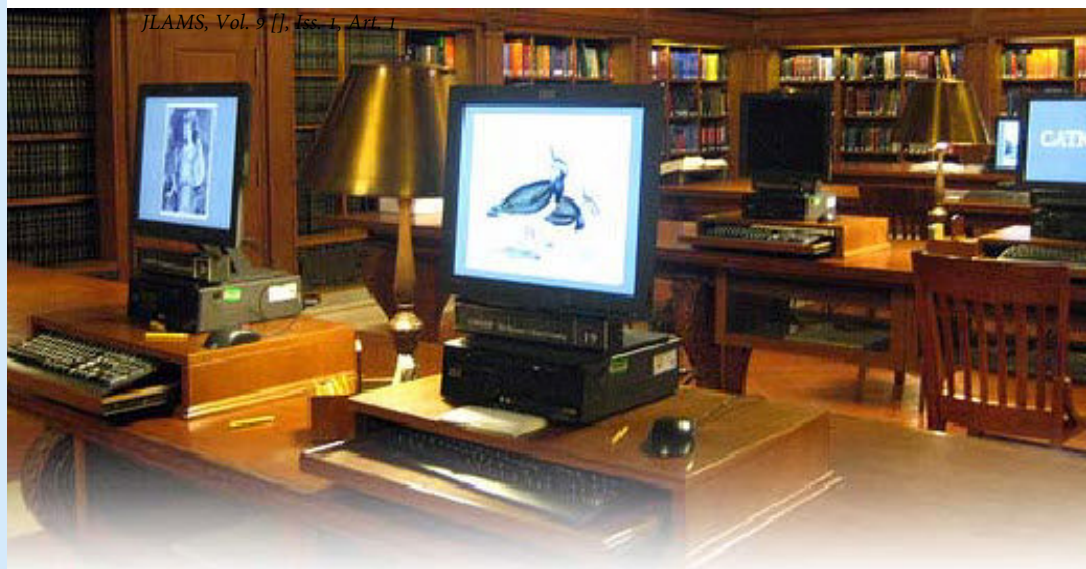
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President's and Editor's Message



Claudia Depkin
LAMS President



Richard J. Naylor,
JLAMS Editor

JLAMS, the electronic Journal of the Leadership and Management Section of the New York Library Association, begins its ninth year, and we are privileged to introduce the Fall 2012-13 JLAMS.

JLAMS provides a valuable outlet for the dissemination of ideas, articles, academic papers, and essays of interest to library leaders at all levels and of all types of libraries: academic, public, school and special libraries. As library leaders, we have a lot in common, but we have few places to share what we know and what we learn. JLAMS was the first peer-reviewed journal in NYLA, and the original editorial board set a high standard for the publication and we are proud to maintain that standard. Readers of JLAMS are well-served by our team of referees, as are those whose contributions are published here. For the high quality and value of JLAMS to be continued your submissions are vitally important. For information on article submissions, editorial policy, a submission form and more, visit the JLAMS website page at <http://www.nyla.org/displaycommon.cfm?an=1&subarticlenbr=318>

Over the years that we have been publishing JLAMS we have enjoyed working with and learning from many interesting colleagues. This month we have five articles. Our lead article provides an example of the Team process in action solving a potentially disruptive situation. The second article provides rationale for using video games for teens and advice in how to do it within the library mission. The third follows up on the timely theme of Library system consolidation. The fourth gives some how to advice for webinars. And, the fifth describes studies showing that students prefer full powered data bases when that is what it takes to get the best results.

JLAMS is made possible by your membership in NYLA and in LAMS. LAMS receives funding based upon the number of NYLA members who select LAMS as their primary NYLA section, as well as by those who pay an additional \$7.00 to add LAMS as a secondary section. Please keep this in mind when renewing your NYLA membership. Also please take the time to encourage all of your colleagues and contacts in the profession to consider joining NYLA and LAMS. And thanks for your support!

Peer Reviewed Article

TEAM BUILDING AND TEAM EVALUATION: A CASE STUDY

By Charles E. McMorran

Abstract: The Director of Technical Services at a large urban library describes a process of Team Building that came about somewhat organically through the challenge of the constructing of a major new branch and spending over five million dollars to create an opening day collection in less than a year. The author describes the process and the learning that took place in relation to Team Building.

The entire process invited by necessity using existing resources the exploration of how to do things differently and improve upon processes. The challenge was compounded in that the branch was to serve as an international research center with collections in multiple languages.

The existing Technical Services processing area, with limited working and storage space, was housed within the Central Library with no hope of expanding. Limited funding was available for staffing and it was expected that no new positions would be created. There was simply no way to add this additional work within the space and staff constraints that were already just barely meeting current demands of production and materials turnaround. What to do?

It was at this point that necessity became the mother of invention and the objective of establishing a temporary processing team with a very clear goal of spending the available materials money and getting a new collection up and on the shelves prior to opening day was undertaken. The project lent itself to a team approach with a well defined goal and a clear objective. Investigation into using a team approach stressed the importance of having a clear goal and involving people of varied skills, knowledge, and abilities.

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Using available tools, a “Situation Analysis and Factors of Production: Key Inputs” was developed and presented to the Administrative Department Heads for review, comment and discussion. This document considered the key elements of Labor, Utilities, Materials and Facilities. The labor study involved skill and staff hours needed. Current Technical Services processes required 6.9 persons per year for every million dollars in materials to be purchased. The team approach was determined to require 5.25 persons per year for every million dollars, a significant improvement. Utilities included high powered workstations with a full array of tools such as Excel, OCLC, electronic DDC, electronic LC subject guides and Cataloger’s Desktop. Materials involved the publishing market place, types of materials, languages of materials and plans to divide expenditures into all parts of the collection building from periodicals to online databases. Facilities included building space, ADA, ergonomics and functional layout for single process flow.

The first need was to identify space to use in establishing this temporary team facility. The lower level of an older branch library that was cluttered with used furniture was identified and evaluated. The room needed emptying and cleaning, but it was well lit with windows. Having a team working in pleasant environment is one of the hidden assets to success and with moving out the junk and painting the walls the area was ready for staff to bring in some plants and make it habitable. The large room dedicated to the project also had convenient access to a parking area that trucks could access although no loading dock. The branch also had wide doors and a wide corridor leading to the room.

Working with an assistant facilities manager who had construction experience, the team began to design the workspace for the variety of processes that needed to take place. The work areas needed were: receiving, invoicing, cataloging, item creation (linking), processing, final inspection and packing. Each task area had different space requirements, equipment needs, tools and computer setups. One of the keys to successful implementation was the establishment of a screened-off conference area where they could meet to discuss progress, problems, ideas and improvements to the process.

With plans in place and the design of the area underway the next step was to identify staff. As with most large urban libraries there were a number of people between positions or people in transition. Because it was a temporary team the Administration and the Human Resources Department were in agreement with pulling people from a variety of positions. Staff was requested based on their expertise the team was constituted without an interview process. This was not an ideal situation, but they were trained on team based dynamics and the special project needs. As the team was developed it became a bit of a status symbol to be a member of the team, and there was a satisfaction in exploring a new way of doing things and participating in the important work of building a collection for the new branch.

Administration also approved that Technical Services Staff with particular language, selection, ordering or processing skills could be pulled from the Department on an as needed but limited basis. This did seem to introduce a bit of disruption to the team’s identity but proved to be beneficial. In many instances they became the advisors on how to accomplish something but they also gained insights into how they might do something different in their regular duties. Those who did not function well with the Team were assigned fewer and fewer days from their regular routine.

The understanding from the onset was that staff that “didn’t get it” could be off the team without an over burdensome amount of documentation and disciplinary escalation. The concept of the team and the goal of the project were regularly reviewed with the appropriate union representatives and they were invited to visit often to observe progress. As it turned out there was a good deal of enthusiasm and only one team member was removed from the project.

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The selection of the team leader was critical. To select someone who truly understood the variety of aspects of technical services there was a need to select someone from within the Department. Besides the obvious requirement of being a team player (which at the time was not a well defined requirement) the following list of necessary skills, knowledge and capabilities was developed.

- Excellent communicator in speaking writing and listening
- Flexible in thinking and acting
- Not be a CAVE (Citizen Against Virtually Everything) person
- Know OCLC cataloging and authority control
- Have a good working knowledge of a second language
- Organization and good math skills for ordering and invoicing
- Able to delegate tasks well and to understand the process thoroughly

Selecting a good team leader was not as difficult as we had thought it would be in that we are large public library system. The Department did have people who did not work well with the public, but there was also an emphasis on hiring talented staff who were always recruited, retained and rewarded. The selected person to lead the team exceeded the above required capabilities.

With the Team Leader and most of the team in place it was time to plan the first day and the first meeting. Individuals selected were kept constantly informed through email in an attempt to generate buzz and heighten expectations. It was made clear that it was a privilege to serve and as word spread throughout the system, being on the team was viewed as prestigious.

The kickoff meeting was set and began with introductions. Each team member was requested in advance to talk a little about themselves and to report on their favorite book, or what they were reading at the time. This was followed by a presentation by the Department Director on what it means to be a team member and the importance of the project. One of the most important concepts of a team is that a common goal was shared. In this case the goal was clear, spend five million dollars on materials and have everything processed, cataloged and placed on the shelves before the branch opened.

At the kickoff meeting by Parasuramand and Rockbridge Associates provided an exercise in measuring technology readiness.¹ An abbreviated form was used that lists 10 statements to which team members responded to on a scale of 1 to 5. A score of five being strongly agree, to a 1 being strongly disagree. Ergo metrics, safe lifting, and videos on tattle tape, and targeting "Ideas into Action" were presented. Some fun was provided in having the library nurse provide "at your desk" exercises and techniques for avoiding eye strain.

After about 30 days a second team meeting was held dedicated to Team evaluation. A leadership and Team Building exercise was provided by Training House². The self-assessment exercise they provided was a series of 60 questions such as, "Our team works with a clear mission that is known to members and outsiders alike." Or, "Our team members lack a methodical approach for working together in meetings." Part of the exercise package included a score sheet. Participants gave their individual score and then a second copy without names was produced for a team score. After a break the team score was presented for comparison to their individual score. Discussions and

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interpretations of the results were presented to identify team strengths and weaknesses. The evaluation led to improved performance both generally and individually.

The identical team evaluation process was repeated after six months and higher scores were obtained. A basic principle of Team building is broken down into four stages; Forming, Storming, Norming and performing. With this team, the goal was so clear that forming and storming stages were quickly passed through. Within the six month period the team was performing at a high level. A poster size thermometer chart of dollars spent and materials “shelf ready” was maintained near the entrance to the office. The result, at six months the team was ahead of schedule.

It was found that that there were some team members who shone and some who did not seem to appreciate the importance of the task. While team evaluations addressed the larger issues, one team member seemed to have continuing tardiness and absences. Although the importance of timeliness can be addressed in team meetings, these issues need to be dealt with directly by the team leader on a one-to-one case. In this instance the team member is question requested a transfer back to regular duties. In a way, she did “get the team concept” in recognizing her own limitations for contribution to the team. Correcting proper behavior and taking any discipline is an argument that the team evaluation can only go so far and the possible need for individual evaluations can be real.

In this project team building and team evaluation was an outstanding success. In the final weeks prior to the branch opening the work site was changed to the actual branch and the scope of work was expanded to opening boxes and placing items on the shelf. Although shelf space requirements were analyzed from order reports, these analyses turned out to be inaccurate. With the help of volunteers, pages and staff newly assigned to the new branch there was a lot of shifting where there was either too much shelf space or not enough without using the top and bottom shelves.

When the branch opened there was pure joy and relief felt by all staff members. There had been a major mission to be accomplished and each team member had contributed their unique talents to having a fully stocked and completed opening day collection.

It was at this point that the final element of team building was put into place -- recognition and celebration. The Library Director treated the team to lunch at his favorite restaurant. The Team was also recognized at the annual staff breakfast with an award for being the outstanding work unit of the year. Another reward was that friendships were formed and memories were created that could last a lifetime.

It was decided that we should take what was learned and apply it to the existing Technical Services Department. This started with the establishment of the Multi Media Processing Team (MMPT). All selection and ordering responsibilities were removed from the Acquisitions Division. Similarly all cataloging duties were removed from the Catalog Division. All processing was outsourced to the vendors, so the Processing Division was only called upon for special items where this service wasn't provided. The Team had similar success in doing more with less, but the team felt overburdened in their responsibilities and in trying to function in spite of physical layout of the building, two floors with shipping and receiving on the lower level.

The team did hit some bureaucratic barriers with the evaluation and job description requirements of the Human Resources Department, legal issues with the union, and other issues unrelated to the work of the team. Still plans were developed for a total reorganization of the Department with the establishment of teams for Asian languages, Romance language, multimedia and a number of teams dedicated to English language materials. It was around this

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time that the Director of the Department set out for greener pastures and the total team concept for Technical Services was never fully realized.

It was years later after the author joined a LEAN consortium that it was realized that many LEAN³ and some six sigma principles had been unknowingly applied. LEAN is a means of getting things done through continuous process improvement. Its roots are in Toyota quality management programs. LEAN represents change and a new way of doing things in eliminating wasted steps, reducing defects, avoiding overproduction, eliminating waiting, reducing transportation, providing visual queues and achieving customer satisfaction.

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2. Training House, P.O. Box 3090, Princeton, NJ 08543. www.traininghouse.com
3. Huber, J. J. (2011). *Lean Library Management: Eleven Strategies for Reducing Cost and Improving Customer Services*. New York: Neal-Schuman Publishers, Inc.

Editor's Choice Article

Louder! – This is a Library! **The Case for Video Game Programs in Public Libraries**

By Amanda Senft

A*bstract:* Video games provide an opportunity for libraries to reach out to young adults who are traditionally underserved by today's libraries. Research supports the educational benefits of such programs, including the use of information literacy and other important skills, and the experiences of many libraries that have already implemented such programs have been largely positive. It is important, however, to take all potential variables into account before implementing a video gaming program, the details of which are discussed below.

It is no secret in the library science community that a large number of public libraries are in trouble. When the average information consumer thinks of a traditional library, it is likely that reference services, encyclopedias, and a woman with a bun come to mind, and, to that same consumer, such services are unnecessary in an age where a wealth of knowledge is available to anyone with a computer and the ability to click the mouse. It is thus imperative that libraries reposition their roles in their communities. Successful libraries are today places where people go to get information and find a popular novel, but also to attend a workshop or to meet with friends. Some librarians may be reluctant to make the transition from 'knowledge center' to 'community center', but it is necessary to reevaluate the niche libraries are going to occupy in the modern era.

In the past libraries have had an especially hard time competing for the attention of teenagers and young adults – though many are doing much better today. Still there are insufficient programs that cater to library users between the ages of 12 and 17; in fact, teenage males are near the top of the list of underserved library populations (Reeds, 2008). The challenge is to bridge the gap between children's story hour and adult book clubs, and attract more of a traditionally underserved population. There is simple strategy that focuses on the fact that that an entire generation of "digital natives" (those who have grown up using computers, cell phones, and other electronic devices) seeks and interacts with information in a different way than their predecessors and to connect with them on that level (Beheshti, 2012). Specifically, that strategy involves recognizing that video games have become a major part of the lives of most American children, teenagers, and young adults. Polls show that 97% of youths ages 12-17 play some type of digital game on computers, consoles, or handheld devices (Rich, 2008). And, according to the National Center for Education Statistics, that same population makes up 23% of public library users (Reeds, 2008).

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Video Games and Information Literacy

Formal research involving video games is still developing as a field worthy of study, but those who have studied the educational effects of video games on today's youth have been reporting some surprising results. Researchers are finding that in laboratory settings, action gamers are better than non-gamers at focusing on tasks and disregarding irrelevant information, a skill which could serve teens both in their academic lives and later careers (Rich, 2008). Studies also show that gaming teaches youths real-world skills that they are not learning in the classroom, such as problem-solving, risk taking, and how to work as part of a team (Barack, 2005).

Studies also show that gaming teaches youths real-world skills that they are not learning in the classroom, such as problem-solving, risk taking, and how to work as part of a team.

One benefit of video gaming that should be of interest from a library perspective is the growing amount of research linking video games with information literacy. Information literacy is defined as “knowing when and why you need information, where to find it, and how to evaluate, use, and communicate it in an ethical manner” (Chartered Institute of Library and Information Professionals, 2012). Once upon a time, libraries taught information literacy by instructing elementary school students how to use a card catalog or find the proper book for a given subject. Information literacy in libraries today is more likely to manifest in the navigation of databases and determining whether Google has provided you with reliable search results. Video games can be an important tool for enhancing information literacy among young people.

Maggie Hommel (2007) points out that educational video games have been used in schools and libraries for several years, but commercial video games can provide educational benefits as well. For example, many games have guides or books that players must use to seek information to help them advance. The ALA makes the case that fantasy sports game players must practice strong research and critical thinking skills in order to choose a roster for their team that will provide them the best chance of winning (American Library Association, 2012). Moreover, every video game is different and uses a different set of rules, characters, and symbols, meaning that a gamer must quickly decipher and learn something akin to a completely new language each time he or she sits down to a new game (Neiburger, 2007).

Of course, young people don't sit down in front of the video game console and say, “I think I would like to improve my information literacy today.” In their investigation of the links between video gaming and information literacy, Gumulak and Webber (2011) found that participants reported a number of skills they had acquired from gaming, including communication, problem solving, and life skills, regardless of whether the game had an intentional educational purpose. However, they found that the information literacy skills demonstrated, namely the recognition of the need for additional information and the knowledge of how to find it, did not always correlate with *recognition* of information literacy. That is, participants did not necessarily realize that they were demonstrating good information literacy skills; they just thought they were trying to complete the game. This is one of the core arguments for implementing video gaming programs in libraries: you are not bringing them in to just play, you are bringing them in to learn the information seeking skills that have traditionally been a library's role to teach. And, most importantly, you are bringing them in.

Gaming in Public Libraries

Gaming in general is not a new programming tool in libraries. Libraries have hosted chess tournaments, board game nights, and role-playing groups for years (Adams, 2009). Librarians across the country are now recognizing

Louder! – This is a Library! The Case for Video Game Programs ...

the possibilities in incorporating video games into their teen programs with great success. By 2008, the public library system in Columbus, Ohio had entertained over 5,000 teenagers at gaming tournaments, and in 2010 the New York Public Library hosted more than 500 gaming events that were attended by 8,300 teenagers (Rich, 2008). The American Library Association has even thrown its support behind these types of initiatives by providing a myriad of resources, tips, articles, and success stories in support of video games in libraries on their website (American Library Association, 2010).

Planning for a video game program is simple and holds great possibilities. The purchase of the console and the required games is the initial and most costly step, although it does not have to be an expensive one. Popular consoles sell for \$200-\$300 new with games ranging between \$20 and \$50, but many libraries are finding that refurbished or used consoles and games work just as well for a lower cost (Czarnecki, 2010). Another important aspect of planning a program is to decide what age group the program will be tailored to and what type of games will be provided. Surprisingly, a number of libraries offer games like *Halo*, *World of Warcraft*, and *Call of Duty* (all rated ‘M’ for Mature) in addition to more family-centered games like *Wii Sports* or *Mario Kart*. Some libraries require parental permission slips before teenagers can play these types of games, but most seem to ignore the often violent content in favor of the educational value of teenagers experiencing and resolving conflict ‘firsthand’ (Reeds, 2008). In fact, M. Brandon Robbins (2011) listed four ‘Teen’ rated games (ages 13 and up) in his list of top five video games for libraries in 2011, with several ‘Mature’ games making the honorable mentions list. There are those who believe that the often violent imagery of the games is superseded by the intellectual faculties necessary to follow the complex plotlines and plan strategies in the game.

However, this obstacle need not exist if librarians prepare for it in advance. In fact, 54% of games are rated ‘E’ for ‘Everyone’, providing librarians with a large number of titles to choose from in a variety of genres (Reeds, 2008). Ratings aside, sports games are more conducive to hosting tournaments than the ‘Mature’ games, which often require several computers or consoles for a number of players to connect and play together. It is also important to remember that many young people may already have these games at home, so they are not necessarily coming to the library to access a game they do not have, but rather to socialize and play games as part of a group. At any rate, there is no problem with a librarian refusing to purchase a game he/she is uncomfortable with. Plenty of games exist that tout the same educational and entertainment value as those rated ‘Mature’ and will relieve librarians of potential conflicts with parents, patrons, and donors.

It is also important to remember that many young people may already have these games at home, so they are not necessarily coming to the library to access a game they do not have, but rather to socialize and play games as part of a group.

There is also a question of how the games will be played and whether they will be offered as a permanent fixture of the library or during certain pre-planned programs. Generally, libraries are not in a position to have a staff member keeping an eye on a game console during the entirety of library hours. Most libraries are opting for pre-programmed gaming tournaments during after school hours or weekends, offsetting the risk of the games being mistreated or stolen. Tournaments are a popular way to program, as they allow everyone a chance to play and engage in friendly competition. For example, the Lake Wales Public Library in Florida found that “super-sizing” the games by playing them on a projected screen is a draw for gamers who normally would play the games on a smaller computer or television screen. The librarian even incorporated “Off the Wall Wii” night, where the games were projected onto an outdoor wall for a fresh-air, larger-than-life gaming experience (Peak, 2010).

Despite the educational benefits of gaming and the relative ease of implementing a video game program, there are those libraries that are reluctant to become community centers or “teen hangouts” rather than centers of knowledge and learning. Yet research shows that teens are also more likely to use other library services when regularly attending an activity that interests them, like gaming tournaments (Czarnecki, 2010). Librarian Jason Reeds (2008) refers to this as “enticing teens into the library” with video games and other activities, and then introducing them to reference services, materials available for circulation, and other library services. One way to make the link between the video game world and the literary world for teens in library programs is to highlight the fact that many video games are based on books or graphic novels, or have had literature published based on the video game (Rich, 2008). Librarians can recognize this as an opportunity to draw that connection and provide the right book for a young library user. For example, a library providing the game *Civilization* might have a rack of books about ancient civilizations nearby, or a selection of Marvel graphic novels to supplement a game based on one of the many comic book heroes and heroines.

Yet research shows that teens are also more likely to use other library services when regularly attending an activity that interests them, like gaming tournaments.

Conclusion

According to Eli Neiburger (2009), “In order to successfully promote video game events in a library, you must never forget that libraries have a significant image problem to overcome.” Drawing new young users into a space dominated by the uptight, bun-wearing, bespectacled librarian of lore is not easy, but it is important not to let an entire generation of library users slip by unnoticed. The fact is that video games are a medium that kids are engaging with every day, and while many will argue that video games have no place in the library, a number of librarians are rebelling against that traditional view and finding that gaming programs in libraries can be very successful in a number of ways. Gaming brings children and teens into the safe environment that the library creates in a way that they can have fun and socialize with others, while also being exposed to library services that they become more likely to utilize for future needs. The educational benefits being revealed by video game research are overwhelming, surpassing the traditional knowledge benefits of reading and schoolwork to include information literacy skills that will benefit children and teens in both academia and their professional lives. When all of the evidence is laid out, video game programs appear to be a natural step in the progression of the library into a successful niche in the 21st century.

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Peer Reviewed Article

Viability of Information Technology Consolidation amongst New York State Cooperative Library Systems

By Robert Drake

Abstract: New York State's Library Systems face increasingly tight budgets. Consolidation/shared service is one potential way that systems can provide the same or higher level of service at decreased cost. The strong variability between systems, however, makes this difficult both to accomplish and appraise. This study surveyed 16 Cooperative Library System directors and IT managers to determine allocative and technical efficiencies that could arise from a consolidated or shared service arrangement. They were also surveyed on the local uniqueness of each function and their perception as to the potential benefits of this arrangement. IT training, Onsite Tech Support, Help Desk/Phone Tech Support/Email Tech Support, Public Database Support, Webhosting/Design/Development and Technology Grant Writing were found to be potential candidates for either shared or consolidated approaches.

Study Introduction

New York State's library systems were created in the late 1950s in order to facilitate shared services and resources between geographically and functionally proximate libraries.

In total, there are five types of library systems consisting of seventy-three separate entities which collectively support over 7,000 libraries. The types of systems are "School Library Systems", "Reference and Research Library Resources Systems", "Cooperative Library Systems", "Consolidated Library Systems", and "Federated Library Systems". The latter three, Cooperative, Consolidated, and Federated Systems, specifically support public libraries, whereas the former two primarily support school and academic, business, medical, and law libraries respectively. This study has chosen to solely concentrate on Cooperative Library Systems which represent public libraries in an arrangement where member libraries retain their autonomy and the central library remains distinct from the system. In addition, Cooperative Library Systems are the most numerous of the systems that support public libraries with sixteen separate institutions.

This study also works on the premise that Information Technology (IT) is a high priority library system service. This is supported by the 2007 article *Public Library Systems in New York State: A History and Survey* which identified as highly important a number of functions generally provided entirely or partially by IT departments

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Recognition: A number of people helped and guided me in my research. Without naming them all, I'd like to give special thanks to Dr. Chih-Yang Tsai, Merribeth Advocate, Carl Meyer, Rebekkah Smith Aldrich, and Michael Nyerges. Their assistance, advice, and support was invaluable to this project and to so many others.

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including "Providing automation systems," "Technical support," and "Centralized and cooperative services and activities." This latter category included "the descriptions of systems providing hosted website services, coordinated e-mail..." which are separated within this study (Ren & Anderson, 2007, p.30). These various IT services, as offered by the cooperative library systems, differ dramatically in cost and implementation, many of which are high priority in some systems and non-existent in others.

These discrepancies suggest that potential efficiencies might be found through shared/consolidated arrangements, however they also pose imposing barriers to a researcher looking to establish potential gains and identify limitations. There may be functions in which standardization could be especially beneficial. There may also be functions that require the granular level of differentiation that currently exists between systems. This study believes that it is necessary to distinguish between and identify those functions that could best (and worst) benefit from any consolidation initiative that may be developed. As such, this study approaches consolidation/shared service on a 'per function' basis.

Lastly it must be noted that the author of this study is currently the IT Coordinator of the Mid-Hudson Library System. Efforts have been made to limit personal bias. The conclusions of this study must not, however, be considered the institutional opinion of the Mid-Hudson Library System.

IT Functions

This initial step in this project was to qualify the list of IT functions to consider. While not exhaustive, this list was designed to cover the substantial operations performed by Library System IT departments. It was developed through an analysis of library system websites and personal experience.

- Email
- Website Hosting/Design/Development
- Technology Grant Writing/Other Grant Assistance
- Onsite (at member library) Tech Support
- Technology Purchasing
- Technology Related Training
- Computer Configuration/Repair
- Help Desk/Phone/Email Tech Support
- ILS Hosting/Support
- Public Database Support
- Technology Equipment Disposal

Criteria for Evaluating Consolidation

No well-supported standardized approach was identified amongst existing consolidation literature, however the theoretical perspectives provided by Leland & Thurmaier in their study on local government consolidation were sufficiently well-defined to provide for an actionable study and sufficiently broad to adapt to library systems. Merger and Acquisition research indicated that stakeholder support was a key factor in nearly any large decision - this was further adapted to the study. Altogether, four criteria encompassing both potential gains (technical and allocative efficiencies) and potential barriers (local uniqueness and stakeholder support) were used to measure viability of consolidation across each function.

The first criterion, technical efficiency, involves using the best processes across a larger entity. Gains are seen predominately when one entity performs a task better than others and distributes expertise and service across the

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conjoined entity. This form of efficiency may result in financial gains, but is more commonly associated with improvements to service quality (Leland & Thurmaier, 2000).

Allocative efficiency, the second criterion, concerns the optimal mix of inputs and outputs across a consolidated entity. Funding inequalities between libraries systems, for example, could potentially be reduced and result in allocative gains for the larger consolidated entity. This form of efficiency is more likely to result in financial gains than service quality improvements (Leland & Thurmaier, 2000).

A primary concern with consolidation is 'equity' (Leland & Thurmaier, 2000). Entities to be consolidated, and the service areas they supported, showed concern that their local issues would not be responded to as strongly by a centralized entity. This suggests that local uniqueness is another key metric when analyzing the compatibility of functions for consolidation.

Stakeholder support was identified as the last criterion. This was explored perhaps most fully in regard to IT by Alaranta and Henningson (2008). In their nine point list of steps involved in IT consolidation eight of them relied on direct stakeholder involvement. This study has chosen to abstract over all the various stakeholders and concentrate specifically on System Directors and IT managers to identify potential stakeholder support. Despite this abstraction, stakeholder support is consistently noted as perhaps the most important criterion in any large project. As such, we've weighted this criterion most highly in our analysis.

Consolidation Scenarios

The terminology 'shared' and 'consolidated' service are frequently used synonymously, even within academic literature. This makes it difficult to distinguish between two distinct approaches that both have the potential to provide financial or service quality gains. Biddingers (2011) does separate the two approaches. The first, called a 'consolidated service,' would be for a function to be provided by a system for multiple other systems. Alternatively, a 'shared service' would be where multiple systems contribute to varying degrees to provide a service for all participants.

With this in mind we are presented with three potential scenarios for each function. Each is displayed in Table A. The first scenario, that of the unsuitable function, is easily explained - a lack of benefits and strong barriers make these

Table A: Consolidation Scenarios

Scenario	Allocative Efficiency	Technical Efficiency	Local Uniqueness	Stakeholder Support for consolidation or shared arrangement
Unsuitable for consolidated or shared arrangement	Limited potential efficiencies	Limited potential efficiencies	High Local Uniqueness	Limited Stakeholder Support
Potentially Viable as a Shared Function	Any potential efficiencies	Higher potential efficiencies	Moderate local uniqueness	Positive Stakeholder Support
Potentially Viable as a Consolidated Function	Higher potential efficiencies	Any potential efficiencies	Low local uniqueness	Positive Stakeholder Support

functions inappropriate for consolidation.

The remaining two scenarios bear some description. In a shared arrangement a greater degree of local uniqueness is preserved hence the less stringent necessity of this criterion. Given that a shared arrangement involves a greater transfer of knowledge but intrinsically less centralization, allocative gains are less likely. At the same time, technical

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efficiencies gained through knowledge sharing are possible and encouraged. Analyzed in reverse, functions that suggest limited potential allocative gains but strong technical efficiencies are better adapted in a shared arrangement in order to avoid unnecessarily restricting local differentiation.

The consolidated scenario is just the opposite - local uniqueness will be lost therefore functions with less uniqueness to begin with are more viable for consolidation. Given that a single entity will take responsibility for a function, knowledge transfer between entities is unlikely, but greater economies of scale (allocative efficiencies) are possible. For functions where fewer technical efficiencies might be found (e.g. when everyone already provides a service in the same way), a consolidated arrangement better captures allocative efficiencies.

In the case of both latter scenarios, stakeholder support is vital.

Evaluating Functions

The final and most substantial challenge to completing this study was to find a methodology for evaluating the various IT functions on each the identified criteria in order to establish which scenario(s) might be appropriate. Academic literature was decidedly silent on this topic and the differences between the various IT functions make any singular measurement inadequate. To compensate a multifaceted approach was developed; each function was evaluated (when relevant) on up to ten measures: cost, time spent, scope, revenue, quality, quantity, methodology, outside assistance, biggest difficulty, and perception of consolidation. These ten measures correspond to the four criteria described above. The relationship between these measures and criteria can be found in Table B.

Again this design requires some explanation. In order to evaluate whether allocative efficiencies are possible, it's imperative to identify what costs might be diminished. By measuring functions by cost, time spent, and revenue, we

Table B: Function Measures by Criteria

Criteria	Measures
Allocative Efficiency	Cost, Time Spent, Scope, Revenue
Technical Efficiency	Quality, Quantity, Methodology, Outside assistance
Local Uniqueness	Methodology, Biggest Difficulty
Stakeholder Support	Perception of Consolidation

are able to establish how much a given system spends on a given function and then able to compare this amount to other systems. When a system is identified as dramatically overspending in time or money for a given function compared to other systems, a potential allocative gain is identified. The final measure, scope, in this case referring to how broadly a given service is provided, is intended to quantify how many 'customers' there are for a given function. This allows the calculation of 'cost per customer', another tool for evaluating the potential allocative gains present between systems.

Technical efficiencies are measured similarly although the analysis is decidedly less objective. In aggregate, a technical gain is established if one system can be identified as providing a service 'better' and this knowledge might be transferred to other systems. In this case methodology, how a service is provided, is the most immediate indicator of potential technical gains. Measures of quality and quantity similarly provide an approach to identifying 'better' providers of function. Lastly, the use of an outside provider precludes any potential technical efficiencies that the system could provide to others (beyond knowledge of the provider).

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Local uniqueness is established in two ways. Differences in methodology between systems most directly establishes the differentiation between them. The 'biggest difficulty' faced by a system provides another, more oblique, way of teasing out differences that might exist even between systems with similar implementations.

Stakeholder Support is again the most obvious criterion to evaluate consisting of a single question: "To what extent would the consolidation of the following functions be beneficial to your system?"

Methods

Survey Design

In order to best capture the above measures, two separate online surveys were developed using Survey Monkey. The first consisted of 22 questions falling under four broad topics: staffing, budgets, IT functions, and perception of Consolidation/Cooperation/Shared Services. This survey was sent to all 16 Cooperative Library System Executive Directors (or Interim Directors). A second, more technical, survey of up to 112 questions (many questions were dependent on certain answers) were sent to the Cooperative Library System Executive Directors who were asked to forward the survey on to their 'most senior technical individual'. A list of the specific systems surveyed can be found in Appendix A.

This was done partly due to the length of the survey. Since it was expected to take approximately two hours to complete, it was considered important for Executive Directors to be both aware of and supportive of their staff member's participation. Also, due to the wide variation in staffing and titles across systems, this was done in order to more quickly and adeptly target the appropriate senior technical individuals who could not be reliably identified through staff directories and available organization charts.

In the case of both surveys, respondents were given five weeks to respond. Reminders were sent at the end of weeks 3 and 4.

It is necessary to note that the author of this study is a member of the sampled population (IT Coordinator for the Mid-Hudson Library System) and works directly subordinate to another member of the sampled population (Executive Director of the Mid-Hudson Library System.)

System Director Survey

This survey included budgetary and staffing questions meant to assist in establishing allocative measures. It also included multiple questions directed to System Director perception of consolidation including which functions they foresaw the most benefits, what risks most concerned them, and potential partners. A copy of this survey is attached in Appendix B.

IT Manager Survey

This survey enumerated the various IT functions and attempted to appraise them across all ten measures. Questions were predominately open-ended, with few being necessary to complete the survey in order to best encompass the extreme range of scenarios possible. This study also included the same perception questions as included within the System Director survey. A copy of this survey is attached in Appendix C.

Results & Discussion

In total, ten of sixteen possible respondents participated in the System Director survey. Five of sixteen possible respondents participated in the IT Manager survey. A total of ten systems were represented with five systems represented by both the Executive Director and the most senior IT person on staff.

A note on the response rate is necessary; this study is moderately unique in that it surveys the entirety of a very small population. The concern that a small sample skews the results is somewhat alleviated by the fact that the sampled population and the total population are one in the same; each response represents a large percentage of the total environment being studied. No statistical tools beyond mean are used, largely a reflection of the data collected, but also because the small size would make the output questionable.

Further, this study hopes to identify as many differences between systems as possible that may suggest for or against a consolidation/shared services approach. Even a limited response rate allows for this analysis, conceding that it is impossible to find all differences that likely exist.

The strong reliance on open-ended questions, a potential cause of the lower response rate, was necessary given the lack of prior literature and the wide discrepancies between systems. It does, however, forces any analysis of the aggregated raw data to be intrinsically subjective. Further, the sheer amount of data poses more practical difficulties in presenting them. For simplicity, a short summarized version can be seen in Table C on the next page. The raw data are available upon request.

As noted, these data are subjective however an attempt at content analysis has been made. The scarcity of literature covering either IT functions, library systems, or consolidation makes this exceptionally difficult. Nevertheless, a few heuristics can be defined.

In regard to Allocative Gains, similarities in responses suggested fewer costs identified. For example, IT managers were asked how much time they or their staff spend in a given month supporting that function. Sample responses included "2 hours", "about an hour", and "We spend very little time doing this - I would say less than 5 hours a month." These were reviewed as being largely similar indicating that little time savings would be likely. Other potential costs such as the amount spent on a function, the number of libraries served by the function, and the amount of money charged in providing the service (a negative cost), are appraised similarly.

Technical gains follow a similar pattern. For example, respondents were asked "What technology grants have been supported in the previous 2 years?" and asked to provide an approximate value of the grants supported. Answers included "LSTA \$22,800 Harold Hacker \$4,400" "Erate/Gates Broadband/Gates Computer" and "NYS Universal Broadband Grant - \$112,203 BTOP PCC grant for NCLS and 3 libraries." Because of the few similarity in grants or amounts received, there is some potential that an exchange of knowhow would improve members in a consolidated/shared arrangement.

Local Uniqueness is again similar. Returning to the email function, half of the respondents used Zimbra as an email server. Since they use the same product to provide the same service, local uniqueness is considered limited.

Perception is established using the question, "To what extent would the consolidation of the following functions be beneficial to your system? Responses in order were "Not Beneficial", "Barely Beneficial", "Somewhat Beneficial", "Beneficial", and "Very Beneficial" with Very Beneficial being scored as a 5 and Not Beneficial a 1. The perception score is the mean of all respondents with Executive Directors and IT Managers weighted equally.

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Table C: Results by Function & Criteria

Function	Allocative Efficiencies (Cost, Time Spent, Scope, Revenue)	Technical Efficiencies (Quality, Quantity, Methodology, Outside assistance)	Local Uniqueness (Methodology, Biggest Difficulty)
Email	Few costs identified.	Limited technical efficiencies to be found.	Some local uniqueness was found. (different email systems but similar problems).
Website Hosting/Design/Development	Substantial differences in cost and time identified.	Some technical efficiencies possible through better use of content management systems. Also, many libraries did not offer web assistance to local libraries.	Limited local uniqueness was found. (Similar hosting providers and services.)
Technology Grant Writing/Other Grant Assistance	Few costs identified.	Some systems did not provide this service suggesting substantial technical gains. Grant applied for were very different with different award amounts.	Some local uniqueness was found (many similarities in which grants but some differences).
Onsite (at member library) Tech Support	Substantial differences in cost and time identified.	No technical efficiencies are presumed.	Limited local uniqueness was found.
Technology Purchasing	Some cost differences identified.	No technical efficiencies are presumed.	Limited local uniqueness is presumed given limited number of vendors.
Technology Related Training	Substantial differences in cost and time identified.	Technical efficiencies likely through training specialization.	Some local uniqueness was found (some similarity in topics but different problems).
Computer Configuration/Repair	Few costs identified.	Some technical efficiencies found-different imaging solution in place or nonexistent.	Some local uniqueness is presumed.
Help Desk/Phone/Email Tech Support	Substantial differences in cost and time identified.	Some technical efficiencies found through better ticketing systems.	Some local uniqueness was found. (different hours, different ticket systems)
ILS Hosting/Support	Substantial differences in cost and time identified.	Study was unable to evaluate potential gains.	Substantial local uniqueness in the form of different ILS vendors.
Public Database Support	Some cost differences identified.	No technical efficiencies are presumed (similar databases in use).	Limited local uniqueness is presumed given limited number of databases and state contracts
Technology Equipment Disposal	Few costs identified.	No technical efficiencies are presumed.	Limited local uniqueness is presumed.

Results Table

Due to the number of functions, criteria, potential values, and scenarios, a full written analysis becomes unwieldy. Instead, Table D, located below, shows the results of this study. The functions identified as potential candidates for consolidation/shared arrangements are analyzed in more detail in the conclusions.

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A note on how this table was derived; for the allocative and technical gains, if substantial differences were found we find them to be better candidates. If only some differences are found they are neutral candidates. If few differences in cost or few potential technical efficiencies are likely, we indicate that they are weak candidates. For local uniqueness a similar scale is used.

For perception, we base our conclusion on a 5 point Likert scale. Functions with an average rating of above 3 amongst all respondents are indicated as having a positive perception. This refers to an answer of 'Beneficial' or better to the question "To what extent would the consolidation of the following functions be beneficial to your system?". Functions with at least a 2.5 average rating (but less than 3) are indicated as receiving neutral stakeholder support. Functions with less than a 2.5 average are indicated as lacking stakeholder support.

In regard to the potential scenarios, a simple analysis is used. If perception is weak, we've indicated that the function is a weak candidate for both scenarios regardless of potential gains. This reflects our belief, supported by the literature, that stakeholder support is absolutely key to a successful consolidated/shared arrangement. Please refer again to Table A for specifics on the scenarios identified.

For the shared services scenario, we've indicated strong candidates when technical gains are high and local uniqueness is moderate or better. We've indicated neutral candidates for the shared scenario when technical gains are moderate and local uniqueness is moderate or better. If neither of these scenarios are met (either technical gains are limited or local uniqueness is substantial) we've marked it as a weak candidate for a shared arrangement.

A similar approach is used for the consolidated scenario. If potential allocative gains are high and local uniqueness is moderate or better, we've marked that function as a strong candidate for consolidation. If potential allocative gains are moderate and local uniqueness is moderate or better we've marked the function as a neutral candidate for consolidation. If neither of these standards are met (either allocative gains are limited or local uniqueness is substantial) we've marked the function as a weak candidate for a consolidated arrangement.

The technology grant writing function makes an excellent example to better explain this analysis. This potential shared service/consolidation of this function was found to be strongly beneficial by respondents (perception criterion). If support had been negative, this function would have immediately been considered unsuitable for either a shared or consolidated arrangement. In this case, perception was strong making both options viable.

Because support exists, the next step is to consider technology grant writing for a shared arrangement. As previously indicated, this study believes technical gains are better found in a shared arrangement while allocative gains are less likely to be realized. Technology grant writing was found to have substantial technical gains and fewer allocative gains fitting this profile exactly. Before indicating that however, it is necessary to check the local uniqueness rating. This value is moderate or better (in this case moderate), allowing us to rate grant writing as a strong candidate for a shared arrangement. Had local uniqueness been substantial, we would have been forced to mark this as a weak candidate.

Lastly, we consider the technology grant function as a consolidated function. Allocative gains are weak. This forces us to mark this as a weak candidate for a consolidated scenario. Had allocative gains been moderate we could have considered it as a neutral candidate. Had allocative gains been substantial we could have considered it as a strong candidate. In either of the those cases, it would be necessary to again consider local uniqueness. Since local uniqueness is moderate, the function would have been neutral in the case of neutral allocative gains and strong in the case of strong allocative gains. Since gains, again, are limited, this function remains a weak option for consolidation.

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Table D: Results with Criteria & Scenarios

Functions	Allocative Gains	Technical Gains	Local Uniqueness	Perception	Shared Potential	Consolidated Potential
Email	-	-	0	0	-	-
Website Hosting/Design/Development	+	0	+	0	0	+
Technology Grant Writing/Other Grant Assistance	-	+	0	+	+	-
Onsite (at member library) Tech Support	+	-	+	+	-	+
Technology Equipment Purchasing Assistance	0	-	+	-	-	-
Technology Related Training	+	+	0	+	+	+
Computer Configuration/Repair	-	0	+	0	0	-
Help Desk/Phone Tech Support/Email Tech Support	+	0	0	0	0	+
ILS Hosting/Support	+	X	-	+	-	-
Public Database Support	0	-	+	+	-	+
Technology Equipment Disposal	-	-	+	0	-	-

Key:

+ = Better Candidate/Greater Potential Gain/Limited Local Uniqueness/Positive Perception or Strong Stakeholder Support

0 = Neutral Candidate/Moderate Potential Gains/Moderate/Some Local Uniqueness/Neutral Perception or Neutral Stakeholder Support

- = Weak Candidate/Limited Potential Gains/Substantial Local Uniqueness/Negative Perception or Weak Stakeholder Support

X = Unable to evaluate

Conclusion

Consolidation, with its potential for job loss and dramatic institutional change, is inevitably a political issue. The entire concept comes with bias and accusations of bias. Altogether, the data collected here are not sufficient to persuasively argue for or against any substantive consolidation initiative. Instead, it hopefully clarifies a larger discussion and provides a basis for future research.

The results do suggest that the various IT functions surveyed should not necessarily be considered uniformly. Some services showed greater potential allocative gains while others showed greater technical gains. Local uniqueness ranged from limited to substantial. Perception was similarly variable. Any attempt to uniformly consolidate an entire IT department may result in allocative gains or technical gains in the aggregate but presumably only at the sake of

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some diminishment in the gains of certain functions. These results argue for a more nuanced approach to consolidation in order to best capture the differences between these functions and arrive at a more optimal result.

More specifically, six functions showed some potential benefit from a shared or consolidated approach. Webhosting/Design/Development seemed best as a consolidation scenario candidate - the various systems reported hosting websites using similar content management systems using similar hosting providers which might be unified under a singular account.

Technology Grant Writing appeared more viable as a shared scenario candidate. The systems reported receiving funds from a variety of different grants. This may be a reflection of the awards or it may reflect differences in the knowledge and competencies of the systems. An arrangement of shared expertise appeared the most beneficial solution.

Onsite Tech Support, Help Desk/Phone Tech Support/Email Tech Support, and Public Database Support were all identified as being candidates for a consolidated arrangement. In each support category, the topics/queries received were similar, however the costs incurred by the systems differentially dramatically. A greater degree of uniformity could benefit those involved.

Lastly, Technology Related Training was identified as a potential candidate for either a Shared or a Consolidated Arrangement. The topics being taught showed some similarities but also some differences. The costs reported by respondents differed. A consolidated approach would potentially allow for stronger webinar/online training performed by a more specialized centralized entity. A shared approach, perhaps with a single employee shared between multiple systems, might allow for more productive in-person training. Regardless, systems showed a strong perception (the highest of the functions surveyed), that consolidation might benefit this service.

The differences between functions, and between the various library systems themselves, should be considered in any future analysis. This forces certain limitations on study methodologies. A 'softer', perhaps interview driven approach, or one with great incentives for respondents, may receive greater level of participation than this survey was able to obtain.

Altogether, the broadest conclusion of this study can be found in the differences between various IT functions and between the various library systems themselves. Any discussion of the issue should consider these in its analysis. Consolidation need not require the wholesale merger of two or more entities, or all functions performed by them. There is the possibility for a more sophisticated approach including some amount of consolidation, some level of shared service, and some level of complete or partial autonomy. This mix of approaches appears to be best preserve local adaptability while striving toward continued economic efficiency.

Study Recommendations

This study was intended to add to a body of academic literature regarding systems, consolidation, and IT function appraisal. That said, based on the conclusions above, certain actionable recommendations can be offered to Library Systems. These are summarized below.

- A formal structure of information sharing should be developed across systems in regard to information technology. This may be a list-serv, a central database of information, periodic conferences, some

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form of formal e-meeting, or some combination of the above. Cross system information gathering and training opportunities should be considered.

- Future IT projects undertaken by Library Systems should be evaluated in regard to bringing in partner systems or other entities. This is especially relevant in service areas identified as more viable as shared or consolidated candidates.
- A shared/consolidated technology training initiative should be considered between various systems, especially those that are geographically proximate. This position could provide high quality training, in person or virtually, to entities of participating areas.
- A shared/consolidated web development initiative should be considered. Specialized development knowledge has the potential to benefit multiple systems. Cost gains may exist as well.
- A shared/consolidated Helpdesk support initiative should be considered. This might allow for better off-hours support, a better transfer of knowledge in knowledge of help desk systems, and cost efficiency improvements.

Limitations

The most significant limitation was the lack of published research on library systems, library system consolidation, and IT consolidation. Consistent terminology with defined meanings was largely nonexistent or unidentifiable. Efforts were made to address this concern through a multifaceted approach of collecting budgetary concerns, technological issues, and stakeholder opinions. Even so, there must be a presumption of caution in applying the constructs, methodology, or conclusions of this study in any broader way. Additional literature would potentially allow for a more empirical content analysis to be performed.

Other notable limitations were found with the surveys themselves. Some questions did not fully encompass all possible options creating difficulties for respondents. The number of questions, especially for the IT survey, was intimidating and led to a limited response rate. There was also some hesitancy, or opposition, on the part of some respondents to respond due to the nature of the topic. Future research could address these concerns, in part, with a smaller, more targeted questionnaire.

Future Research

There are at least four possible directions for future research. The first would be a deeper and more specific study specifically targeting those IT functions that this study found to be the most viable. A second direction for future research would be to expand the scope to other types of library systems. A third direction would be to include departments beyond information technology. A fourth approach would be to re-run the survey, with some modification, annually in order to gain a more longitudinal understanding of system services

Altogether, there is a great deal of opportunity to improve or add to this study. If possible, data should also be collected from systems that have already explored consolidation initiatives in order to best target future research.

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Appendix A - Cooperative Library Systems of New York State

System Name (counties represented)

1. Chautauqua-Cattaraugus
2. Finger Lakes (Cayuga, Cortland, Seneca, Tioga, Tompkins)
3. Four County (Broome, Franklin, Monroe, OnondagaChenango, Delaware, Otsego)
4. Mid-Hudson (Columbia, Dutchess, Greene, Putnam, Ulster [part])
5. Mid-York (Herkimer, Madison, Oneida)
6. Mohawk Valley (Fulton, Montgomery, Schenectady, Schoharie)
7. Nassau
8. Nioga (Genesee, Niagara, Orleans)
9. North Country (Jefferson, Lewis, Oswego, St. Lawrence)
10. Pioneer (Livingston, Ontario, Wayne, Wyoming)
11. Ramapo Catskill (Orange, Rockland, Sullivan, Ulster [part])
12. Southern Adirondack (Hamilton, Saratoga, Warren, Washington);
13. Southern Tier (Allegany, Chemung, Schuyler, Steuben, Yates)
14. Suffolk
15. Upper Hudson (Albany, Rensselaer counties);
16. Westchester

Appendix B - System Director's Survey

My name is Robert Drake and I am the Systems Administrator for the Mid-Hudson Library System based in Poughkeepsie, New York. I am also an MBA student at SUNY New Paltz currently in my final semester. As part of my MBA program, I am attempting to run a survey across the Cooperative Library Systems of New York in regards to IT services.

The purpose of this System Director survey is to research what IT services/functions each of the Cooperative Library Systems provide, and the resources necessary to provide them. A companion survey is being targeted to Cooperative Library System IT Managers to provide further insight into how these services/functions are performed. Once the data is collected, it will be provided to all survey respondents in order to hopefully facilitate successful cooperation between Library Systems in providing these functions. This report should be available in April/May of 2012.

This survey consists of 23 Questions and is expected to take approximately 30 minutes. If you are unable to finish the survey, you may restart from where you left off as long as you use the same computer as you initially began the survey. If you are unable to answer any question, do not hesitate to leave it blank. If exact answers are not known, please approximate to the best of your ability.

If you have any questions/comments or if you have any difficulty completing this survey, please contact Robert Drake at n02344702@hawkmil.newpaltz.edu. Thank you for your participation.

1. Of which Library System are you Executive Director or Acting/Interim Executive Director?
2. How many member libraries (including branches) are within your system?

Staffing and Budgets

3. What was the system's Total Operating Budget including grants in 2011?
4. How much in total did your system spend in 2011 on the salaries and benefits of staff who provide IT services in any nontrivial capacity?
5. What was the 2011 IT budget for your library system including, but not limited to, licenses, training, contracts, equipment, consultants, and maintenance. (i.e. how much was spent on providing IT services in the last year not including salary costs?)
6. How many FTEs (FullTime Equivalents) work for your system?
7. How many system staff FTEs provide IT services in any nontrivial capacity?
8. If you have experienced any turnover of IT staff in the last two years, why have staff left?
9. How frequently do staff work from home?

Not at all Rarely Sometimes Frequently Very Frequently

Director
IT Staff
Other System Staff

10. What, if any, equipment or reimbursement (ex: laptops, cell phones, vehicle) is provided or funded by the system for staff to perform IT services away from the office?
11. What was the dollar amount of reimbursement the Library System received from Erate in 2011?

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IT Functions

12. How are the following functions performed by your system?

	Not Performed / Not Provided by the system	Performed entirely by System Staff	Performed entirely by a Contracted Company or Service	Performed in part by System Staff and in part by a Contracted or Service
Email				
Website Hosting/Design/Development				
Technology Grant Writing/Other Grant Assistance				
Tech Support Onsite at Member Libraries				
Assistance Purchasing Technical Equipment & Services				
Technology Related Training				
Computer Configuration and/or Repair				
Help Desk/Phone Tech Support/Email Tech Support				
ILS (InterLibrary System) Hosting/Support				
Tech Support for System Personnel & Facility				
Technology Research and Planning				
Server Room Maintenance & Management				
Public Database Support (Ex. Answering Overdrive questions)				
Technology Equipment Disposal				

13. To what extent do you foresee the usage of these functions growing for your system in the next two years?

	Diminishing	Staying the Same	Slightly Growing	Growing	Significantly Growing
Email					
Website Hosting/Design/Development					
Technology Grant Writing/Other Grant Assistance					
Tech Support Onsite at Member Libraries					
Assistance Purchasing Technical Equipment & Services					
Technology Related Training					
Computer Configuration and/or Repair					
Help Desk/Phone Tech Support/Email Tech Support					
ILS (InterLibrary System) Hosting/Support					
Tech Support for System Personnel & Facility					
Technology Research and Planning					
Server Room Maintenance & Management					
Public Database Support (Ex. Answering Overdrive questions)					
Technology Equipment Disposal					

14. What is the biggest difficulty facing your system in regards to providing IT services?

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Consolidation/Cooperation/Shared Services

For the following questions, consolidation is defined as: financial, technological, or organizational changes that result in ‘shared services and merged responsibility’ between or on behalf of multiple library systems in regards to IT functions. Some possible examples would include one library system providing IT services to another, multiple systems negotiating together with a single vendor, or a system contracting with another government entity to providing IT functions on behalf of their system.

15. To what extent would the consolidation of the following functions be beneficial to your system?

Not Beneficial Barely Beneficial Somewhat Beneficial Beneficial Very Beneficial

- Email
- Website Hosting/Design/Development
- Technology Grant Writing/Other Grant Assistance
- Tech Support Onsite at Member Libraries
- Assistance Purchasing Technical Equipment & Services
- Technology Related Training
- Computer Configuration and/or Repair
- Help Desk/Phone Tech Support/Email Tech Support
- ILS (InterLibrary System) Hosting/Support
- Tech Support for System Personnel & Facility
- Technology Research and Planning
- Server Room Maintenance & Management
- Public Database Support (Ex. Answering Overdrive questions)
- Technology Equipment Disposal

16. Rank by perceived viability the following statements describing your System's approach to providing IT servers over the next five years. (1 is most viable, 6 is least viable). Not all statements have to be ranked.

- Our Library System will continue to provide all or nearly all library services for our member libraries with system staff _____
- Our Library System will look to pass library services onto private companies _____
- Our Library System will work with other library systems to provide IT services _____
- A central support entity will be created to take on some IT services for all Cooperative Library Systems _____
- Our library System will work with County Government(s) to provide IT services _____
- Our library System will work with other regional governmental entities (such as Boces/Questar) to provide IT services _____

17. Besides other library systems and the partners considered in the previous question, what entities would your system consider viable partners in consolidating IT services?

18. What, if any, research toward consolidating IT services has your system performed?

19. What is your biggest concern with IT service consolidation?

20. Do you have any other comments in regards to this survey?

21. May we contact you for a few follow up questions or clarification?

Viability of Information Technology Consolidation

Appendix C -- IT Manager Survey

My name is Robert Drake and I am the Systems Administrator for the MidHudson Library System based in Poughkeepsie, New York. I am also an MBA student at SUNY New Paltz currently in my final semester. As part of my MBA program, I am attempting to run a survey across the Cooperative Library Systems of New York in regards to IT services.

The purpose of this IT Manager survey is to research how each Cooperative Library provides IT services/functions. A companion survey is being targeted to Cooperative Library System Directors to gain further insight into the system's size and funding. Once the data is collected, it will be provided to all survey respondents in order to hopefully facilitate successful cooperation between Library Systems in providing these functions. This report should be available in April/May of 2012.

This survey consists of approximately 97 Questions and is expected to take approximately 120 minutes. If you are unable to finish the survey, you may restart from where you left off as long as you use the same computer as you initially began the survey. If you are unable to answer any question, do not hesitate to leave it blank. If exact answers are not known, please approximate to the best of your ability. For most questions, an essay box has been provided to allow you to elaborate as much as possible as to how different functions are provided and the associated costs of doing so. If you have any questions/comments or if you have any difficulty completing this survey, please contact Robert Drake at n02344702@hawkmail.newpaltz.edu. Thank you for your participation.

1. What is your name?
2. What is your title?
3. Which Library System do you work for?
4. Approximately how much did the system spend supporting the system's IT infrastructure in 2011 (i.e. bandwidth, electricity, air conditioning, new equipment, replacement equipment, maintenance costs, UPS batteries or rackspace costs, collocation fees, VPS costs, etc.)?
5. Approximately how many manhours in a given month do you/your staff spend maintaining, upgrading, troubleshooting, or supporting IT infrastructure?
6. How much bandwidth does the Library System have?
7. Does the system have a direct network connection to any member libraries (either VPN or WAN link)?
 - No Member Libraries
 - 25% or Less of Member Libraries
 - 50% or Less of Member Libraries
 - 75% or Less of Member Libraries
 - All Member Libraries
8. Do you use any virtualization products in your production environment?
9. What virtualization software do you use?
10. How much planned and unplanned downtime did you have in the previous year for your highest priority services?
 - Less than 1 hour (~99.99% uptime)
 - Less than 4 hours (~99.95% uptime)
 - Less than 9 hours (~99.9% uptime)
 - Less than 18 hours (~99.8% uptime)
 - Less than 2 days (~99.5% uptime)
 - More than 2 days of downtime
11. What are your biggest difficulties in regards to maintaining IT infrastructure?
12. Are you/your staff responsible in anyway for the system or member libraries' email?
13. Approximately how many manhours in a given month do you/your staff spend preparing, maintaining, or supporting email access? If work is inconsistent, please try calculate a monthly average based on total work performed across a year. Example tasks would include: creating/removing accounts, adding/changing/modifying aliases or distribution lists, training users to use their email, setting up email clients (outlook, thunderbird, or mobile access), troubleshooting lost or missing emails, archiving emails, provisioning or updating email servers, or configuring or maintaining spam filters. Routine email usage should not be included in this number.

Viability of Information Technology Consolidation

14. How much did the system spend in 2011 providing email? (Please include direct expenses only such as licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

15. For whom is this function routinely provided (check the answers that best apply)

	System Staff & Operations	25% or Less of Member Libraries	75% or Less of Member Libraries	50% or Less of Member Libraries	All Member Libraries
E-Mail _____					
Other (please specify) _____					

16. What, if any, additional charges (beyond member libraries specifically for email accounts descriptions of charges and amounts.

17. How many eMail accounts do you host, manage, or support?

Less than 25
 25-50
 50-100
 100-250
 250-1000
 More than 1000

18. What email service/software do you use?

Exchange
 Zimbra
 Postfix
 Sendmail
 Gmail for domains (Google Apps)

Gmail
 Yahoo

19. What are your biggest difficulties in providing email ?

20. Are you/your staff responsible in anyway for hosting or web design or web development?

21. Approximately how many manhours in a given month do you/your staff spend preparing, maintaining, or supporting websites with hosting, design services, or development? If work is inconsistent, please try calculate a monthly average based on total work performed across a year.

Example tasks include: provisioning or updating web hosting or web servers, configuring DNS settings, troubleshooting hosting issues, modifying web hosting account settings or features at places such as Godaddy, Network Solutions, 1and1 or other hosts, creating or modifying graphics, configuring content management systems such as Wordpress, Drupal, or Joomla, adding functionality to websites, adding content to websites (if performed by IT staff), training others to add content/graphics, apply/testing themes, adding/updating plugins/modules. Web server maintenance should not be included in this function.

22. How much did the system spend in 2011 providing web hosting/design/development?

(Please include direct expenses only such as licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

23. For whom is this function routinely provided (check the answers that best apply)

	System Staff & Operations	25% or Less of Member Libraries	75% or Less of Member Libraries	50% or Less of Member Libraries	All Member Libraries	Not-Provided
Website Hosting						
Website Design						
Website Development						
Website Content Creation						
Other, please specify						

24. What, if any, additional charges (beyond generic member fees) are levied against member libraries specifically for website hosting, design, and or development? Please include short descriptions of charges and amounts.

Viability of Information Technology Consolidation

25. Which of the following do you use:

Joomla Drupal Wordpress Static HTML Websites

26. What, if any, website hosting providers do you use?

Godaddy 1&1 Bluehost Network Solutions Hosted at System

Other (please specify)

27. What, if any, outside companies/consultants are used to provide website development/design and what is the extent of their support?

28. What are your biggest difficulties in providing web hosting/design/development?

29. Are you/your staff responsible in anyway for the system or member libraries' technology grants?

30. Approximately how many man hours in a given month do you/your staff spend researching, preparing, or advising the system or member libraries on technology grants?

If work is inconsistent, please try calculate a monthly average based on total work performed across a year.

Example tasks include applying for grants, researching available grants, providing training in regards to grant applications, and researching information for grant applications.

31. How much did the system spend in 2011 providing this function? (Please include direct expenses only such as licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

32. For whom was this function provided in 2011 (check the answers that best apply)

<input type="checkbox"/> System Staff & Operations	<input type="checkbox"/> 25% or Less of Member Libraries	<input type="checkbox"/> 75% or Less of Member Libraries	<input type="checkbox"/> 50% or Less of Member Libraries	<input type="checkbox"/> All Member Libraries
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Grant Assistance

Other (please specify) _____

33. What, if any, additional charges (beyond generic member fees) are levied against member libraries specifically for grant assistance? Please include short descriptions of charges and amounts.

34. What technology grants have been supported in the previous 2 years? Please include approximate total value of each grant if known.

35. Describe what grant assistance was provided in 2011?

36. What, if any, outside companies/consultants are used to provide this service and what is the extent of their support?

37. What are your biggest difficulties in providing technology grant assistance?

38. Are you/your staff responsible in anyway for the system or member libraries' technology training?

39. Approximately how many manhours in a given month do you/your staff spend preparing, performing, attending, or supporting technology based training on behalf of the system, member libraries, and the IT department? If work is inconsistent, please try calculate a monthly average based on total work performed across a year.

Example tasks include giving training programs, creating guides and training documentation, hiring outside trainers, attending training seminars, conferences, classes, or webinars, or viewing/reading/watching other training materials.

40. How much did the system spend in 2011 either on or in performing technology related training? (Please include direct expenses only such as travel costs, licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc)

Viability of Information Technology Consolidation

41. Which statement best describes the percentage of member libraries that take advantage of training run by IT staff?

- System Staff & Operations
 25% or Less of Member Libraries
 75% or Less of Member Libraries
 50% or Less of Member Libraries
 All Member Libraries

Technology Training _____
 Other, Please specify _____

42. What, if any, additional charges (beyond generic member fees) are levied against member libraries specifically for technology related training? Please include short descriptions of charges and amounts.

43. In the past year, what technology training has been given to the system's non IT staff by the system's IT staff?

44. In the past year, what technology training has been provided to member library staff by the system's IT staff?

45. In the past year, what technology training have system IT staff received?

46. What are your biggest difficulties in providing technology related training?

47. Are you/your staff responsible in anyway for the system or member libraries' technology equipment disposal?

48. What, if any, additional charges (beyond generic member fees) are levied against member libraries specifically for equipment disposal? Please include short descriptions of charges and amounts.

49. Approximately how much equipment does the system dispose of in a given year? (Number of items)

50. Are you/your staff responsible in anyway for maintaining a Tech Support Helpdesk/helpline?

51. Approximately how many manhours in a given month do you/your staff spend performing, managing, maintaining, or supporting an IT helpdesk? If work is inconsistent, please try calculate a monthly average based on total work performed across a year.

Example tasks include answering support emails/phone calls, documenting issues, and fulfilling support requests that do not involve onsite support.

52. How much did the system spend in 2011 on its helpdesk? (Please include direct expenses only such as licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

53. For whom is this function routinely provided i. e. who uses the helpdesk? (check the answers that best apply)

- System Staff & Operations
 25% or Less of Member Libraries
 75% or Less of Member Libraries
 50% or Less of Member Libraries
 All Member Libraries

Help desk Support _____

Other, Please specify _____

54. What, if any, additional charges (beyond generic member fees) are levied against member libraries specifically for offsite support? Please include short descriptions of charges and amounts.

55. In a typical month, approximately how many queries are received by email/web form?

56. In a typical month, approximately how many queries are received over the phone?

57. How heavily is remote access (Remote Desktop, GoToAssist etc) used to resolve issues?

- Never
 Rarely
 Sometimes
 Frequently
 Very Frequently

58. In the past year, what were the top categories of tech support? (I.e. Most common issues)

59. During what hours of operation is there a reasonable guarantee that a helpdesk query will be answered by a staff member? (Do not include "on call" hours.)

60. How does the Help Desk manage off hours support?

61. In a typical month, how many queries are received offhours?

62. What, if any, helpdesk software is used to log queries?

63. If support is provided for public facing databases (such as Overdrive), how many queries are received from the public in a typical month?

64. What are your biggest difficulties in providing offsite (Helpdesk) support?

65. Do you/your staff perform onsite tech support visits to member libraries?

Viability of Information Technology Consolidation

66. Approximately how many man hours in a given month do you/your staff spend preparing, performing, or logging visits to member libraries for the purpose of fixing problems, installing equipment, or providing other technology assistance? If work is inconsistent, please try calculate a monthly average based on total work performed across a year.

67. How much did the system spend in 2011 in providing tech support visits? (Please include direct expenses only such as travel costs, licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

68. For whom is this function is routinely provided (check the answer that best applies)

System Staff & Operations	25% or Less of Member Libraries	75% or Less of Member Libraries	50% or Less of Member Libraries	All Member Libraries
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Tech Support

Visits Other (Please specify) _____

69. What, if any, additional charges (beyond generic member fees) are levied against member libraries specifically for tech support visits? Please include short descriptions of charges and amounts.

70. Approximately how many onsite visits are performed in any given year?

71. What, if any, outside companies/consultants are used to provide this service and what is the extent of their support?

72. What are the most common issues that require onsite assistance?

73. What are your biggest difficulties in providing onsite technology support (Tech Support visits)?

74. Are you/your staff responsible for supporting/maintaining an ILS?

75. Approximately how many man hours in a given month do you/your staff spend providing ILS support? If work is inconsistent, please try calculate a monthly average based on total work performed across a year.

Example tasks would include upgrading the software/hardware, installing clients, performing backups, troubleshooting connectivity, writing or troubleshooting scripts, and other predominately IT related tasks. Regular ILS client usage should not be included.

76. How much did the system spend in 2011 providing this function? (Please include direct expenses only such as licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

77. What ILS do you use?

78. How many of your member libraries do not use the ILS?

79. What, if any, additional charges (beyond generic member fees) are levied against member libraries specifically for use of the ILS? Please include short descriptions of charges and amounts.

80. How many "licenses" or concurrent client users may use the ILS at any given time?

81. Is the ILS hosted locally or offsite?

82. Are computers installed with client ILS access customarily purchased and/or maintained by the system?

83. What are your biggest difficulties in providing ILS access?

84. Are you/your staff responsible in anyway for replacing or fixing or configuring system or member library computers?

85. Approximately how many man hours in a given month do you/your staff spend preparing, performing, or supporting this function on behalf of the system, member libraries, and the IT department?

Example tasks include reformatting computers, installing software, repairing hardware, and logging work performed.

86. How much did the system spend in 2011 in order to configure, repair, or troubleshoot computers? (Please include direct expenses only such as licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

Viability of Information Technology Consolidation

87. For whom is this function routinely provided (check the answers that best apply)

System Staff & Operations	25% or Less of Member Libraries	75% or Less of Member Libraries	50% or Less of Member Libraries	All Member Libraries
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Equipment, repair or configuration

Other (Please specify) _____

88. What, if any, additional charges (beyond generic member fees & purchase costs) are levied against member libraries specifically for computer repair/configuration? Please include short descriptions of charges and amounts.

89. How many computers/equipment items are configured/repared in any given month?

90. Describe the work flow for receiving, configuring, and returning computers? (specifically software used for cloning, automating installs, logging and tracking, inventory, etc)

91. What, if any, outside companies/consultants are used to provide this service and what is the extent of their support?

92. What are your biggest difficulties facing your system in providing computer repair/configuration assistance?

93. Do you/your staff purchase on behalf of or give advice to member libraries on the purchase of technical equipment and software?

94. Approximately how many man hours in a given month do you/your staff spend advising on the purchase of technical items and/or purchasing items on behalf of member libraries? If work is inconsistent, please try calculate a monthly average based on total work performed across a year.

95. What, if any, additional charges beyond purchasing costs are levied against member libraries for purchasing equipment (i.e. How and how much does the system markup equipment costs)? Please include short descriptions of charges and amounts.

96. How much was spent on equipment for member libraries in 2011?

97. How much did the system spend in 2011 on IT planning and research and on what? (Please include direct expenses only such as licensing costs, contract amounts, or bills for service. Do not include salaried costs or incidentals like electricity, domain name registration, etc.)

98. What are the major projects planned for your IT department in the coming 25 years?

99. What services/technologies does the system use within member libraries to support, secure, or maintain wireless access for patrons?

100. What software, if any, does the system support in regards to patron printing / computer time management (i.e. SAM, Envisionware, etc)?

101. Other than the services listed and described in this survey, are there any other IT services provided by your system either to itself or to member libraries? If so, please describe and approximate costs/time usage.

102. To what extent do you foresee the usage of these functions growing for your system in the next two years?

Diminishing	Staying the Same	Slightly Growing	Growing	Significantly Growing
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Email

Website Hosting/Design/Development

Technology Grant Writing/Other Grant Assistance

Tech Support Onsite at Member Libraries

Assistance Purchasing Technical Equipment & Services

Technology Related Training

Computer Configuration and/or Repair

Help Desk/Phone Tech Support/Email Tech Support

ILS (InterLibrary System) Hosting/Support

Tech Support for System Personnel & Facility

Technology Research and Planning

Server Room Maintenance & Management

Public Database Support (Ex. Answering Overdrive questions)

Technology Equipment Disposal

Viability of Information Technology Consolidation

103. To what extent would the consolidation of the following functions be beneficial to your system?

	Not Beneficial	Barely Beneficial	Somewhat Beneficial	Beneficial	Very Beneficial
Email					
Website Hosting/Design/Development					
Technology Grant Writing/Other Grant Assistance					
Tech Support Onsite at Member Libraries					
Assistance Purchasing Technical Equipment & Services					
Technology Related Training					
Computer Configuration and/or Repair					
Help Desk/Phone Tech Support/Email Tech Support					
ILS (InterLibrary System) Hosting/Support					
Tech Support for System Personnel & Facility					
Technology Research and Planning					
Server Room Maintenance & Management					
Public Database Support (Ex. Answering Overdrive questions)					
Technology Equipment Disposal					

104. Rank by perceived viability the following statements describing your System's approach to providing IT servers over the next five years. (1 is most viable, 6 is least viable) It not necessary to rank all options.

- Our Library System will continue to provide all or nearly all library services for our member libraries with system staff
- Our Library System will look to pass library services onto private companies
- Our Library System will work with other library systems to provide IT services
- A central support entity will be created to take on some IT services for all Cooperative Library Systems
- Our library System will work with County Government(s) to provide IT services
- Our library System will work with other regional governmental entities (such as Boces/Questar) to provide IT services

105. Besides other library systems and the partners considered in the previous question, what entities would your system consider viable partners in consolidating IT services?

106. What, if any, research toward consolidating IT services has your system performed?

107. What is your biggest concern with IT service consolidation?

108. Do you have any other comments in regards to this survey?

If existent, please send the technology plan that covers your 2012 budget year to n02344702@hawkmil.newpaltz.edu

If existent, please send a sample contract given to member libraries for IT services to n02344702@hawkmil.newpaltz.edu

109. May we contact you for a few follow up questions or clarification?

110. What is the best way of contacting you? (Phone Number, Hours, Etc)

Editor's Choice Article

Webinars: Continuing Education and Professional Development for Librarians

By Dorothea J. Coiffe

Abstract: One of the most cost effective ways of learning new techniques and best practices, while sometimes earning continuing education credit, is by attending webinars. This article will tell you where to find relevant webinars, the pro and cons of webinars, webinar etiquette for presenters and attendees, and how to go about hosting your own webinar.

Introduction

The 2012-2016 strategic plan for the Institute of Museum and Library Services (IMLS) is entitled “Creating a Nation of Learners.” The goals for their strategic plan emphasize the preparation of “people to be full participants in their local communities and our global society,” the “promot[ion of] the use of technology to facilitate discovery of knowledge and cultural heritage,” and the ability to “sustain and increase public access to information and ideas through [their] libraries.” This means librarians and information specialists need to know the latest sources and technologies. Also, it is important to stand out in any economy, but especially in the iffy ones. Blakiston points out that a librarian job description will “likely look very different in just five years’ time, and the pressure to keep up and stay relevant is greater than ever” (2011, 729).

Librarians incorporate a myriad of skills during their careers, some of which may not necessarily be “librariansy.” In this fast paced technological era, librarians need to stay up-to-date with innovations in our fields and those tangential to it. Montgomery states in her embedded librarian article that, “librarians’ roles will evolve as technology develops” (2010, 310). For instance, at some point we all need managerial skills, better time management skills, know how to market our services, how to fundraise, give better presentations, or understand and use the latest social media.

Lynn, Bose and Boehmner point out that “Identifying national trends, staying abreast of current technology, and adding to the knowledgebase are integral parts of being a librarian” They also stressed that “without opportunities to enhance expertise, librarians’ skills will stagnate” (2010, 59). Not too long ago, to learn new techniques, you would have attended a seminar or workshop to improve yourself in your career. Nowadays most institutions face budgetary cut backs, so attending face-to-face meetings, training seminars, or classes may be cost prohibitive. These not only cut into an organization’s funds, they also absent a vital person from their daily duties. However, the internet now offers another way to keep abreast of the newest technologies and to update your skills repertoire, by logging on to a *webinar*.

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Webinars are a “convenient, efficient, and comfortable way to receive and deliver information” (Riddle 2010, 28). Most webinars last an hour to an hour and a half and focus on a specific topic. Bryan Pearson speaks of the beauty of webinars when he tells his *Africa Health* readers that the keynote speaker for the May 2012 webinar on Medical Education will be speaking from Geneva, another presenter will present from Liverpool, and that he would be chairing the virtual seminar from a third location (2012, 15). Some webinars charge a fee, though these are typically much less than the cost of travel and registration for face-to-face courses. Therefore, “attending” a webinar for continuing education or professional development benefits both employer and employee.

Definitions

Continuing education, or CE, (also called ‘professional development’) is a term used to describe “organized activities with the conscious intention of bringing about changes in information, knowledge undertaking, skill appreciation, and attitudes” (Liveright & Haygood, 1968) to enhance and enrich professional or personal skills. The word *webinar*, first coined in 1997, merges the words *web* and *seminar*. Cambridge Dictionaries Online elegantly defines *webinar* as “an occasion when a group of people go online at the same time to study and discuss something.”

Often used interchangeably, *webcasts* and *web conferences* are different from *webinars*. The word *webcast* (first coined in 1995) literally means a web-based broadcast. A *webcast* (also called asynchronous web-based instruction) may be any multimedia presentation made available to the world via the internet. There is no interaction. One just passively views a prerecorded session. This doesn’t mean webcasts are not interesting or fun; they just don’t have any immediate feedback. Many companies and institutions still do not make a distinction between live and recorded online presentations, calling their *webinars* “live webcasts.”

A *web conference* is a webinar’s ‘bigger brother.’ *Web conferences* attempt to simulate the atmosphere of a real conference online by having simultaneous meetings (webinars) going on at the same time. People from all over the world have the opportunity to present videos and/or slides, speak, offer ideas, ask questions, have discussions, and respond in real-time at a web conference, but virtually. Like a bricks and mortar conference, you need to register and then you may attend several “meetings,” or *webinars*, in a day or over several days. The recordings of these are uploaded later as *webcasts* for those who could not attend them in real time.

How to Find Webinars

How does one find out about webinars? If you are a member of any national or local professional library organization (such as the American Library Association or the Association of College and Research Libraries), or subscribe to a library based service organization (such as the Metropolitan Library System, New York State Higher Education Incentive, or OCLC) or are a union member, webinars tend to find you. On the average, one receives five to ten opportunities to register for a webinar each time you open your email. Though many webinars are free, some are not. You might have to pay for the webinar, the CE credit, or be a member of the organization sponsoring their ‘free’ webinar.

Several organizations give webinars for CE credit. For instance, the National Institutes of Health, the U.S. National Library of Medicine (NLM), and the Medical Library Association (MLA) teamed up to give a four-part webinar series on health indicators. The MLA conferred one CE credit-hour for each webinar’s module when the participant completed a short online evaluation at the end of each module. They, of course, are not they only source for CE webinar credits.

Others who offer webinars for CE credit on topics that range from not quite librarian-related programs like Dropbox or Prezi to the very heart of librarianship like ‘**The Accidental Library Marketer**,’ ‘Digital Preservation Fundamentals,’

‘Grantseeking Basics,’ or ‘**Communication Skills for Front Line Staff.**’ These were just some of the topics given by The Texas State Library and Archives Commission, the Nebraska *Librarian* Certification Program, and the North Central Library District of Pennsylvania.

Alternatively, if you do a Google search using “webinar” as one of the keywords, you will find many. For example, the keywords *webinar*, *library*, and “*continuing education*,” resulted in over three hundred and fifty thousand hits. If one adds another keyword such as *management*, this will narrow down your results. Keep in mind that “archived” or “recorded” webinars are actually webcasts with no live interaction.

Apple’s *iTunes* has a product related to a *webcasts* called podcasts. These are prerecorded and though they are not interactive, they are not webinars- but they are very popular. Apple offers podcasts on many different kinds of topics, library related and not. Like television shows, many podcasts are episodic. All you have to do is download *iTunes* to your device (which does not have to be an Apple product) then select your free podcast in their *iTunes* Store.

Computer/Tablet requirements

Once you find a webinar you are interested in, you usually register online for it. They will always ask for your email address. You may not want to give your primary email address if you don’t want to receive unsolicited email. Webinar presenters typically send email reminders to those who signed up. These emails include the URL to your webinar and your username, and any password needed to sign in. Some ask that you test your computer or tablet system to make sure you will be able to hear and see what the speakers are doing in real time. It is best to do this check since some webinar platforms may require you to download the latest version of a multimedia platform such as Adobe Flash, Java Media, and Apple’s SkyFire. In general, for a good webinar experience, as of this writing here are the basic computer/tablet requirements you will need:

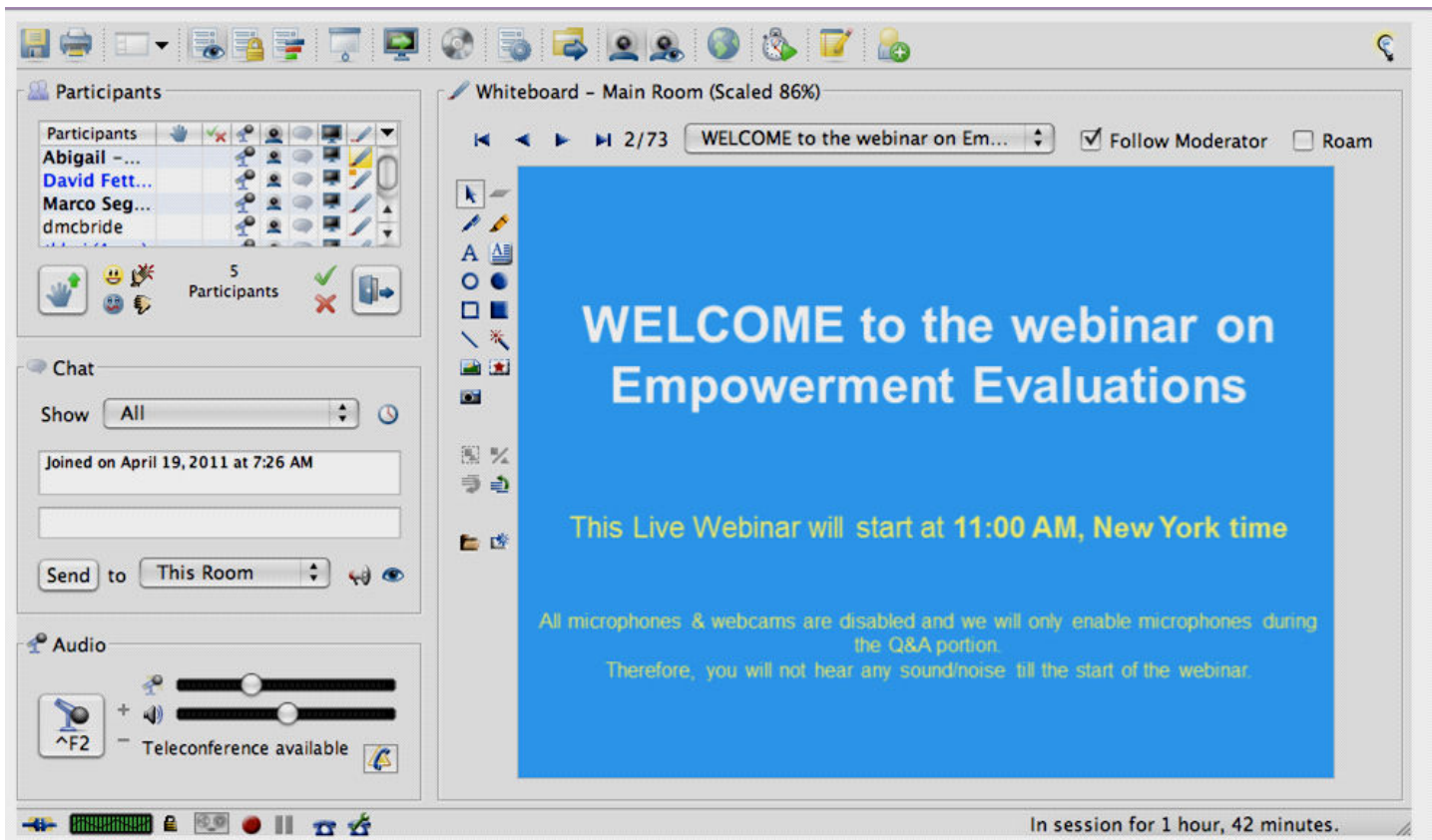
- 500MB or more of RAM memory
- CPU 800 MHz –your computer processor’s speed
- Internet connection speed: DSL or faster
- Up-to-date web browser software (i.e. FireFox 9+, or Internet Explorer 7+, Safari 3+, Chrome 21+)
- Working audio card and speakers

You may also need to adjust some settings on your computer to enable maximum participation in a webinar. Some among these include:

- Set your monitor’s resolution to 1024 x 768 or higher.
- Temporarily set internet and cookies security to low.
- Temporarily un-block pop-ups.

Webinars are not just for desktop computers or laptops any more. Fuze Meeting was the first company to release a webinar conferencing service for Apple’s iPad tablet in 2010. This webinar tool allows users to present and participate in meetings from their iPad, utilizing all the tablet’s touch navigation functionalities. Now most all webinar platforms also function on Android based devices including tablets and smartphones.

After logging into a webinar from the emailed URL, a window will start up using the presenter’s chosen webinar platform software. Depending on band width limitations, some webinars can support live video streaming, where you



may see your presenters in real-time. However, most presentations are dynamic and engaging with just the audio, PowerPoint slides, and the interactive features. All webinar platforms have similar features. (See figure 1).

Figure 1: This is a typical webinar interface as seen by a participant on their computer or tablet. (This is example is of an Elluminate Live! webinar platform.) The main part of the screen is the ‘whiteboard’ area (in this case, it’s on the right) where the presentation takes place. Notice all the icons available so the presenter is able to communicate interactively in real time with the participants. (Sometimes they turn these icons on for the participants’ use.) On the left, there is a box listing the participants’ names, after you sign on, you will see your name here. Note the icons available for the participants so the moderator gets ‘emotional’ feedback during their talk. Occasionally there are letters in this area so the moderator can poll their audience; results of these polls will show up in the whiteboard area. Below the participants’ area is the chat box for you to interact with either the presenter(s) and/or your fellow participants during the presentation. Below the chat box are the audio controls for the participants. At times, a webinar host allows participants to audibly ask a question or make a comment using a microphone at the participant’s computer or via their phone. Below the audio section are icons indicating connectivity to the webinar, that the session is being recorded, and tools for teleconferencing.

The main part of the screen or the ‘whiteboard’ is where the presentation takes place. Some webinar interfaces have icons available so the presenter is able to communicate interactively in real time with the participants. There is always a box listing the participants’ names. After you sign on, you will see your name there. Usually there are icons available for the participants so the moderator gets ‘emotional’ feedback during their talk as well as letters so the moderator can poll their audience. Results of these polls will show up in the whiteboard area. There is always a chat window for you to (text) interact with either the presenter(s) and/or your fellow participants during the presentation. Some webinar interfaces have audio controls if a webinar host allows attendees to audibly ask questions or make a comment using a microphone at the participant’s computer or via their phone. If you need to temporarily step away from the webinar, there is usually an icon for this. This is only polite.

Webinar Etiquette- Dos & Don'ts

As with any social interaction, webinars have rules of etiquette for both the presenters and the participants. These make the experience pleasant for all involved.

Webinar Attendees' Tips and Etiquette

- To minimize technical problems, test your computer system found in your confirmation email well before the start time.
- If phoning in to hear the webinar, put your phone on mute-especially if you're eating or listening to music. You may want to put a "Don Not Disturb" note on your office door indicating you are attending a webinar.
- Don't put your phone on "hold" during the webinar if you have hold music -- other attendees can hear your "hold" music during the presentation. Instead, use the 'step away' icon in the webinar screen.
- Ask the presenter if it's OK to ask a follow-up rather than assuming it is.
- Put your ego aside, this is not the forum to test to see how much more you know than the presenter does. This is also not the time to file a complaint with the presenters either.

Webinar Presenters Etiquette and Do's & Don'ts:

- Make sure the web registration page works. Confirm a prospective attendee's registration right away. This confirmation email should include the webinar's title, URL, pass code, audio dial-in number, webinar's software requirements, and the phone number for technical support.
- Tell prospective attendees on the registration page how long the webinar will take. Send email reminders to those who registered with all the needed info to join in.
- Start and end on time.
- Present your webinar from a quiet place with little background noise.
- Tell prospective attendees what system requirements are needed for attending beforehand via email.
- Do a few of practice runs of your presentation until you're comfortable with your webinar's features.
- Select a webinar provider that allows a test of the prospective attendee's computers to avoid major glitches.
- Turn off instant messaging or auto email notifications on your presentation computer unless you prefer us to watch that YouTube video your friend just IM'ed you.
- Ask that attendees mute their phones if their listening to the webinar on speakerphone.
- Make sure that the attendees can see your screen or slide when you start. It helps to have an assistant who can alert you to problems such as audio or desktop resolution issues.
- If you are recording the webinar for future viewing, tell the participants early in the presentation. Also, send an email of your recorded webcast's URL following the webinar.
- Most webinar presenters need to talk slower. If you're demonstrating software, know that your words and actions may not be in sync if you go too fast.
- If you use audience polling, give the results right after the question.

- For your computer's and your company's safety, do not have prominently displays icons showing that you haven't updated your latest software patches or virus protection.
- If you want to improve, ask for feedback on your webinar.

Pros/Cons of Webinars

As Dale Carnegie said, "There is only one way... to get anybody to do anything. And that is by making the other person want to do it." Therefore "[l]earning opportunities must be intrinsically motivating. Employees must ... feel they are making a contribution and that their work and knowledge are appreciated ... [a]nother key motivator is setting an example at an administrative level" (Blakiston 2011, 734). Webinars like any other technology have their plusses and minuses. Once you know what to expect in a webinar, the pros outweigh the cons.

Webinar 'pros':

- Personal satisfaction you get from increasing your knowledgebase.
- A cost-effective and inexpensive learning method.
- Can acquire continuing education credit.
- Implement something new in your library from one or more of these learning experiences. Update your understanding of an older process that has new steps.
- You might hear something you know already but from a different angle, giving you a better understanding of the topic. On a related note, you may discover there's more to know even if you think you knew it all.
- Get the big picture of a process you've only known pieces and parts of.
- Develop new ideas and paths to pursue in your career. Identify key players that you need to become more acquainted with.
- Evaluate the latest tools and technology.
- Learn what to avoid.
- After the webinar, share your new information or skills with your co-workers.
- Update your resume to include new skills, thereby increasing chances for promotion or landing a new position.

There are three main negative characteristics of webinars, namely dealing with technology, humans, and time. Sometimes these three drawbacks intermingle. For instance, some webinars have hundreds of attendees from all over the world. This could be their first or hundredth webinar, but the moderator has no way of knowing this. Even if a participant or moderator is not new to webinars, they may be new to this particular webinar platform. Therefore, some webinar dissatisfaction results from either the facilitator or other participant's lack of experience which eats into the webinar's time.

Another common complaint is the lack of facial or body cues. Since those who hold webinars usually do not have a visual on their participants, the main complaint of webinar presenters is that they do not get the signals most teachers look for in their classes. Facilitators cannot see the facial or body language of bewilderment, boredom, or involvement (or whatever) of their students, so they tend to talk on and on at a fast clip, change slides quickly, and not notice if people have questions (Abshier 2012, 175). This, in turn, tempts the webinar participants to tune out and multitask. They might open other windows to do other work, answer their emails, or browse Facebook, and the like. The best fix to this is to incorporate interactive polls and surveys with your participants besides doing a couple of test runs with

trusted colleagues beforehand. After all, “[I]f you’re not engaged in learning, well . . . you won’t learn” (Riddle 2010, 28).

Just as with face-to-face learning experiences, the quality of your webinar depends on your instructor’s knowledge of the subject and their lesson preparation. In the case of webinars, a webinar instructor needs to be very familiar with the technology of the webinar platform. There is no other way than to know the webinar platform’s features other than to practice and practice some more. Riddle talks of tackling the learning curve with Adobe Connect webinar platform by logging in as both presenter and participant to get a good feel as to how the two parts interact (2010, 30). However technical glitches happen. It does not matter how seasoned the webinar giver is; these are just the happenstances of life.

Lastly, since webinars are live, the time of day is fixed. You may find a fantastic webinar topic but if its start time is 11pm or 3am local time because the presenter is Seoul, you probably will skip it. Conversely some great webinars may fall in your workday calendar but conflict with your other daily duties. Another factor is the human propensity to procrastinate. Most people now know that a webinar recording (webcast) will be uploaded within hours of the live webinar and opt to watch it on their own time, forgoing the interactive aspects.

Hosting Your Own Webinar

Perhaps after attending several webinars, you would like to give one. First, you need an idea. Do you know something that others will benefit from? Like any other task, you must do your homework first. Know that creating a webinar takes a lot of time and effort. It is best to research to see if there are no others offering an online lesson on a similar topic to yours -- there is no need to reinvent the wheel. You will need to develop a good outline or syllabus that would comfortably be covered in 60 to 90 minute’s time. This time should include your participant’s tech problems and questions on your presentation. Patrice Collins warns to “keep it basic to help increase your first-time success”, this way you may “test and fine-tune” your presentation (2011, 58).

Hosting a webinar is not a one-person show. You will need at least one co-facilitator who should be as familiar with your webinar platform’s features as you are. They will run interference for you by monitoring the participants’ questions/responses and help you with any technical hiccups. It may behoove you to familiarize yourself with the webinar etiquette section to be a better webinar host. Keep in mind that not all ‘digital natives’ are tech geeks – nor are all ‘digital immigrants’ luddites, so be prepared for all levels of technical competency. It is also essential to provide email reminders with any pertinent links, articles, or handouts prior to your webinar. Here is a checklist of what you should know and have prepared for giving a webinar:

- Chose a webinar platform that has the ability to screenshare, poll, show visuals and demos, and has a whiteboard, chat box, icons for participant’s answers, *and is recordable*. Select a webinar platform that has good support service in real time.
- One or two trained co-facilitators
- Have a tight, well timed script that covers your topic in the time allotment
- Don’t cram too much type or information on your slides. Keep them simple and leave plenty of white space or background.
- Plenty of time to practice; then practice, practice, practice.
- Maybe invite an industry expert, customer, or partner to participate. This might stimulate more interest and participation.
- Reinforce your key points throughout your webinar.

Future of Webinars

There are a few things in the world that are designed so well, like the mouse trap or a safety pin, that there is little room for improvement. Webinar platforms almost fall into this category. However, there are a few new features that can make them more engaging and give a fuller multimedia experience. Some of these interface features ease those hosting or attending the webinar, while other new features deal with what device people may attend the webinar.

Many webinar interfaces now are capable of letting the participants view the host or speakers live via a webcam as they present. Attendees are able to see them in a mini live-feed box somewhere on the webinar's screen. It would be impractical for the speaker to have a similar view of the attendees since many webinars have quite a few participants, some as large as 500 or more. Other improvements enhance the VoIP (Voice over Internet Protocol) audio that increases clarity and reduces lag by maximizing the signal strength allowing attendees to hear you better. Some webinar platforms made their icons easier to see, more intuitive, and made the polling response options better. Other platforms permit attendees to easily join your webinar in seconds instead of registering in advance. Some companies made sure that those with disabilities have complete accessibility with voice commands. On some webinar companies, the host's dashboard allows them to "see" their audience, including who's got their hand raised, how many are paying attention, and what your presentation looks like on *their* screen. Hosts may launch polls, prepared in advance or on the fly, or to add/edit content to involve their audience more spontaneously during their talk. Another recent feature is in the listing of the participants' names (usually above the chat box) will only show the one participant logged in at a given computer of the perhaps several hundred participants. This innovation is to protect the privacy of the attendee. Webinar presenters are picking up on a new learning trend called "snack learning." These are small-sized portions meant to take no more than 5-10 minutes making learning convenient and cater to all types of learners. These types of webinars are good for brushing up on an old topic or learning the basics of a new one in between meetings or need a quick tutorial on how to run a software program.

For those who give webinars, there are now features that include self-service registration of attendees with automated reminder emails to lighten your prep work. They also try to ease the close of your presentation by getting feedback from attendees with a survey, generating a report that will show all poll, Q & A, survey data, attendee interest levels, and registration information. As with the automatic registration, they will automatically send follow-up emails as well as the archived webcast of your webinar to your participants and to those who inquire later about your talk. Another new feature is called Tin Can API (an app), a brand new learning technology which captures the activities of the learning experiences (listening, reading, writing, building, watching, playing approving, searching, for example) by collecting 'noun, verb, object' statements. It records what is actually being done by both the instructor and the learner then making the data quantifiable, shareable, and trackable. Though first created for e-learning and hybrid learning, Blackboard (Collaborate webinar platform) is one of the many companies using this technology.

Webinar platform companies made great strides to assure that webinar participants may use a Mac or a PC or no computer at all. In the spirit of BYOD, or *Bring Your Own Device*, almost all webinar platforms now have tablet and smart phone with quick and responsive interfaces. With the smaller devices, they added voice-activated video switching, view content and video simultaneously while still being able to pinch to zoom and scan. All these improvements though have not changed the fundamental way in which one gives or attends a webinar; they just made the experience more spontaneous and engaging.

Conclusions

Online meetings and web conferences aren't just for big companies anymore. "Just as social networking has provided new tools [for everyone]... webinars will continue to be the new face of professional development" (Frederick 2011, 40). As Cassner and Adams point out, webinars are useful for "newly hired, mid-career, or senior, address continuing education needs for professional and personal growth" (2012, 128). They enable communication between just a few

people to literally thousands. As a librarian, you should take every opportunity to attend in a webinar, even if the subject is on the edge of your area of interest, it just may open a new avenues for you. Here are reasons to convince you to sign up for a webinar now:

- To attend, all you need is a computer/tablet an internet connection/Wi-Fi -without any of the usual travel fuss.
- We *never* know everything. There are always new things to learn.
- You will meet, and maybe connect to new people, in or near the area of your focus, or those in a new field for you.
- Bad hair day? No problem. Tie stains? No problem. No one can see you.
- Presenter lives in Mumbai and you live in Moose Jaw, Canada? No problem, except for the time difference; good thing most webinars are recorded!
- Because it's fun!

Explore These to Find Webinars:

Most states have state libraries online with continuing education on their websites. Some of the webinars they offer are free, some offer CE credits, while others require that you be a member of that state's library association. Even though it may not be your state there may be free topics of interest, here is a sampling:

- Alaska: <http://library.alaska.gov/is/infoserv.html>
- Arizona: <http://www.azlibrary.gov/eventreg/>
- Colorado: <http://www.cde.state.co.us/cdelib/CE.htm>
- Connecticut: <http://www.webjunction.org/partners/connecticut.html>
- Florida: <http://dlis.dos.state.fl.us/workshops/>
- Illinois: <http://il.webjunction.org/il-ileadu>
- Indiana: <http://www.ilfonline.org/didyouknow/education-and-webinars/>
- Iowa: <http://www.statelibraryofiowa.org/ld/c-d/continuing-ed/ceoptions>
- Kentucky: <http://kdla.ky.gov/librarians/staffdevelopment/Pages/continuingEducation.aspx>
- Louisiana: <http://www.state.lib.la.us/public-libraries/training>
- Maine: <http://www.maine.gov/msl/mrls/coned/index.shtml>
- Maryland: <http://www.slrc.info/index.aspx?id=41530>
- Michigan: http://www.michigan.gov/mde/0,1607,7-140-54504_18668_18685---,00.html
- Mississippi: <http://www.mlc.lib.ms.us/servicestolibraries/ds-continuingeducation.html>
- Montana: http://msl.mt.gov/for_librarians/training/

- Nebraska: <http://www.nlc.state.ne.us/CE/webinars.aspx>
- Nevada: http://nsla.nevadaculture.org/index.php?option=com_content&view=article&id=534&Itemid=427
- New Hampshire: <http://www.nh.gov/nhsl/training/modules/Webinars.html>
- New York:
http://search.nysed.gov/search?q=webinar&btnG=Search+NYSL&site=NYS_Library&client=nysl_new&proxystylesheet=nysl_new&output=xml_no_dtd
- North Dakota: <http://www.library.nd.gov/training.html>
- Ohio: <http://library.ohio.gov/blog/?cat=7>
- Oklahoma: <http://www.odl.state.ok.us/servlibs/training/index.htm>
- South Carolina: <http://www.statelibrary.sc.gov/continuing-education>
- Tennessee: <http://tnla.org/displaycommon.cfm?an=1&subarticlenbr=223>
- Texas: <https://www.tsl.state.tx.us/ld/workshops/webinars/index.html>
- Utah: <http://library.utah.gov/programs/training/index.html>
- Vermont: <http://libraries.vermont.gov/libraries/ce/onlineopportunities>
- Washington: <http://www.webjunction.org/events/webjunction.html>
- West Virginia: <http://www.librarycommission.wv.gov/services/libraries/continuinged/Pages/default.aspx>

Other library institutions and organizations offer continuing education/professional development webinars as well:

- ALA Connect. LLAMA Continuing Education Development Committee (Library Leadership & Management Association). <http://connect.ala.org/node/64279>.
- ALA Connect: <http://connect.ala.org/search/node/webinar> (not free)
- ALA Publishing: Cisco WebEx: Events by program:
<https://alapublishing.webex.com/mw03071/mywebex/default.do?siteurl=alapublishing>
- ACRL e-Learning-Live Webcasts: (not free) <http://www.ala.org/acrl/onlinelearning>
- Google Apps for Education: Webinars: <http://www.google.com/apps/intl/en/edu/webinars.html>
- Infopeople: A Continuing Education Wonderland! Bragg, Kelli, and Washington Library Association.
<http://wla.org/2011/07/26/%E2%80%9Cinfopeople-%E2%80%93-moving-libraries-forward%E2%80%9D%E2%80%A6a-ce-wonderland/>
- Library Sparks: Ideas that make your library shine: Attend these Free Webinars
<http://sparks.winnefox.org/category/continuing-education/>
- Metropolitan New York Library Council's Professional Development: <http://metro.org/professional-development/> (usually not free)

- New York Library Association (NYLA). Continuing Education. http://www.nyla.org/max/4DCGI/cms/review.html?Action=CMS_Document&DocID=45&Time=910447995&MenuKey=about
- Nicolet Federated Library System: Continuing Educational (CE) Opportunities <http://www.nfls.lib.wi.us/cepages/ce2.htm>
- Northwest Central: the continuing education network for library staff in the Pacific Northwest: <http://www.nwcentral.org/>
- OCLC. Events: Webinars. <http://www.oclc.org/research/events/webinars.htm>
- Online Webinars for Nonprofit Professionals and Trustees: <http://nonprofitwebinars.com/>
- School Library System: New York. Champlain Valley Educational Services. NNYLN Continuing Education: Webinars. <http://cvessls.org/content/nnyln-continuing-education-excel-windows-7-webinars>
- The New Jersey Library Cooperative. LibraryLinkNJ: Continuing Education. (some free, some not) <http://librarylinknj.org/content/continuing-education>
- Washington Library Association's Infopeople: A Continuing Education Wonderland! <http://wla.org/2011/07/26/%E2%80%9Cinfopeople-%E2%80%93-moving-libraries-forward%E2%80%9D%E2%80%A6a-ce-wonderland/>
- WebEx. Free webinars and online events | WebEx. WebEx Channels. <http://www.webex.com/webinars/>
- Webinar and webcast listings. <http://www.webinarlistings.com/> & <http://www.killerwebinars.com/>

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Peer Reviewed Article

INTUITIVE INTERFACE OR ROBUST COMBINATION: WHAT DO COLLEGE STUDENTS *REALLY* PREFER?

By Katherine M. Shelfer

Abstract: This paper discusses a three-part study conducted between 1999-2004, replicated at a different university 2005-2007 and replicated at a third university 2010-2012. The first two sections of this study focused on undergraduate student assessments of information systems. The third section focused on graduate students enrolled in a library education program. That part of this study is too small to be statistically relevant, but reflects very similar outcomes with a few unexpected recruiting benefits. When provided an opportunity to use a self-developed research query to compare systems, these findings show that the students' top choices were almost always the robust systems with the steepest self-guided learning curves, particularly one that librarians do not allow students to use. In defending their choices, the students generally explained them in terms of opportunity costs and benefits and defended their decisions using adapted SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis, perceptual maps (radar graphs) and evidence tables.

INTRODUCTION AND BACKGROUND

Libraries have been very effective agents of change in terms of encouraging the use of on-line information systems. Libraries provide access to (primarily ad-free) vended content that examines many topics from multiple viewpoints, so libraries fill a niche that agent-based technologies¹ cannot fill, vendors of information services cannot afford to fill and internet directories and popular internet search engines are willing—at this point—to retrospectively index and accommodate. However, the 'Scholar' service is being marginalized by Google™ and 'Books' are being marginalized by Amazon™, which reminds us that libraries and Internet information providers have entirely different missions and business models.

- **The number of library reference questions appears to be globally declining.**

Despite large investments in library instruction programs, remote access to databases and digital extensions of reference services, Google™ had supplanted libraries as the #1 source of online information by the start of this study. This one company provides fast and free access to nearly 8 billion URL's and has well over 15% of the market share². Today, Google™ provides one-pass searches that drill through the hodge-podge of 'low-hanging fruit'—e.g., content that can be freely and quickly harvested from databases available from a wide range of organizations, including libraries.

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INTUITIVE INTERFACE OR ROBUST COMBINATION

- **A growing number of libraries rely on aggregators (e.g., EBSCOHOST™, PROQUEST™, etc.) to supply sets of databases that can be cross-searched using ‘intuitive’ interfaces that are easy to explain and support.**

Students do not always have opportunities to scientifically compare ‘normal’ academic library research outcomes with outcomes of practitioners who use a robust combination of powerful interfaces and additional and different databases to extract content from bleeding-edge information systems. There are many reasons for this:

1. Libraries generally cannot afford to license or support competing products from competing vendors;
2. Librarians choose not to acquire ‘niche’ databases required to support small segments of the communities they serve; and,
3. Libraries are not authorized to provide access to pipeline databases –e.g., databases that feed sensitive and proprietary information to researchers’ desktops.

A familiar example is the PUBMED database of medical literature, which is an on-line database created under the auspices of the National Library of Medicine (NLM). NLM provides free public access to PUBMED content using an ‘intuitive’ interface, but optimizing MEDLINE content that flows through the indexing system may require the use of more powerful systems and/or document delivery services. For this reason, database aggregators lease (cost-free) access to the MEDLINE database *sans* interface (<http://www.nlm.nih.gov/databases/leased.html>) and charge a fee to supply more robust interfaces and provide full-text access to commercial content. Subscribers optimize the data using additional fields in the item records, additional topical indexing based on MESH (Medical Subject Headings) and alphanumeric classification codes, etc. Vendors are generally free to offer a variety of content mash-ups as well.

- **Gaps between the info-rich and the info-poor appear to be growing.**

Simple interfaces that facilitate quick and dirty cross-disciplinary searches of databases populated with full-text sources have a demonstrated appeal to the ‘center of gravity’. Unfortunately, they are not always sufficiently robust to support experts engaged in pushing past the boundaries of their businesses, industries and knowledge domains. This is because innovations tend to surface at the edges of a discipline, on bridges between disciplines, in languages other than English, and in unfamiliar publications that most vendors are hesitant to include (for good and sufficient business reasons) and to which libraries do not subscribe.

- **Advanced search capabilities are not always contextually useful and resources that are not ‘problem-centered’ are losing their luster.**

Trends in telecommuting and outsourcing, the long tentacles of internet indexing algorithms and the extensive reach of companies like Amazon® and YouTube® have changed the information space, including the attributes of information sources that users appear to value. Individual items can have global exposure within minutes and be discussed in the mainstream media within hours. Misinformation and disinformation becomes deeply embedded, but corrections and expert assessments come from different resources, so they can be slower to surface and much harder to find. At the same time, simply migrating traditional resources online does nothing to demonstrate their utility and does not guarantee their visibility, centrality or even their survival.

- **The vocabulary that novices use to research a problem is not the vocabulary that experts use to discuss it.**

Vocabulary problems can be very hard for students to understand and accommodate in the search process. (This problem is very familiar to reference librarians, but it is briefly discussed in a later section of this paper.)

There are many factors that contribute to the reification of the Internet as the *ultimate research tool*. For example,

- **Users are satisfied.**

Content that can be found in the free open web is not always suitable for publication in scholarly sources. However, it may suffice or be exactly what is needed at that particular point in time.

- **Time is of the essence.**

The ‘lack of time’ to conduct library research is not always a result of researcher procrastination. Although not the focus of this study, the author has anecdotal evidence that research-active students use personal/professional networks to engage in password sharing to improve their perceived return on investment (ROI) in library research. This activity is not necessarily indicative of a desire to gain fast access to a flood of irrelevant data that will need to be winnowed.

- **Internet indexing services trump library databases in terms of making information on all of a complex puzzle fast and easy to acquire.**

This horizontal “satisfying” model is designed to be ‘sticky’—e.g., to keep the viewer’s attention focused on that particular site. This revenue model encourages users to tolerate limited precision and significant background noise.

THE STUDY

The main ‘discovery’ questions that this study was designed to address are very basic:

1. Can an experimental approach to bibliographic instruction be used to improve the information literacy of undergraduate students in an *engaging* way?
2. Is the intuitive (Google™-style) interface the one that students actually prefer—or just the one they are habituated to use? And if so, is this always true—regardless of the complexity of the problems they are researching?

The author discovered no similar studies, which triggered the drive to conduct this one. In part, this is because of the number of sites included and the length of time it involved. Perhaps, this is also because database GEP (Graduate Education Programs) are designed to meet the needs of graduate students in library and information science programs (only), so special permission was required to provide Drexel and Baruch undergraduate students with the logins and passwords they used to explore the DIALOG™ system.

It is important to note that a problem cannot be solved until it is first identified and then accurately described. In the context of this study, there appears to be a general assumption that the fault lies in our stars and our students, but not in ourselves. This study was intended to test such assumptions by asking the right questions and studying the problem in a scientific way. For a current discussion of information-seeking research, consult the work of Donald O. Case (Case 2012) and for related information-seeking studies prior to 1998, consult the author’s dissertation. Both are listed in the Bibliography that accompanies this paper. Agosto and Hughes-Hassell (2002, 2005, 2006a, 2006b) used a different methodology to study the information-seeking choice behaviors of younger students. However, this study may help identify the root cause of problems that Brabazon (2006), Badke (2009, 2010), DiMattia (2007) and others have identified.

This study resulted in very similar outcomes at all three universities. The section of the study conducted at Drexel University focused on undergraduate (mostly information systems) students enrolled in ISYS 435. The section of the study conducted at Baruch College of CUNY focused on undergraduate (mostly business) students enrolled in LIB

3020. The third (and current) section of the study focuses on St. John's University's graduate LIS students enrolled in LIS 265). For purposes of brevity, the literature review (above) is cursory, but it should be noted that the list of references supplied with this paper is a small excerpt of a considerably larger set of references examined. Also, only the results of the Drexel section of this study will be discussed, as all three sections of this exploratory study had similar outcomes.

THE COURSE: ISYS 435

Students in Drexel University's Bachelor of Science in Information Systems (BSIS) program are taught the skills needed to successfully manage information, a key business requirement. In addition to a minimum of one calendar year of real work experience (the Drexel Co-op), they complete a required minor in Business and one of the following five concentrations: (1) Computer Science; (2) Database Management Systems; (3) Distributed Computing and Networking; (4) Human-Centered Computing; and (5) Information Retrieval and Analysis. At the time this experiment was conducted, there were just two courses in the Information Retrieval and Analysis concentration, one of which is Information Services (ISYS 435).

The faculty wanted students in the ISYS 435 course to discover and use library information systems (and explore research databases in general), because these students are expected to assess, select and support information systems of various kinds throughout their careers. In this course, students learn to respect the unique information needs of the individuals and functional areas they are tasked to support. They also learn that information systems are not *one size fits all*. For this reason, they must learn how to systematically compare information systems with different functionalities, features and contents. A third consideration is that they need to be prepared to learn, unlearn and relearn how to retrieve data using a variety of interfaces.

At the time of this study, ISYS 435 learning outcomes included the following:

- Demonstrates the ability to select the information services that *best* support problem-solvers working on complicated unfamiliar problems;
- Demonstrates the ability to retrieve and analyze problem-centered information; and
- Demonstrates the ability to present evidence-based conclusions and recommendations in a clear and concise format.

The professor who initially designed ISYS 435 felt that helping students learn to equitably compare information services was a useful goal. She also hoped that students would view library databases in a more favorable light if they learned how to use them and were given an interesting research problem to help them develop their skills. When a new instructor took ownership of this course, she added the DIALOG™ information system (www.Dialog.com) to the lab exercises. She wanted to see what would happen if students were thrown into the 'deep end' of the pool of interfaces and databases and left to sink or swim on their own. This instructor's goal was also to engineer a favorable outcome for library databases, which she considered to be 'somewhere in the middle' between Google™ and DIALOG™. (For those who are not familiar with DIALOG™, there is a very steep learning curve associated with using the 'classic' version (<http://www.dialog.com/products/dialogclassic/>) that requires the use of a buffered nongraphical code-/syntax-driven interface that can be used to search databases and format and distribute search results. Libraries that provide fee-based access to this system usually mandate that only librarians with advanced database training can conduct the (mediated) search.

For this study, students were allowed to either create their own complicated search problem or select one from a list of real examples (see below). Using the same complicated research problem and the same set of team-generated

assessment criteria, students conducted structured searching experiments to compare information systems—both the interface (interface usability) and the content of the search results (content usefulness).

Christopher Dezio, then a senior in the program (who did *not* take ISYS 435), used an independent study to review all six team projects submitted by one section of ISYS 435. For closer examination, he chose the focus problems used by Groups 1, 2 and 5. His assignment was to replicate and validate (or not) the findings of these three groups. These three focus problems are presented below:

- **Group 1:** Your client, the CEO of Infinacard (<http://www.infinacard.com>), wants information on suppliers and competitors in the smartcard industry. He has a list of 20 companies to research and there are specific things he needs to find out. If you accept this mission, he will send you his wish list.
- **Group 2:** You work for ‘Pharmalots’, a global pharmaceutical company. Your supervisor has asked if there are any “pharma bloggers” writing about pharmaceutical prices, because this is a “hot button” issue. If so, he wants to know what they are saying, but he agrees that personal opinions expressed in other on-line forums (e.g., chat rooms, discussion lists, etc.) might also be important.
- **Group 5:** Your client, a busy professor, wants to build a public web site that will be very easy to maintain. She wants to include copies of course syllabi and selected papers and presentations. She also wants it to have a password-protected section so that her former, current and future students can network and keep up with changes in the content of her courses. She’s asked for a proposal that includes things like vendors, hosting services and pricing.

The reports of students labs/exercises and Dezio’s independent ‘outcomes validation’ study are the sources of the italicized terms and comments in the discussion that follows. (For the sake of brevity, course materials are not included in this paper, but they are available upon request.).

THE LAB EXERCISES

To complete these lab exercises, students worked in small groups to complete a series of 3 lab exercises that explored (in order) the Internet; DIALOG™; and LexisNexis™. In a 4th (and final) lab exercise, students compared the systems against each other and recommended their overall top choice.

- To prepare them to conduct these lab exercises, students were first introduced to guidelines for working in successful teams. This orientation included a discussion of member roles (cheerleader, china breaker, joker, etc.) and responsibilities (analyze, communicate, document, search, etc.). They were also provided and walked through the use of a peer assessment form.
- Students then received three hours of classroom instruction that consisted of short tutorials on how to adapt a traditional SWOT analysis (identification and analysis of Strengths, Weaknesses, Opportunities, and Threats) to facilitate a structured assessment that disaggregated the system interface (under the internal control of the system) from the content flowing through that system (supplied by content creators external to the system).
- Students were also provided a tutorial in the form of a set of Microsoft PowerPoint™ slides that walked them through the steps required to create a Perceptual Map (radar graph).
- Students were given an explanation of how to construct and use Microsoft Excel™ tables to record their results and support their recommendations.

INTUITIVE INTERFACE OR ROBUST COMBINATION

Using their self-selected focus problem, each team of four to six students was given a maximum of two weeks per lab exercise to complete the following steps:

1. Investigate the assigned information service.
2. Select and test search engines (or files or libraries).
3. Determine which search engine ‘portal’ (or database or ‘library’) offers the most useful content.
4. Report and support results and recommendations.³

Since today’s undergraduate students often do library database research without librarian support (and to avoid biasing the outcome to the fullest extent possible), each lab exercise was introduced in the same general way. Students were given a set of Microsoft PowerPoint™ slides to introduce them to the system that was the focus of the lab exercise. These slides were designed to facilitate self-guided learning using embedded links to system-supplied tutorials and resource lists. No additional classroom instruction was provided to help students learn to use any of these information systems. No additional readings were assigned. Students were simply walked through a brief overview of the system they were to explore and told to, “Go do this lab and report back in two weeks”.⁴

- Lab #1: The Internet. The Internet is perceived to have the “hometown advantage” for all sorts of reasons. Since it is so familiar, asking students to assess the Internet to conduct their first lab exercise was designed to intentionally reinforce that advantage. These students were comfortable with the intuitive ‘natural language’ Google™ interface. However, they were also given links to other search engines and advised to use www.searchenginewatch.com for more suggestions. They were advised to compare the ‘advanced’ search capabilities of several that seemed likely to contain relevant information on their focus problem.
- Lab #2: DIALOG™. As explained above, students were required to master the command syntax of the ‘classic’ interface on their own. The complexities of this service were not downplayed. Instructors cautioned students that this service would be hard to master, frustrating to use, and™ too expensive for libraries to provide for their use. They were told that DIALOG™ was a ‘pay per use’ information system with a complicated billing system that would punish naïve researchers. Also, the complexity of this system was deliberately reinforced by making it the second system to research, providing links to lengthy tutorials, and giving students very little to learn how to use the classic interface or choose the databases they would explore. Given such unfavorable conditions, the searches returned relatively fewer hits.
- Lab #3: LexisNexis™. In general terms, LexisNexis™ was explained as ‘more structured and less intuitive’ than the Internet, but ‘more intuitive and less structured’ than DIALOG™. In various sections of the course, either the ‘traditional’ or the more intuitive ‘Academic’ interfaces were provided for students’ use. The Academic product (<http://www.lexisnexis.com/en-us/products/lexisnexis-academic.page>) is designed to facilitate cross searching of preselected fields in a set of preselected databases.
- Lab #4: Composite Assessment and Final Recommendation. After each team’s lab report was submitted, it was posted in an on-line discussion forum to facilitate knowledge sharing. One of the benefits of this model is that voluntary peer-to-peer knowledge transfer in and between groups evolved. In the final (4th) lab, a week was provided for teams to synthesize their lab results and recommend the *best* system—or combination—to use to research the specified focus topic.

SWOT ANALYSIS

The SWOT matrix is formed in a 2 * 2 table similar to the one found in Figure 1.

Analysts in industry and government use this matrix to identify their employer’s internal strengths and weaknesses and to optimize the external opportunities and counter the external threats that are related to specific decision. If the SWOT analysis has been completed successfully, analysts can identify (1) matching strategies (SO and WT) that optimize opportunities and reduce risks; and (2) conversion strategies (W→S and T→O) that create, extend or protect a competitive advantage.

For this study, the structure of the SWOT analysis was adapted, but the concepts were redefined. Students were asked to assess the (internal) strengths and weaknesses of the systems (interface, help files, etc. that that system developers could actually create and control) and to assess the (external) opportunities and threats associated with the actual topical content available to be searched using this system (that the developers could not create and over which they had only nominal control).

Students were encouraged to choose any attributes they wished to explore, but the same attributes were required to be systematically compared across each of the information services they investigated. Their “strategies” were (a) the files they searched and (b) the search statements they used to find information.

Group #1 chose the smartcard industry focus problem. The CEO of Infinacard (<http://www.infinacard.com>) submitted a list of 20 companies for this group to research. Although not originally part of the focus problem, this group decided that

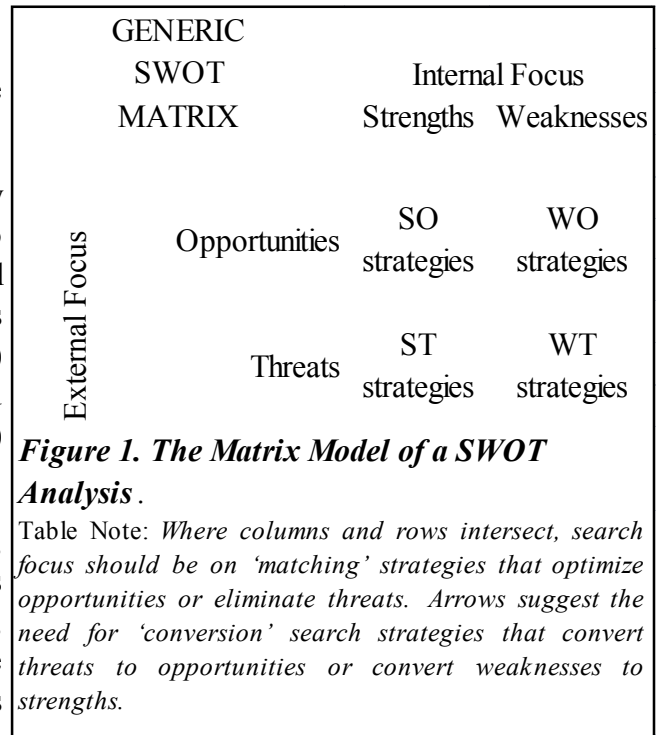


Figure 2: SWOT Matrix Reported by Group #1 (Smartcards)

Internal	Strengths	Weaknesses
	Quantity of Hits	Quality of Hits
	D1 (high # of hits)	D1 (low quality)
External	D2 (low # of hits)	D2 (high quality)
	D3 (high # of hits)	D3 (high quality)
Opportunities	D1 & D2 produced some hits on	D2 was the best for quality hits
New Technology	new technology as well as	regarding new technology.
D1 (relevant info)	government regulations.	
D2 (relevant info)		
D3 (relevant info)		
Threats	D3 was the best for quantity of hits	D3 was the best for quality hits
Government	regarding government regulations.	regarding government
Regulations		regulations.
D1 (not-relevant info)		
D2 (relevant info)		
D3 (relevant info)		

the client would also need information on *new technology* and *government regulations* (as shown in the group's composite SWOT analysis presented in figure 2 below). This is considered evidence of student engagement in the learning process.

PERCEPTUAL MAPS

Perceptual maps are multi-dimensional pictures used to graphically compare the relative attributes of competing products *as perceived by the analyst*. Sophisticated versions of perceptual maps can involve many dimensions, so they often take the form of radar graphs. However, attributes can be also be lifted directly from the SWOT analysis and used to label the rays that originate in the center of the map.

The results of Group #1's SWOT analysis (refer to figure 2) were used to create a simple 2-dimensional perceptual map (refer to Figure 3).

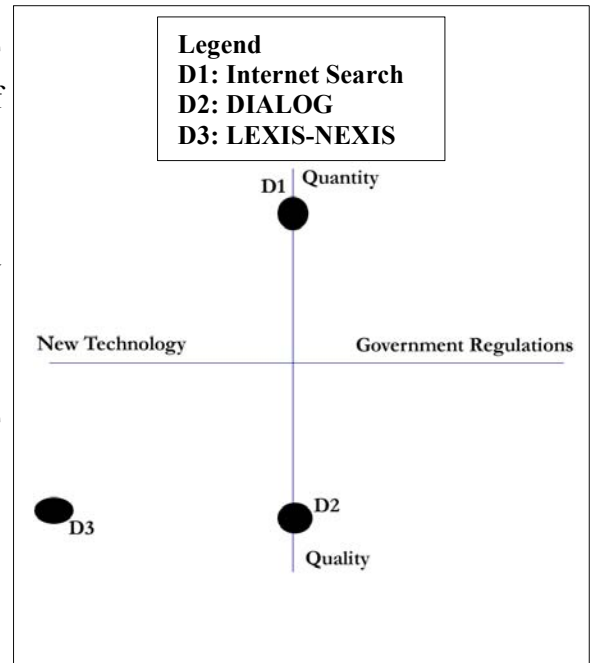


Figure 3. Perceptual Map Reported by Group #1

The “products” on the map are the services that Group #1 compared. Since the SWOT analysis showed that DIALOG™ stood out for its quality in the new technology sector, the group positioned D3: DIALOG™ in the lower left quadrant of this perceptual map. This means that these students decided that *DIALOG™ offered greater value in terms of the quality of the articles found*. They also felt that the content favored the ‘new technology’ category over the ‘government regulations’ category.

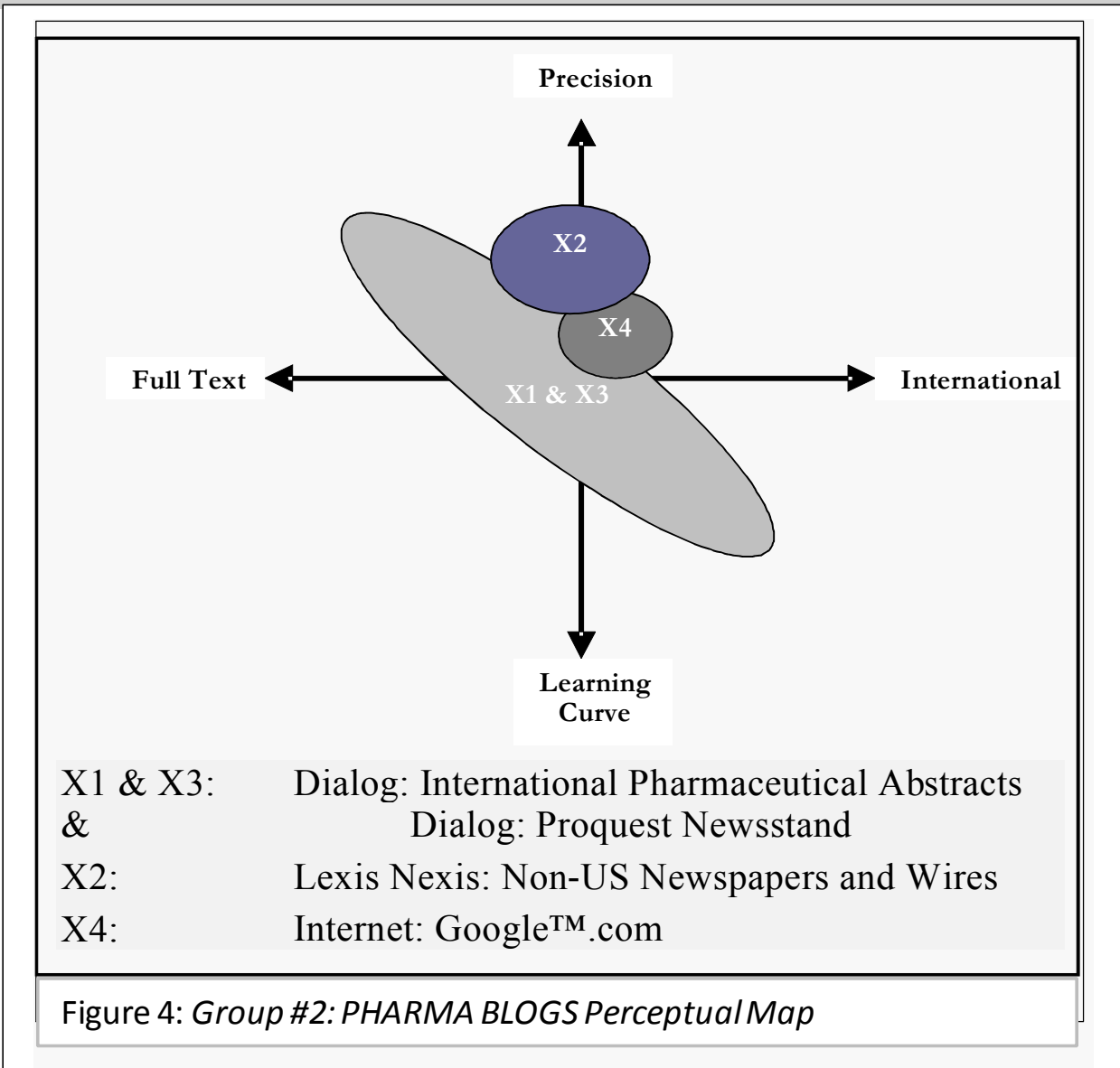
Students in all groups (especially Group #1 in Dezio's assessment) had problems transforming results from the two dimensional SWOT to the multi-dimensional perceptual map. Students were confused about how to plot the coordinates of their search results on the perceptual map. They positioned attributes to show that they were opposites when it came to quality and quantity, which are not logical opposites.

This may be a result of confusing the notions of precision and recall. However, analysis of the raw data indicates that some items were miscoded—e.g., they are actually out of place on the graph. The graph indicates that Group #1 rated D1 DIALOG™ and D2 Lexis-Nexis somewhat evenly for quality. The raw data (refer to figure 4 below for summary data) shows they are not rated so closely.

	Dialog®	Lexis-Nexis™	Internet
Group #1 (Smartcards)	2.13	1.73	1.2
Dezio #1 Replication	2.26	1.6	1.33
Group #2 (Pharma Blogs)	3	2.6	1.3
Dezio #2 Replication	3.3	2.33	1.6
Group #5 (Busy Professor)	3.67	3.5	2.6
Dezio #5 Replication	3.67	3.33	2.33

After this discrepancy was noted, instructors learned to suggest that students develop and use a Likert-type scale to score their results in order to jump-starts critical comparisons and dramatically improve the cognitive value of these perceptual maps.

When Group 1's perceptual map (refer to Figure 3) is contrasted with Group #2's perceptual map (refer to Figure 4), it is clear that Group 2 had a better grasp on selecting and comparing attributes across all three systems. Group 2 also understood how to plot and position coordinates on a perceptual map. It is important to acknowledge the specific



contribution of one student enrolled in this course. Ayman Al Ghazali developed a much better (Microsoft PowerPoint™) explanation, brought it to the instructor and asked her to use it—which she still does⁵. As a result, students find it easier to record attribute scores and use the chart function to represent all of the attributes they assess and score.

VOCABULARY CONCERNS

Regardless of the focus problem of the system, students encountered problems deciding how to choose the most appropriate search terms to include in their search statements. In lab #2 and Lab #3, students had to self-transition from the keywords used to articulate the research problem to topical search terms required to retrieve all of the relevant information. Students (somewhat surprisingly) reported the Internet to be *less forgiving*. This may be due to the lack of conceptually useful metadata attached to the content they retrieved. In the other systems, subject headings and classification metadata are a normal part of an item record, so additional (and potentially more useful) search terms can sometimes be extracted from initial search results.

It is important to note that students clung to the vocabulary of the research problem and had a very hard time abandoning their search strategy of using keywords included in the research problem, even when more useful terms

were subsequently provided. Students consistently failed to understand that the vocabulary that novices use to ask a question or research a problem might not be the vocabulary that experts use to answer that question or propose and discuss possible solutions to that problem. Despite being repeatedly cautioned that, “The vocabulary of the problem is not the vocabulary of the solution”, students consistently did not choose words that are likely to appear in relevant articles. Dezio suggested that over time, students would become more proficient, which would allow them to achieve better results”. While Dezio recognized the problem, he had the benefit of hindsight, since the students began using better terms after they met with the instructor to discuss their initial lab results. Also, research problems are subject to change, so vocabulary lessons learned may not carry forward.

It is important to acknowledge that research problems are subject to dynamic and discontinuous changes, so Dezio may have been overly optimistic. For example, the teams that researched “CI Tools and Techniques” kept entering variations on ‘CI’ and ‘Competitive’, even though the instructor began to distribute a list of 24 specific tools and techniques (e.g., BCG matrix; ratio analysis; scenarios; SWOT; etc.) lifted straight from the tables of contents of books that introduces and explain specific techniques (Fleisher and Bensoussan 2002).

Selection and use of vocabulary terms appears to be an intransigent information literacy problem. For example, the ‘Pharma blogs’ research question asked the research team to see if blogs have any impact on the pharmaceutical markets outside the USA. The search terms they used were pharmaceutical industry and Internet.

- Both of these terms are generic topic words rather than terms that would be frequently mentioned in a relevant article.
- Both of these topics are very broad. The Internet could be mentioned in any article on any topic if the page contains the words *more information can be found on the Internet about [xyz]*.
- Generic articles on the pharmaceutical industry are not necessarily going to capture articles pertaining to blogs.
- Articles on blog-equivalents (e.g., discussion forums; listservs, discussion forums, websites, etc.) are contextually relevant but were not search terms used by any of these groups. As with the teams that chose the ‘CI Tools’ research problem, a list of additional terms had to be inserted into this focus problem. Perhaps due to student familiarity with these web applications, that solved the problem.

There was another aspect of vocabulary that surfaced, which involves the concept of dynamic contextual redefinition of ‘intuitive’. One finding that validates other studies is that students consistently report they desire an intuitive interface. Instructors assumed that this study would produce the same outcome, particularly since students were given very little time to develop the skills required to use sophisticated systems with complicated interfaces. However, as explained in the discussion of attribute 6 (below), the notion of an ‘intuitive’ interface was gradually redefined by students as they progressed through the labs. In follow-up conversations, this new definition includes consideration of robustness/power/flexibility that is both persistent and the antithesis of ‘simple’.

According to Dezio, it is possible, that given more time, students would acquire different preferences and focus more on the different features that each database offers. However, the groups often include this attribute (the notion of an intuitive interface) in their assessments. When making a final decision between Lexis-Nexis™ and DIA, this is often cited as the deciding factor.

ATTRIBUTES USED FOR ASSESSMENTS

Students consistently self-identified the same set of (4-12) attributes to guide their assessment of each combination of interface+system. A brief discussion of selected attributes follows.

- 1. Credibility of results.** Students felt that *credibility of sources* was extremely important and each team awarded the advantage to the more sophisticated databases. Surprisingly (and without any instructor prompting), most teams chose to disregard web results because of the *lack of reliability* of the search results.
- 2. Duplication of Effort and Waste of Time.** Since many of the results from web-based search engines were duplicate items, students concluded that winnowing results of Internet searches *wasted enormous amounts of time*. Students appear to prefer a set that includes a limited amount of the right data and can recognize the benefits of learning how to achieve that result (often using concepts related to ‘economies of scale’).
- 3. Dates.** Group #5 decided to assess the *integrity of dates* associated with the articles. Dezio reported that students, “would reach an article that answered their question, but then they could not identify the date of publication, so they felt they needed to dismiss the article”.⁶
- 4. Refining a search.** Students reported that if they found a useful article in the Internet, they could not drill down for more information as easily as they could in the sophisticated databases.
- 5. Lack of Results.** Students would try to search very specific databases and become discouraged with the lack of results—but they never became discouraged with the lab exercises themselves. Dezio suggested that students need to become more aware of the contents and the focus of different databases to avoid falling into this trap. This is significant, because both vendors and libraries offer very similar descriptions of database contents. Either students ignore them or the descriptions are not very useful.
- 6. Ease of use.** As indicated in Figure 5 below, DIALOG™ was the unanimous top choice of five teams and the Internet was not recommended by any of these teams.

The recommendations were partially based on what students termed *ease of use*. By the completion of the second and third labs, it appears from the lab reports that students redefined '*ease of use* from intuitive to supports more precise searching. It is important to point out that the research problems students selected or developed were not problems that the LexisNexis system was designed to solve, which may partially account for lower assessment scores. However, a comparative assessment is relevant and appropriate, as the academic product is considered ‘cross-disciplinary’ in scope and it owns a substantial share of the academic library database market.

Group Recommendations.			
	Dialog	Lexis-Nexis	Internet
Group #1 (Smartcards)	X	X	
Group #2 (Pharma Blogs)	X		
Group #5 (Busy Professor)	X		

Figure 5. And the Winner Is...

- 1. Quality of Content.** The instructor chose not to meet with Dezio (except to verify progress) during his independent study in order to avoid unduly influencing him. Also, Dezio initially knew nothing about the selected problems, the information systems, or the databases and their contents. His task was simply to replicate the labs to see if he would independently obtain the same results (an informal sort of intercoder reliability test). In order to standardize scores for purposes of process validation, Dezio (independently) decided to transform these varying scales into a single 4-attribute scale and he used this new scale to score his results. As shown in Figure 4 (above),

there is not much variation between the transformed group scores and Dezio's individual scores. This indicates that the teams and Dezio both conducted their tests properly.

CONCLUSIONS AND RECOMMENDATIONS

The team that chose to research the 'business professor needs a website' problem also concluded that DIALOG™ was the best choice out of the three services. However, the written lab report also made it very clear that while it was the best choice out of the three, it was *not* always the best choice for answering *all* questions on a particular topic. Also, this group decided that certain databases within DIALOG™ were more useful than others. For example,

- ♦ The group discovered that Softbase™ was applicable. The group estimated it could provide about 80% of the information needed to solve this focus problem.
- ♦ The group suggested that the majority of the remaining information could be answered by using the ERIC database.

Since neither of these databases was identified by the instructor or referenced in the content used to introduce the system, it is apparent that this group did explore databases on their own, even though they had very little time for that activity. This is additional evidence of student engagement in learning. The group also noted that the *Internet and LexisNexis did have relevant information, but not to the extent that DIALOG™ did*. This indicates that students favored one system over the other, but it was not necessary for that system to provide *no* information (zero hits) on a particular topic. It was only necessary for the systems being compared to vary in terms of the quality of the search results or that systems provide better (or worse) tools for extracting articles.

Over the period of six years that two-thirds of this study was conducted, the following discoveries were made:

1. Undergraduate students can be managed into independently discovering the advantages of using more sophisticated database systems in addition to—or as a direct replacement for—the Internet. One student commented that, *the difference in quality of the database searches makes it worthwhile to master a steep learning curve and move beyond simple web-based searches.*

2. Students appear to value intuitive 1-2 click browser-based access to useful content. However, we may not be listening to what they are actually telling us. When students are introduced to each system in the same way--via a complex focus problem--we learn that "conventional" wisdom is totally wrong. Students do *not* "prefer" the Internet as a source for information in situations where they are given very little time to find information that will help them solve complex real-world problems, nor do they "prefer" a simple interface, nor do they "prefer" to retrieve content that lacks the type of metadata they need to help them correct novice searching mistakes at the point of need in real time. In fact, the reverse may actually be true. If so, this is important for librarians to verify.

3. Science matters. Today, rather than "preferring" the free open web, information seekers may simply be bouncing off the barriers that librarians (a) have overlooked--e.g., idiosyncratic timing of unscientific database trials; lack of marketing/promotion of 'high-end' databases that require robust interfaces to optimize; etc., or (b) are not prepared to lower--e.g., gatekeeping protocols; costs; staff support, etc. It is important to recognize that students' reported choices depend on the set of choices forced upon them. True preferences can only be clarified if systems can be tested on a level playing field. If librarians ignore the science associated with library research, the outcomes will be problematic—at best.

4. Students consistently find *in favor of DIALOG™* over both LexisNexis™ and the Internet (although sometimes in combination with the other systems). This happens regardless of the focus problem selected and in stressful learning conditions deliberately designed to counter that outcome. This indicates that research studies about student preferences are flawed if they exclude access to what was consistently these undergraduate students' *top choice*.⁷

Also,

5. Based on the files and libraries that some groups selected for assessment, it appears that students either (1) chose to ignore content descriptions; or that (2) such descriptions (often little more than vendor promotional summaries) are not useful. Since many library portals offer this type of summary description, further research on this problem is needed. At the same time, we note that students independently discovered and used scholarly databases, e.g., Pharmaceutical Abstracts.

6. It is important to avoid blaming students for being information illiterate if pedagogy and opportunity are the root causes of that problem. It bears repeating that more than 90 teams of undergraduates, over a long span of years, quickly and consistently recognized that complex systems take time to learn, warned others about this problem, and *recommended these information systems anyway*. If undergraduate students are willing to consider the many costs and benefits associated with information retrieval and use, including precision targeting, time constraints and resource quality—and when they discover the rewards for themselves—it's important for librarians to pay attention.

In other words, students may be *falling back* on the Internet rather than "*preferring*" it, as they haven't had many opportunities to systematically compare results of using intuitive interfaces versus results of using robust combinations of interfaces and databases. If that is the case, then librarians can introduce more powerful interfaces that optimize high quality content by (a) providing students more interesting models of instruction and (b) letting them 'test drive' robust combinations of interfaces and databases in a scientific way.

What is astonishing is that the system these students chose was the one most librarians struggle to learn and don't like to use—DIALOG™. Based on these findings, it now appears that a flawed method of library science instruction may have caused a librarianship 'learning resistance' problem that affected related choices and outcomes downstream. Information seekers in 'high-liability' industry and government work environments use DIALOG™, but it has never been considered an economically viable choice for academic or public libraries that have downsized or even eliminated their fee-based searching services.

Unfortunately, the field as a whole has invested millions of dollars in vended systems that use simplistic interfaces that are not very robust. The profession has been throwing money at 'federating' searching projects, even though a viable federated system has been available for nearly 50 years. Perhaps the time has come to count the combined costs of pedagogy mistakes and learning resistance, as the systems with the most robust interfaces are becoming an endangered species. It may be time for libraries to reconsider their decisions to 'dumb down' online searching options to the point that experts infrequently use them and novices reject them when they are given a choice to compare 'intuitive' interfaces and 'robust combinations' on a level playing field.

This experiment shows that diverse groups of technologically sophisticated students need expert assistance to deconstruct complicated research problems; however, once they 'get it', they can identify and use relevant vocabulary and arcane search syntax. These findings also show that additional research—and particularly more scientific study—is urgently needed.

This study consistently provided ancillary recruiting benefits. There was a significant positive change in course enrollments and LIS graduate students taking formerly unpopular online searching courses developed positive and engaged attitudes and champions who actively promoted the value of the course to others. This suggests that it is not academically necessary for students to become experts. Rather, students need only be offered opportunities that motivate them to learn to use an interface and be shown how to assess the comparative research value of databases offered in various configurations by competing vendors.

It was exciting to watch students introduce each other to different databases and help each other learn how to optimize interfaces to search them. Given the generally low enrollments in library research courses and database training workshops, there is much to be gained by testing and adopting better pedagogy practices, particularly if outcomes include student development of high quality digital tutorials and assessment examples. The right pedagogy model can also support offering on-line and on-site courses that can be co-branded and cross-promoted across all levels and all disciplines to a growing number of excited and motivated students.

The story of the Internet is about global access to useful data, but it is also a story of criminals, garbage, hackers, lies, pop-ups, viruses, spam and spies. Given the obvious flaws in the free open web, the lack of sophistication of interfaces and the findings of this study, 21st century libraries should have little difficulty reaching out to connect with individuals who demand *relevant data* that is *faster to find* and *easier to integrate* into the workflows that range from term papers to problem-solving environments.

In the published opinion of one retired senior corporate executive, *it is easier to teach a scientist to be a librarian than to teach a librarian to be a scientist*⁸. Perhaps our field needs to carefully reconsider the science in the library part of LIS education, since the results of nonscientific studies do not actually help us very much. It may well be that we have failed to properly value scholar-librarians who are uniquely positioned to help students assess and test the value of information resources⁹. For this reason, (1) the business case for scholar-librarians should be re-examined in light of new information and (2) libraries should consider using new bibliographic/database instruction frameworks that rely more heavily on the scientific method. Perhaps it is also time to reconsider the direction of our mad dash to the digital frontiers of information channeling. It is certainly time to offer seekers their true choices if we are to discover their true preferences and avoid encouraging them to seek suboptimal solutions elsewhere.

Appendix A.

A.1 Lab Guidelines

ISYS 435 -- TERM PROJECT (50% of GRADE)

Instructions: To optimize the selection and use of information services in a problem-solving context, the instructor discussed the basics of strategic acquisition and use of secondary information to support analytical workflow.

1. During the 2nd-3rd weeks of the term, students

- Self-identified working groups -- teams of 4-6 participants were considered optimal;
- Chose one focus topic for each team; and
- Held the group's first strategy meeting.

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Note: The goals for the first team meeting are to (1) assign roles to participant (who does what); and (2) plan how and when the tasks will be completed and documented. Identify the incentives and disincentives associated with task performance. Class time is provided for team meetings for each lab. Additional (productive) meetings are suggested.

2. Each team completed 3 labs [INTERNET; DIALOG™ CLASSIC; and LEXIS NEXIS] as well as a final synthesis and analysis. Each lab covered one target system. Lab instructions provided an overview of the target system as well as links to tutorials and selected examples of search strategies. For each lab, each team was required to use its focus problem to:

- Engage in guided exploration of the structure and contents of a specific (target) system
- Develop search strategies that optimize that system's vocabulary and command syntax
- Use these strategies to retrieve information on the focus topic
- Analyze the results
- Document findings in the form of a Perceptual Map and a SWOT analysis
- Offer Evidence (coded to the SWOT) for this insight

Deliverables: The team's impressions about the relative effectiveness and efficiency of these different systems were submitted using the following format

- **Cover Sheet:**
- Page 1: **Perceptual Map**
- Page 2: **SWOT Analysis**
- **Evidence Folder** (note: do ***not*** mistakenly assume that a data dump is useful evidence)

Evaluation Criteria: There were 3 group labs and a final individual synthesis, analysis and recommendation.

1. 10% Internet –GROUP – two weeks
2. 10% DIALOG™ - GROUP- two weeks; command language, DIALOG™ Classic
3. 10% LexisNexis - GROUP – two weeks, command language
4. 20% Synthesis, Analysis and Final Recommendation – INDIVIDUAL
50%

The success/failure of these labs -- the term project -- was based on the group's ability to

- Select and use appropriate baseline criteria for comparative analysis of four systems
- Develop search strategies that optimize access to relevant contents of each system
- Create a Perceptual Map that can be defended with a SWOT Analysis
- Submit an evidence-backed recommendation

Note: This was a “live fire” exercise that tested students’ ability to work together to rapidly assimilate and use unintuitive new information (in the form of complex retrieval strategies) to compare/contrast, optimize and recommend appropriate information services to organizations with a specific problem to solve. Here are some SAMPLE TOPICS. These were used to get students thinking about topics they would like to research. Teams were free to choose any of these topics or develop their own. The goal was to make these labs interesting, so that students would also have fun.

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End Notes

1. Agent-based technologies use software applications that can be programmed to automatically (1) acquire relevant content, (2) use that content to generate tables and charts and populate reporting templates, and (3) route these artifacts to analysts and decision makers. These systems have been used in large corporations and government agencies for decades.

2. URL: <http://searchenginewatch.com/reports/article.php/2156461>

3. Three Teams of 4-6 students are told to spend no more than ten hours to review the content of each lab. During that time, they are to assess the systems; identify appropriate files (or search engines); learn the syntax, develop relevant search strategies, retrieve and assess content and submit formal reports in the form of an adapted SWOT and a Perceptual Map accompanied by evidence for their insights. Each lab is positioned as a live fire exercise and the instructor provides no additional help. This instructional strategy is modeled on Red Cross Water Safety Classes in which infants and toddlers are thrown into the deep end and told to swim to the edge and climb out. Teaching evaluations affirm that these undergraduate students respond to strategic and interesting challenges with enthusiasm. This course, one of the most difficult in the program, was over-subscribed each term. Students continue to do empirical research after graduation, many go to graduate school and one student recently e-mailed Shelfer that the course was his favorite and "hilarious."

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4. One insight gained from watching several hundred undergraduates master DIALOG very quickly is that library schools should reconsider their instructional approaches as well as their devaluation of complex information systems in graduate classrooms.
5. In the Baruch College section of this study, an undergraduate student (PJ Rhoo) prepared a tutorial for converting HTM-corrupted tabular data retrieved from the Internet back into tabular form. Today, students in many different courses benefit from access to these sorts of student-generated tutorials and are encouraged to contribute their own content to the LIS courses that engage their interest.
6. Since all attributes were a team choice, the decision to dismiss an article because of lack of dating was an interesting outcome.
7. As an aside, one practicing Board-certified physician, a frequent user of PubMed with no knowledge of the DIALOG Classic interface, was given the tutorial for this lab and told to explore it for a research project. She was given no further instruction. Her initial reaction was to report that she hated (!) DIALOG. Within two weeks, she had migrated to it for her medical practice and was paying the costs out of her own pocket. She explained that her time was valuable, DIALOG Classic protected it, and she got better results.
8. Matthias M. Coburn (1999). *Competitive Technical Intelligence: A Guide to Design, Analysis ad Action*. Washington, DC: American Chemical Society [and New York, NY: Oxford University Press].
9. For example, one student reported that he had two degrees in business, but had never been told there was more than one Price-Earnings (P/E) ratio. Students enrolled in these courses who were asked to locate this ratio returned with 3-5 of them.