This paper describes the decisions and methodology behind creating a website to instruct interns at Ullman Library, which serves the Classics Department at the University of North Carolina Chapel Hill, in the skills necessary to perform book repairs. The department desires that its staff perform repairs on the materials in the library, but currently has no way of teaching those skills. The website constructed provides a context for knowledge sharing that was previously lacking and an informational, easily updateable reference source for the library.

Headings:

Knowledge transfer (Communication)

Employee training

Books -- Conservation & restoration

Preservation of materials

Web-based instruction
ULLMAN LIBRARY PRESERVATION AND BOOK REPAIR WEBSITE

by
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Introduction

The Ullman Library in Murphey Hall on the University of North Carolina Chapel Hill (UNC-CH) campus serves the Department of Classics. It houses a collection of over 10,000 books, serials, and offprint articles in a library, an adjacent classroom, and the department’s combined computer lab/archive, respectively. The library exists exclusively for the use of the professors and graduate students of the Classics Department. Materials can be checked out, but are not allowed to leave the building. Overall, it provides a handy collection for the department that is closer and quicker to access than Davis Library, the UNC-CH main library. By combining resources, the department’s members have collective access to a higher number of resources than any individual member could afford or store. The library also serves as a place for the department to provide undergraduate students with access to course reserve materials in closer proximity to their actual classes and professors.

Each year, the department hires graduate students from the School of Information and Library Science (SILS) housed in nearby Manning Hall to run the library. There is one head librarian and a number of unpaid interns that depends on the amount of work that needs to be accomplished in the library in a given year. One of the most prominent problems that Ullman Library has had to face in recent years is the age of its collection and the resultant decay of the materials it houses. It exists outside of the formal UNC library system and therefore cannot take advantage of resources like the conservator in Wilson Library or the Preservation Department in Davis Library. It has few funds of its
own, as evidenced by the fact it only has a part-time librarian, unpaid interns, and an acquisitions model driven entirely by donations.

As a result of this, preservation duties are carried out entirely in-house by the library students who staff the library. However, preservation is not a topic heavily covered in the library science curriculum at SILS. Only one course covers preservation of physical materials, but it is more heavily focuses on environmental control and preservation theory than actual practice of book repair. Additionally, the fact that the interns are unpaid means that they tend to be first-year library science students who have yet to have much in the way of an education in library topics, much less preservation. The head librarian tends to be a second-year student, whose main duties leave him or her too busy to undertake preservation duties. Due to this, any actual preservation work that has been done at Ullman Library in the last few years has had to be done by interns through autodidactic means when they have been done at all.

To solve this problem, I decided to create a website (http://ullmanpreservation.weebly.com/) to instruct future interns of the library in the rudiments of book repair and to familiarize them with the major concepts in preservation. In this way, preservation activities can be undertaken with more celerity than in previous years because the amount of time spent by each incoming intern learning about book repair will be reduced. I spent months tracking down resources, contacting preservation professionals, and researching supplies to find which ones were appropriate. By compiling this website and equipping Ullman Library with supplies, future interns can start undertaking book repairs almost immediately, and, if they have an interest in preservation, they will be pointed to resources and personnel that they can utilize. If they
need to buy supplies, they will have a resource at hand to consult that points directly to the items Ullman uses from the department’s vendor and the people within the department they need to contact to purchase them.
In order to justify this project, I reviewed literature regarding the efficacy of websites as a means of knowledge sharing within an organization. Knowledge sharing, though a somewhat nebulous term, can be loosely defined as the transfer of knowledge between people in an organization through a variety of means. This sharing has the goal of promoting the spread of useful knowledge so that the greatest benefit can permeate throughout the organization (Fengjie 2004, 279). Much of the research in this area came from the world of business and engineering, rather than library science sources, as instructional web resources are heavily used in corporations in the form of staff wikis and intranets.

One of the most effective methods of knowledge sharing within an organization is person to person, but such a method is not always feasible and introduces a number of problems of its own (Fengjie 2004, 279) (Natarajan 2008, 10). According to Rajalakshmi, in person knowledge sharing can introduce conflicts due to language disparities and reluctance to share due to conflict avoidance behaviors (Rajalakshmi 2009, 232). Another article explains that interpersonal knowledge sharing can only be effective when the knowledge being exchanged is simple and easy to share (Fengjie 2004, 278-279). The topics in library preservation, however, are complex and cannot be shared through a quick or simple conversation. Person to person sharing is also impossible in the environment of Ullman Library because of the high worker turnover; once an intern
learns the skills needed to perform repair work, they leave, and are unavailable to tutor the future employees in the techniques involved.

Personal knowledge sharing also depends on having a sizeable workforce present to engage in intradepartmental communication (Rajalakshmi 2009, 232). However, Ullman Library only employs a small staff, each member of which tends to have discrete duties. Consequently, an intern working on preservation is likely to be working alone, with no other employee to go to in order to engage in knowledge sharing. As a result of this, distance education techniques must be used to communicate knowledge between employees.

One option would be to create a physical manual in order to collect and disseminate this knowledge. However, such a method would necessarily reduce the engagement and interaction between individuals, a key component of knowledge sharing (Luo 2010, 32). Interaction is possible with a physical manual, but distantly and through a static document that would need editing and reproduction between editions. This process may erase earlier versions or require the production of a document of ever-increasing size with every new edit that must be managed by a workforce already given duties beyond their experience and skills. Even though preservation interns at Ullman do not have contemporaries with whom they can engage in their work, it would be ideal if they could interact with their predecessors and successors in some fashion. It is far more desirable to have a more interactive document, easily accessible and parsable by each new generation of employees.

In order to overcome the above challenge, a website was judged to be the ideal format to house and encourage knowledge sharing within Ullman Library. People have
been researching and discussing the efficacy of internet-based media such as blogs, wikis, intranets, portals, etc. for this task. Natarajan says that intranets are one of the most effective ways of sharing information and knowledge within an organization (Natarajan 2008, 5). According to Bennett, et al., web technologies are much more suited to the way that students currently learn, in that they do not merely consume information, but need the ability to recreate it (Bennett 2012, 524). Web-based learning allows for a higher level of interactivity between the knowledge sharer and receiver by providing a dynamic, multimedia format of information exchange. Information can not only be instantly exchanged and expressed, but also justified or followed to its origin through the use of well-placed links.
Justification and Methodology

Following the research above, I decided that the most effective way to engage in knowledge sharing within Ullman Library would be to create a website. The physical exchange of information is not possible within the environment, as experienced workers are unlikely to be working concurrently with inexperienced ones there is no opportunity for collaboration and exchange. It is also not feasible within the larger context of SILS and the UNC-CH campus. My request for help was turned away by preservation and conservation professionals on campus. A major justification for this was my lack of experience in the field. Performing book repairs can be dangerous for the materials, especially if performed by an inexperienced conservator. There are also a number of ethical and theoretical quandaries that arise, such as repairing books can alter their nature, encourage or discourage use based on the repairs performed, and be a waste of staff time and resources. Curiously, these professionals also stated that the only way to truly learn the fundamentals of book repair is by doing them. With no willing mentor, the only other option was to seek out guides, manuals, and other sources on preservation in order to learn via more impersonal means. While there are a variety of sources available in both paper and electronic format, none of them were entirely adequate or fit the situation of Ullman Library. It was only through patching together information from various sources that it was possible for repairs to be undertaken.

It is uncertain whether the future interns of Ullman Library will have the skills necessary to perform the repairs desired by the department or the motivation necessary to
teach themselves how to do them. If nothing is done, the collection will continue to deteriorate, and, as the library has no acquisition budget to replace discards, materials will vanish from the collection as they fall apart. My desire is to provide a manual tailored to Ullman Library that will greatly increase the likelihood that the collection will be treated more consistently by the staff, rather than the current practice of waiting until an intern is hired who has prior experience or the willingness to teach him or herself the necessary skills to preserve the collection. To encourage this, the manual will be as simple as possible to convey the needed knowledge, and point out more detailed resources in the event that an intern has the desire to learn more or compare methodologies. Any interns that do take an active interest in preservation work will be encouraged to edit and supplement the manual with their opinions or methods, thereby keeping the resource current. By remaining current, making the resource easily editable, and tailoring it to suit the environment it addresses, this manual will fulfill as many of the ideals of a web-based knowledge sharing platform as possible given the resources and skills available (Natarajan 2008, 6). By making the resource easy to understand and easy to contribute to, hopefully it will serve Ullman Library well for years to come.
Weebly

In choosing a format for the website to take, there were a number of concerns that had to be weighed. It was important to choose a format and hosting service that kept maintenance and editing of the website simple and free. Building a wiki was dismissed due to the non-natural language coding necessary to create articles within pages. Blogs were also written off as the conception of the website favored a hierarchy of pages that would be updated occasionally rather than a single one with frequent changes. With these criteria in mind and convinced that the blog and wiki formats were off limits, the decision was made to create a website via the web-hosting service Weebly. Prior experience confirmed the relative ease of creating and maintaining a website through this service.

Weebly offers a tutorial on building a website and possesses a straightforward drag-and-drop format for elements within individual pages. Even without the tutorial, creating and editing processes are simple to understand for anyone already familiar with using a computer. There are a multitude of themes and layouts to choose from in designing a site. It is a free service that also does not display advertisements within the websites it allows people to create. The website creation process allows for the site to be associated with Ullman Library’s e-mail account so that only personnel of the library with access to its e-mail can edit the pages. The site itself is discoverable by outside viewers, but they cannot affect or alter it.

In terms of preservation and maintenance of the site itself, two steps will be taken. Weebly is naturally a business, which may fail at some future date, leaving the fate of the
pages created through its service in a gray area. To ensure continued access to the information on the website, Weebly allows users to create an archive of their site that is downloadable as a .zip file. In this way, even if web access is unavailable at some future date, the information on the website will still be accessible, though not as easily editable. Archived versions of the website are compressed and can be easily stored on the library’s computers as a backup. Second, the site will be archived in the SILS Lifetime Library. The Lifetime Library ensures that the site will be stored on UNC web space as an added layer of backup protection.
Layout

In keeping with the theme of aiming for accessibility through easily digestible and editable information, the website itself has a purposely simple, hierarchical layout. There are six topical pages connected to a central home page. Four of these six subpages have a set of subpages within them. Beyond this, there is no further subdivision in order to keep the site as simple as possible. The home page contains a link to the web page describing Ullman Library on the Classics Department’s web space and serves to explain the purpose of the website, how the library fits (or rather does not) within UNC, and entreats the future interns to edit it in order to keep the content on it current. On every page of the site, a taskbar located on the left provides links to every other page on the website.

Each of the six topical pages contains information on the topic that it and the pages under it contain. The Supplies main page is dedicated to explaining how Ullman library purchases preservation supplies. For those unfamiliar with preservation supplies, it contains some basic information on how to choose supplies ideal for preservation and repair work. The departmental contacts responsible for the actual purchasing are explicitly stated along with their titles in the expectation that personnel will change, but positions will retain the same responsibilities.

There is a link to NISO standards defining the characteristics of preservation supplies, with information on acidity levels, a core concern in archival and conservation products as acid levels can dramatically affect the deterioration rates of materials. There is also a link to a wiki operated by the American Institute for Conservation of Historic
and Artistic that functions like an encyclopedia of preservation topics. Much of the information is scientific in nature and above the heads of those without a background in biology or chemistry, but they also have a number of entries evaluating preservation supplies to show how effective they actually are.

The subpages under Supplies break up the items Ullman uses for repairs into four categories: adhesives, hand tools, paper and cloth, and other tools. The supplies on these pages are briefly described, and each supply contains a link to the item on Gaylord Brothers’ website, Ullman’s preferred vendor. In case the links break over time, Gaylord item numbers are also provided to ensure that the items can still be found.

The most important section of the website is Repairs. The main Repairs page lists the repairs that the website contains tutorials on performing: mending torn pages, tipping in loose pages and addenda, building enclosures, tightening hinges, spine replacements, endpaper replacements, endpaper reinforcements, and soft cover book repairs. Also of note is the pair of diagrams illustrating the anatomy of a book with labeled parts to make the repairs more comprehensible, as they refer to specific terminology I use during repair descriptions. It is of little use to tell an intern to peel off the flyleaf if he or she does not know what a flyleaf is, and the repair descriptions would become interminably long if book components have to be described at each junction.

The subpages describing the repairs start with a description of the repair and the damage it is intended to fix. Following this is a list of the supplies necessary to perform the repair. Lastly, there are step-by-step instructions on how to perform the repair, accompanied with pictures of the repair being performed on a sample book.
The Learning Resources topical pages cover books, web manuals, and organizations that I found useful in my process of learning about preservation and book repair. Each resource is annotated to explain the ways in which they are useful. Each book title contains a link to the UNC catalog to aid in discovery should an intern wish to read for themselves. The web manuals are book repair manuals created by large university preservation and conservation departments. They are useful for seeing how many of the repairs discussed on the website are done in a more professional and better equipped environment. Their processes have been emulated as much as is possible given the disparity in equipment and training between these departments and Ullman Library. Last, the Organizations subpage contains descriptions and links to organizations and professional societies dedicated to preservation topics. They contain information on professional training along with tutorials, webinars, and workshops covering preservation topics. The professional societies are ones that any intern interested in preservation work might consider joining.

The Preservation Issues page and its subpages provide some of the base level, theoretical framework behind library preservation work. The first subpage discusses the difference between preservation and conservation, or often the lack thereof. Following this is a page covering the ethical questions that surround performing book repair. Every repair is, in essence, constructively damaging a book in order to ensure continued access to its contents. Preservationists have to weigh the benefit of their work against the costs both in time and money as well as the effect they are having on the document they are repairing. Repairs create new stress points and a badly done repair can be more harmful than letting a book slowly deteriorate on a shelf.
Next, there is a subpage concerning repair and preservation of archival material, relevant to Ullman’s small archive of offprint articles. Archival materials engender a further set of ethical considerations because the documents themselves are often as important as the information they contain. As a result of this, the website attempts to dissuade the interns from performing repairs on these items due to their individuality. Though a botched book can theoretically be replaced, each of the items in the archive is unique and irreplaceable. The philosophical paradox of Theseus’ ship is used to bring across the quandaries inherent in affecting archival materials.

The last subpage covering preservation issues is about brittle paper. The website attempts to explain the basic processes that lead to brittle paper, like acid hydrolysis, in layman’s terms. There is information on how to perform the double fold test, a simple but effective way to assess the deterioration of paper due to increasing levels of acidity. This page is mainly a warning to interns that materials suffering from brittle paper are beyond the capacity of Ullman to repair. Any attempt by the novice staff to repair such documents is likely to end in failure, so the website encourages encapsulation over more active repairs for these materials.

The last topical page, Future Projects for Ullman Library, contains some ideas for projects that future preservation interns at Ullman can undertake. At this point there are three projects described, but it is likely that this page will be the one most heavily edited over the course of the website’s life as projects are completed and new ones are conceptualized. The first project is the ongoing cataloging of the offprint archive. Currently, only half of the materials within the archive are discoverable via Ullman’s catalog, and it has been an ongoing project for the last three years to weed, arrange, and
describe these materials. There are also suggestions about steps that can be undertaken to increase the collection’s longevity, such as creating preservation photocopies on acid-free paper or rehousing documents in acid-free folders.

The last two projects are more difficult. The first is establishing environmental control over the library spaces that house the collections. Environmental control is seen as a better option than individual treatment of materials in the preservation field because it provides collection-wide benefits, but it is also expensive to achieve. Though true environmental control is likely beyond the resources of Ullman Library, there are suggestions here on basic steps that can be taken to establish the base level of control, such as controlling light levels and keeping pollutants away from the materials. There is also the more accomplishable goal of purchasing UV filters for the windows and lights to reduce the levels of UV light affecting the materials and speeding up the processes of deterioration. The final project is the creation of a disaster plan for Ullman Library. Disaster preparedness traditionally falls under the purview of preservationists, and Ullman has no plan in place to cope with a disaster striking the library. Even a basic plan covering actions to be taken in case of fire or water damage would be a boon to the library.

In order to provide a way to assess the website and keep track of its changes over time, I added a final page, Update History, whose purpose is to provide a forum where the future preservation interns can discuss the changes they make to the site. A vital aspect of knowledge sharing through a resource like this website is keeping it updated and providing a way for those using it to change the parts of it that don’t work or fill information gaps. Success in this area will entail the future interns using this page to
detail the ways in which they modify the site, explaining not only what they have done, but why they have done it. A resource like this is only successful if its users actively engage with it. Hopefully, in a few years, if I come back to look at this website, it should be noticeably different; the future projects that I put up will have been replaced with new ideas, photographs that accompany the repairs will have been supplemented with new ones or augmented with video, or the departmental contacts will be different. It is possible that new repairs will be added as interns expand their capabilities or that my instructions will be found inadequate and replaced with new ones to better describe the necessary steps. This will show that the site is performing as I hope and changing to fit the population it is meant to serve.
Conclusion

Ullman Library has a definite need for preservation work to be performed on its collections. Its operation procedures preclude such work being done by experts in library preservation and conservation. As a result of this, such work can only be done by the interns that staff the library. These interns tend to be novices in the field of library science and are therefore unqualified to perform the tasks needed by the library. In order to solve this dilemma and reduce the amount of wasted time in training the staff in the necessary skills, I decided to create a website to instruct future interns in the basic skills necessary to preserve and repair the materials housed in Ullman Library.

The site is intended to be basic and assume little prior knowledge on the part of those it intends to instruct. It is organized in a simple hierarchic format to reduce the number of subpages and condense the information as concisely as possible. For future interns that desire more than fundamental instruction, it contains information on other resources that can be used to learn about library preservation. The website also houses a descriptive listing of supplies used by the library in preservation work, with each item linked directly to the site of the vendor that supplies the library.

The hope is that this resource will be used and further updated by successive generations of interns at Ullman Library to keep the information within it current and relevant to the library as situations change over time. Using this site to instruct its staff in book repair work will ensure that the collections of the library can be treated and kept in circulation for as long as the department has a use for them. With access to this resource,
continuous preservation activities can be performed rather than waiting years until the library happens to hire interns who have preservation experience or are self-driven enough to learn the material on their own. It will also ensure that months are not wasted in forcing the staff to seek out their own training materials with little to no guidance, making it far easier for staff to learn the information required for the job.

