Abstract

Purpose
This paper describes the process and work undertaken by the library anthropologist and the Usability Task Force for reconfiguring the library's physical and virtual spaces to meet the educational needs and expectations of users, including students, faculty, and community patrons. What are the reason(s) for writing the paper or the aims of the research?

Design/methodology/approach
Through formal usability studies and ethnographic research. In this paper, we describe the process and work undertaken by the library anthropologist and the Usability Task Force for reconfiguring the library's physical and virtual spaces to meet the educational needs and expectations of users, including students, faculty, and community patrons. How are the objectives achieved? Include the main method(s) used for the research. What is the approach to the topic and what is the theoretical or subject scope of the paper?

Findings
Through surveys, focus groups observation What was found in the course of the work? This will refer to analysis, discussion, or results.

Originality/value
This paper presents an ethnographic approach to policy development and implementation to re-orient the physical and virtual library environments at a large research library. Libraries and Library administrators will find value in the policies established and processed outlined for the development of user-centered learning spaces.

Introduction

It is crucial for academic libraries to have a holistic sense of what people actually do when they need to know things. We cannot assess how effective we are as educators in instilling digital and informational literacy in our students through observing them only in the classroom. Furthermore, we cannot craft effective policy to increase the critical thinking and research skills of our patrons without grounding in their everyday approaches to information, both in and out of academic settings.

With the hiring of a new University Librarian in the Fall of 2009, J. Murrey Atkins Library at the University of North Carolina at Charlotte marked an explicit shift in its policy with an intent to re-orient the physical and virtual library environments to the educational needs and expectations of users, including students, faculty, and community patrons. During 2010, two foci drove the initial phase of the Atkins ethnography project: web usability and space redesign.

This paper describes the process and work undertaken by the library anthropologist and the Usability Task Force for reconfiguring the library's physical and virtual spaces. In addition, the resulting change in policy, space and the users' learning experience thus far will be discussed. A

brief literature review is followed by the description and discussion of the redesign of the J. Atkins Library's homepage. The reconfiguration of the physical spaces in the library, especially the main and ground floors of the Atkins building will follow. In conclusion this paper presents the policy implications of engaging in user-centered research as a major driver for library programs, space configurations, and digital environments.

Background/Literature Review

J. Murrey Atkins Library has over 1.087 million volumes in the current holdings as well as 47,000 print and electronic resources. Atkins Library supports the research and scholarship needs of the 25,000+ undergraduates and graduate students enrolled in seven academic colleges. The library employs 28 professional library faculty and 58 staff. Fall of 2009 was a year of change for Atkins Library. The newly hired University Librarian expressed a desire to incorporate ethnography into library policy and procedures. An anthropologist was hired to conduct ethnographic research and address two goals for the next academic year; 1) design and launch a refreshed homepage for the library's website, and 2) to redesign the layout of the 1st floor of the Atkins library building. The role of the anthropologist would be to conduct usability testing on the current website, to gather data via ethnographic observation and other sources (open forums, email conversations, interviews, blogs, etc.) about current study and web habits of undergraduates and faculty, and to compile reports on these activities, so that the information could be used by systems and facilities management. It has always been the intention that the library ethnography project would be carried out not just by the anthropologist, but also by interested members of the library staff, regardless of their professional specialty. The first group of staff to participate in these new ethnographic initiatives was the Usability Task Force. The Usability Task Force (UTF) applied ethnographic techniques within and outside of the library (in classrooms, in the Student Union) to begin to accumulate the information that will help inform the decisions about physical and virtual spaces at Atkins. To date, there have been staff members from circulation, technical services, information commons, facilities, and systems departments participating in the usability and ethnography projects. The intentional diversity of the group allowed for internal representation and an intimate knowledge of departmental assumptions and familiarity with user groups.

The practice of ethnography as a part of the qualitative assessment of library policies and projects is an increasingly established way of doing things in university libraries in the United States. The Rochester project (e.g. Bell, Foster and Gibbons 2005; Foster and Gibbons, 2007, 2005; Reeb and Gibbons 2004) is in its 7th year, the ERIAL project has been completed and is working on publishing and distributing its results (Asher and Miller 2011), and there are several locations throughout North America where there are active ethnography project sponsored by university libraries (Delcore, Mullooly and Scroggins 2009; Gadbridge, Gaskell and Stout 2008; Head 2009). Traditional library data collection techniques tend to be quantitative, in particular in the form of large and small-scale surveys. The collection of quantitative data, as in ethnographic research, provides the opportunity to illuminate the whys and hows behind the numbers that describe what is happening. Getting at the information behind the numbers will allow us to have a richer sense of context, and to more effectively interpret the results of the ongoing assessments that the library continues to engage in. The purpose of this article is not to suggest a novel approach to library ethnography, but rather to provide some information about what Atkins

Library have done in terms of library policy with the information received through ethnographic research.

There is a history of research being conducted on University campuses among undergraduates and faculty, in attempts by libraries and information scientists to learn about the ways in which people search for the information they need to live their lives, both in and out of academic environments. (e.g., Bartley et al. 2006; Connaway 2008; connaway, Radford, Dickey, Williams, and Confer 2008; Delcore, Mullooly and Scroggins 2009; Dervin, Connaway, and Prabha 2003; Foster and Gibbons 2007; Fister 1992; Gabridge, Gaskell, and Stout 2008; Head 2009; Malvasi, Rudowsky, et al. 2009; Maybee 2006; Prahba, Connaway, Olszewski, and Jenkins 2007; Suarez 2007; Valentine 2001; White 2009; Witt and Gearhart 2003; Ziebell n.d). An intense interest in the nature of digital literacy among college students, and concerns about the digital fluency of the so-called "millennial" student and how that may or may not be connected with information literacy has also driven research by information scientists (Connaway 2008; Connaway, Radford, Dickey, Williams, and Confer 2008; Educause 2010; Head 2009; Radford and Connaway 2010; Witt and Gearhart 2003).

For the purposes of this article, "ethnography" is broadly defined, and includes web usability, open forums/discussion groups/ground interviews, participant observation, and structured and unstructured interviews with individuals. Usability in simple terms involves a product or service and the participants' interaction with that product or service. For the purpose of this study usability refers to the both the use of the library's physical and virtual space.

The starting assumptions about the research undertaken at Atkins, beginning in January of 2010, was that any information was potentially useful, and the range of qualitative data solicited and collected in the course of the Atkins ethnography project has been quite broad. The anthropologist conducted interviews with faculty as well as students, in a variety of contexts. Some structured interviews were embedded in usability testing, and were recorded along with the usability tests; the anthropologist took the opportunity to ask questions about student and faculty uses of library and campus resources before starting the usability test. Open-ended interviews occurred in library spaces, or outside of the library in locations such as the Student Union, faculty offices, and in classrooms; some of these interviews were audio-recorded, and others were recorded in the form of notes taken after the interaction. Open forums held in the Student Union and in the Atkins Library yielded patron sketches of websites, drawings on and around library floor plans, and lists of desired functions for virtual and physical library spaces, as well as some interviews recorded by the anthropologist. Observation of behavior in the library has been focused on the main floor (where the service desks and the main entrance to the Atkins library are located), but has also included other parts of the library, especially the ground and third floors (see discussion below); such observations were documented in the form of field notes as well as photographs. Reports on the ongoing research have been both formal and informal, occurring orally in all-staff meetings about website redesign and plans for the physical space of the library, as well as in written form, in whitepapers distributed to the library staff on email listservs. Some smaller-scale reports are given in the course of one-on-one meetings with programmers, facilities staff, or the university librarian. The ethnography project at Atkins is not a closed system, and anyone interested in the work can ask about it, participate in it, or receive reports on current and past activities.

Web Usability

One of the major goals of the Atkins Library Ethnography project was to determine if the library's website was being used and why. Web usability is not a new concept. The earliest reference to usability appeared in the corporate environment. The proliferation of online retailing forced businesses to revamp their marketing plans. The UTF relied heavily on Steve Krug's book *Don't Make Me Think* (Krug*,* 2006*)* to understand basic concepts of web usability and design. According to Krug "Don't make me think" is the first and only law to web usability. One of the early findings of web usability and web design stressed the idea of browsing "scanning, satisficing, and muddling through"(Krug, 2006). There are an abundance of studies surrounding internet reading behaviors. In order to fully address the spatial and informational needs of the library's constituents it was crucial to study student and faculty behavior. Another justification for usability as stated by Thomsett-Scott "By involving the users in the design or at least considering the site from users' perspectives, the site will be more effective and efficient for the users and they will be more likely to use the site rather than go to a free search engine or some other source of information (Thomsett-Scott, 2006)". With this in mind, in collaboration with the library's anthropologist, the UTF began by discovering what library users really think of Atkins library, specifically the library's website and the main floor.

Usability is not new to Atkins Library. Surveys and small scale usability studies were conducted prior to this project. The library website was redesigned as recently as 2005. Upon reviewing these prior studies it was clear the data was never fully implemented and by 2009, was well out of date. To ensure future work would not be in vain a strict timeline was established. Out of this a process for future usability and web redesign emerged.

After the initial formation of the UTF, members were charged with completing the university's Institutional Review Board's Human Research training modules. Requiring IRB certification further established the library's commitment to ethnographic research. Throughout the Fall of 2009 the UTF team completed IRB training and began planning for testing. With a fresh group of librarians and staff trained for human subject research it was time to gather information on various user groups.

In January of 2010, the Usability Task Force (UTF) organized two sets of open forums in the University's Student Union, to try to learn about what students wanted in a library homepage. The open forums were held in the Student Union to ensure participation from a wide range of students, including those who don't habitually visit the library. The recruiting strategy incorporated a number of incentives including food (donuts and pastries in the mornings, and pizza in the afternoons) and gift cards in exchange for time and information. Forums were held in late January, and students (and a couple of faculty members who came along to see what was happening) were asked to design or describe: a) their dream website, and b) their ideal first floor of Atkins. Some participants were comfortable drawing their ideas, but some preferred composing lists. Many wanted to see the old website, or explicitly refer to what existed in the library, but facilitators encouraged participants to start from scratch. In most cases, a member of the UTF and/or the anthropologist interviewed the participants about what they had drawn/described; only a few of these interviews were audio-recorded and transcribed, but they all informed the formation of the task list (see below).

The take away from the open forums included sketches of web sites, lists of important functions, and suggestions for furniture placement and activity areas in the Atkins library 1st floor (see discussion below for more about the latter). From the webpage sketches, function lists, and

transcriptions and notes from the interviews, the UTF developed a list of 13 important tasks that students want to be able to do on our library homepage (see below). The fact that the UTF was comprised of library faculty and staff from throughout the library meant that in addition to student input, there was a relatively comprehensive professional perspective on user behavior and needs. In particular, an attempt was made to have questions that would address/reveal the needs of particular library departments, as framed by student experiences.

 Task List:

- **Task 1:** When is the library open on August 1st?

- **Task 2:** What is the library's mailing address?

- **Task 3:** Find the webpage for INTL 4601.

- **Task 4:** You are assigned to read Freakonomics by Steven Levitt. Locate a copy of this book.

- **Task 5:** Professor Fuentes has placed the article "Understanding and applying medical anthropology" on reserve for your Anthropology 3222 class. Find it.

- **Task 6:** Reserve a group study room.

- **Task 7:** Find the following article: "Billion-dollar battle ahead for Toyota to rebound from recall." *Advertising Age*, 2/1/2010, Vol. 81 Issue 5, p1-21.

- **Task 8:** Find your library account information. Do you have any overdue items?

- **Task 9:** Find the contact information for the Business Librarian.

- **Task 10:** Check if the library is hiring—what position?

- **Task 11:** You are looking for books and journals in the GN call number range. Where in the library would you go to look for them?

- **Task 12:** Where in the library do you go to check out a laptop?

- **Task 13:** You need to read <u>Small Gods</u> by Terry Pratchett but the library does not have a copy of it. What would you do?

With task list in hand usability testing commences. Earlier in the academic year, the library worked with the UNC Charlotte College of Computing and Informatics to acquire Morae, a screen-capturing software that allowed for video and audio-recording of the usability testing sessions. Student volunteers comprised the majority of test participants and were recruited by members of the UTF. Participants were recruited via Facebook or solicited immediately before each session. Prior to each session the UTF divvied up roles and responsibilities to ensure the key roles of facilitator, observer and note taker were established. It must be noted that although the role of facilitator was performed only by the anthropologist and the UTF Project Manager, every member of the UTF including the anthropologist was trained to perform all the roles listed to ensure continuity. Usability testing was conducted in a usability lab, set up with the Manager

side of Morae, tables for the note taker, and chairs for the facilitator and the participant conducting the test. Each test took about a half-an-hour—if participants did not finish the task list within 30 minutes, the facilitator ended the test anyway. Aside from the task lists participants were asked key demographic questions as well. Participants were asked to sign a consent form and compensated for their time with a gift card.

To allow for more note takers and interested parties to observe, a separate observation room was set up with a large screen projector displaying live testing. All library staff was invited to attend, observe, and take notes. In this way, all of the comments and observations that the observers made while watching the testing would not be audible to the person participating in the usability test. This set up allowed for localized and remote usability testing to occur simultaneously.

February 2010 was Usability month; the UTF conducted a total of 18 usability tests on this version of the Atkins homepage (see Fig 1).
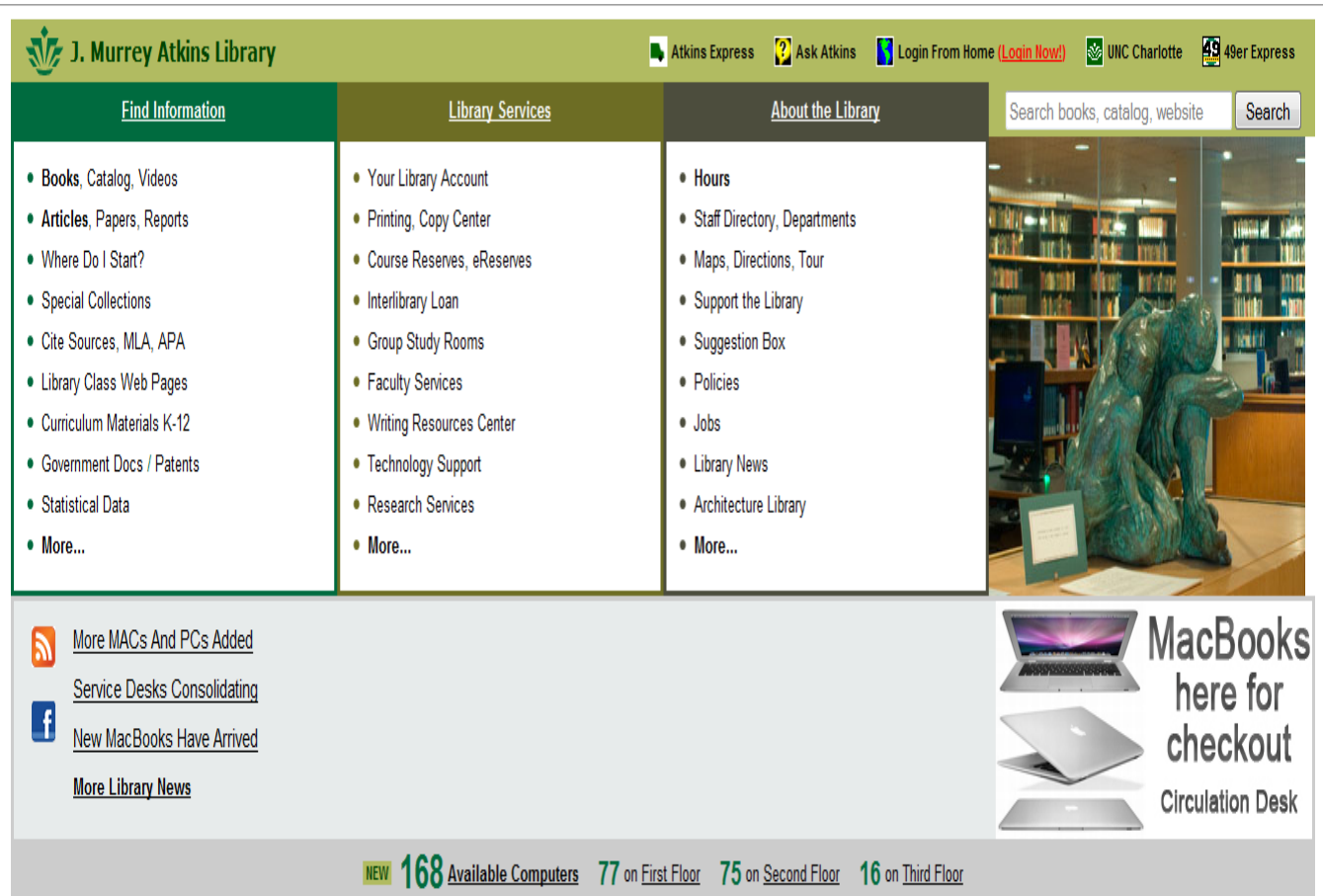

Figure 1: Atkins Website Feb 2010

All notes were compiled and transcribed by either the anthropologist (the principal investigator for this phase of usability) or by the UTF Project Manager. At the end of February/beginning of March, the UTF met to go over the results of the usability testing, and make recommendations for the first mockup of the new library homepage. In addition to identifying the specific failures of the current website (which were significant), the task force pulled examples of potentially effective solutions from other websites, and gave that list, plus the anthropologist's reports to the library's webmaster.
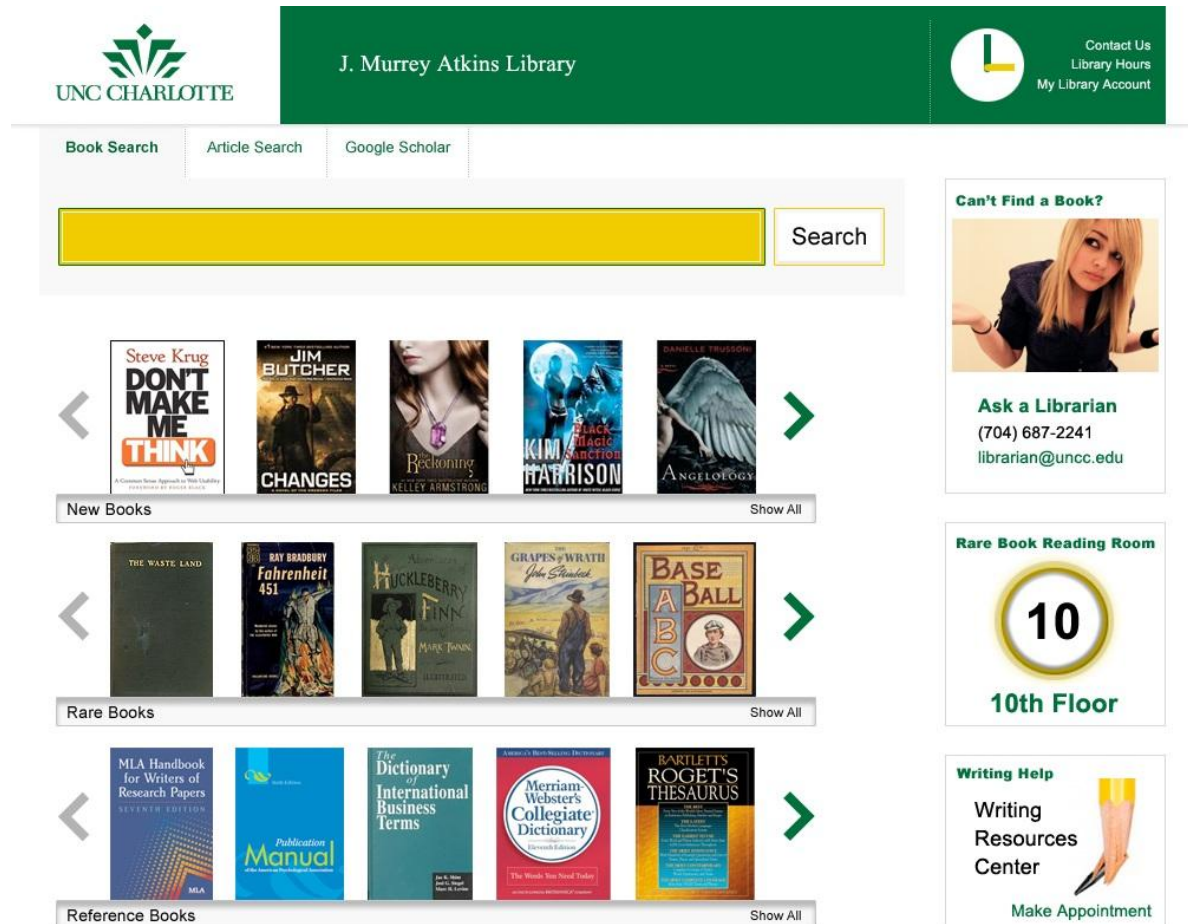

Figure 2: Concept 1

Mid-April, the webmaster presented the first homepage mockup to be subjected to more usability testing (See Figure 2). Unlike the previous usability testing, this phase of testing involved a functionally limited mockup. As a result only 6 usability tests were conducted using the same task list that was used in February. For this iteration of testing, there was less general staff observation of the usability tests, although they were still open to interested parties. In addition to the tests conducted using Morae, 6 "paper-doll tests" tests were performed. These exercises were to provide a check on assumptions asking students to test web site components that were truly useful to them. The anthropologist and UTF PM collected, printed, and laminated widgets from a variety of library websites (some of which had been previously highlighted by the UTF), including the mockup presented as Concept 1 (Fig 2) for the paper-doll tests. Participants were given the paper widgets and asked to select and arrange the widgets into their own personal ideal

Atkins library homepage (Fig 3). The notes and transcripts from all of these tests, Morae and paperdoll usability, were compiled, and the UTF produced another internal report.

Figure 3: one paper doll test

In June, Concept 2 was presented (Figure 4). The UTF repeated the iteration, with a round of usability testing (this time all on Morae), and subsequent reporting of the results to the webmaster in June. A newly refreshed homepage was softly launched on July 1st enabling staff to contribute feedback prior to an official launch. Limited usability testing was also conducted in July. It was more challenging to recruit students during the summer sessions, and at this point in the process, the team was confident that the results would be reliable even with less than 10 usability tests (Krug, 2006). The findings were compiled, processed, and incorporated with the version launched on August 1st, 2010 (Figure 5). Between August 1st and Aug 21st, minor tweaks and adjustment were made based on patron and staff task-based feedback, which were collected from a digital suggestion box and emails, as well as direct communiqué to UTF members. Adjustments to the website occurred in the first part of the semester, and the site reached a steady-state about mid-way through the semester.
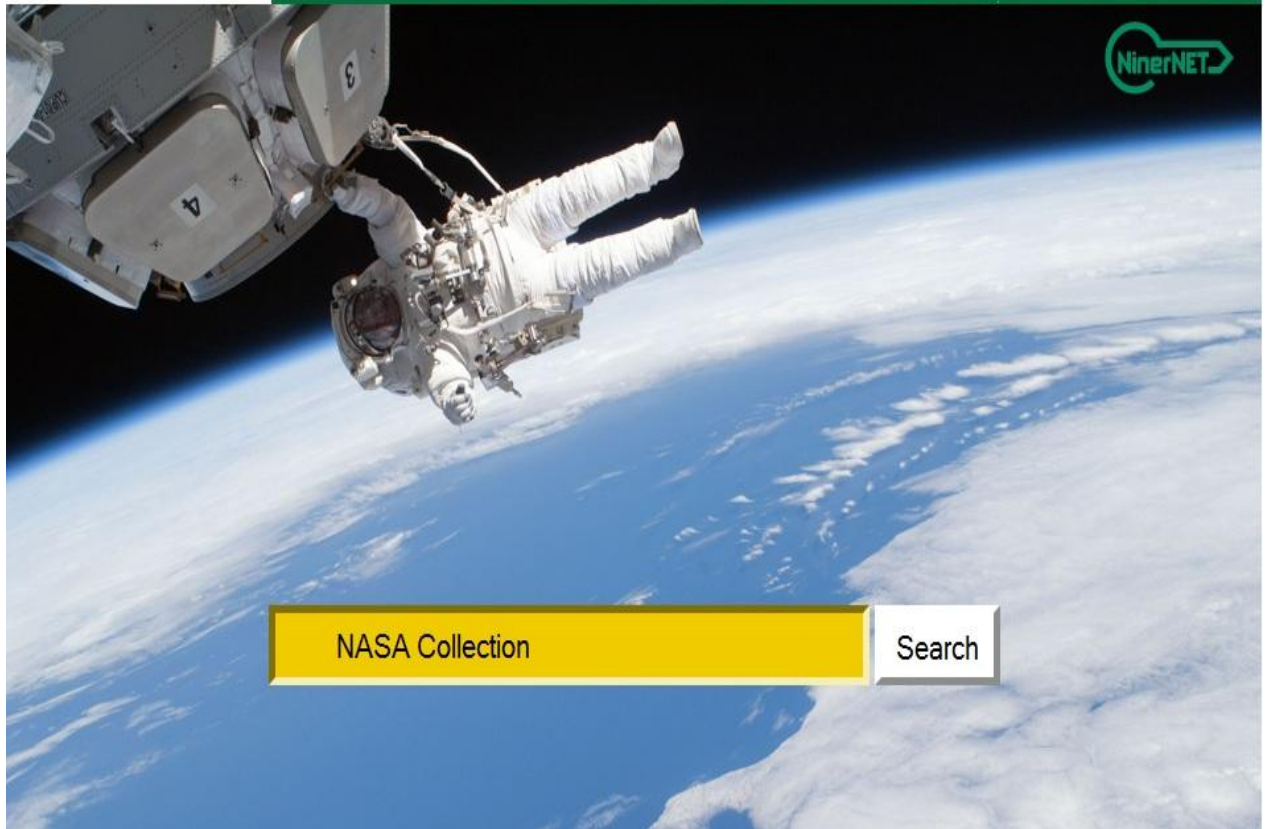
Figure 4: Concept 2

Figure 5: Atkins website launched Aug 1, 2010

At this point, the new web production process was in place (Fig 6). The new workflow begins with the relevant department or user group, and is grounded in the needs and priorities of the work that must be done.
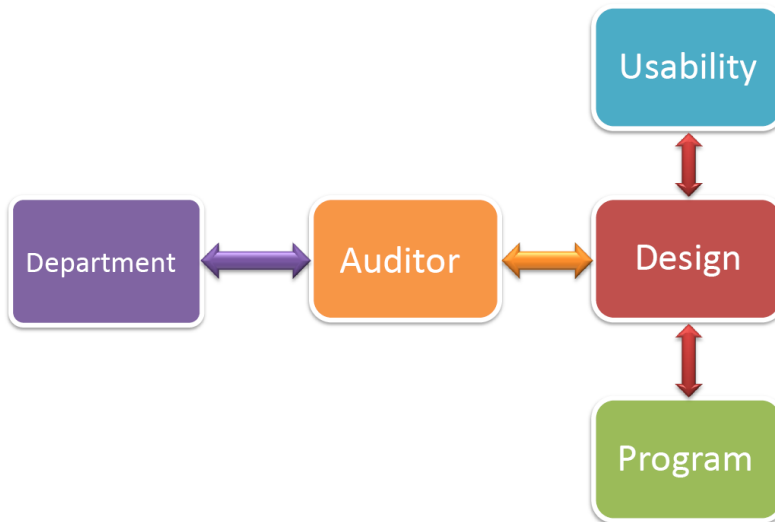
Web Development Process

Figure 6: web design workflow

The "auditor," in the workflow, is the departmental representative responsible for communicating the work-based needs to the graphic designer, who was hired in the Fall of 2010, and took over the design of the Atkins website. Within this new workflow, once a design mockup has been produced, it is sent to usability testing. Web usability and design is an iterative process and requires several back-and-forths between design and usability before programming and implementation. The UTF as described in this article has been disbanded, but web usability at Atkins Library will continue with a different project manager; usability is now a fundamental part of the way that Atkins approaches its web presence. Our latest homepage design can be seen at http://library.uncc.edu.

1st Floor Redesign:

The current Atkins building has accrued over time. It began as a single-story rectangle early in UNC Charlotte's history, and had a tower added to the mix in the early 1970s. The tower and the rectangle were connected by a 3-floor wrap-around addition in 2000. The stacks are scattered throughout the building, and in 2009 the reference collection took up a substantial amount of space on the 1st/main floor of the library. The 1st floor was crowded with furniture that did not necessarily serve students. For example, the study carrels that were in the main entrance hall of the library (Fig 7) signaled that quiet study would be possible in an area where it was quite impossible—people are constantly walking through the space, interactions at service desks are going on nearby, and it is a 3-story high light, airy, noisy, space.

The fact is there are several different sets of perfectly legitimate uses for library space that have conflicting needs, which must happen in different spaces. Our challenge is to make all of these different kinds of activities possible in our building, given the physical and financial limitations we (and most institutions of higher education these days) have. The perception of students in January 2010 was that there was not enough group study space, nor enough quiet study space; these are flip sides of the same problem: there is a simultaneous need for spaces in which students work that is quiet and solitary, and that is noisy and collaborative.

For example, on the 3rd floor of our library, we are attempting to establish a new Quiet Zone. This would provide not just a quiet space to study (there are two particularly well established spaces already, on our first floor and on the ground floor) but also a quiet space with library computing facilities. Our first attempt was with signage, and a small campaign to alert people that the QZ was now the entire third floor. This was persistently unsuccessful, in no small part because of the tradition of Greek study hall, which had been formally disbanded a few years ago, but was still in informal effect in force. Students interviewed about where they went to study, if they mentioned the third floor, would say "everyone knows" who studies there, and when pressed would throw up their hands and say "the Greeks!" It would be either implied or said explicitly that groups of students from fraternities and sororities would take over the third floor with their studying (some of which was as much social as it was academic). Students looking for consistently quiet space would seldom go to the Third floor, especially in the evenings.

We are still struggling with trying to make the Third Floor a quiet space, and some might reasonably question why, when it has proven so difficult. The answer is: because students persistently tell us that they need quiet spaces to study, and also that they need computers to study. The third floor is an opportunity to try to provide both, and it is a goal worth pursuing. Our latest attempt is to take out the big tables and replace them with furniture suitable for individual study. For now, that is carrels: this library is full of them, and they can take the place of big tables until some other furniture option that sets the same quiet-study agenda can be procured.

Figure 7: carrels in the library atrium Fall 2009

Service desks were another troubling aspect of our first floor configuration. There were no less than four service desks in a relatively small area (the atrium of the library building): reference, circulation, technical support, information. The course reserves desk was on the second floor. When students, in the course of usability testing interviews, were asked where they would go for help, they would simply say, "the desk,"—they were persistently unsure which desk was which. In the course of ethnographic observations of activities on the 1st floor, and also at the reference desk, students were regularly witnessed simply walking to the first desk they saw and asking for help, regardless of whether it was the correct desk or not. They were willing to be told where to go, but unable or unwilling to figure out where to go ahead of time.

In January of 2010, we held open forums in the UNC Charlotte Student Union (as described above). We attracted 48 students (30 men, 18 women) to come talk to us about their dream website, and also about what they would like to see on the 1st floor of the Atkins library building. 19 students drew us floor plans; we provided them with a blank blueprint of the Atkins library 1st floor, and asked them to draw the furniture/services they would like to see (see Figures 9-10).

The marked up blueprints we were left with had clearly marked activity areas, far fewer service desks, places to take breaks, and pleas from students for "a nice place to work." Students, in

drawing on their blueprints, would take over spaces that were currently staff offices for group study rooms, and indicate where they wanted couches and other comfortable seating. One student expressed the desire for a welcoming library, embodied by "outward facing chairs," and wanted the entire first floor to be stacks, so it "felt like a library." One student chose to organize the first floor by themes, with areas that focused on "scholarship," (an area that would recognize student and faculty achievement) "discovery," (a place to find and find out about library resources), and "focus" (a place for quiet study).   Many indicated a desire for more seating on the first floor, taking over the space that was, at that point, the reference collection. They wanted signs to tell patrons where to go for course reserves (which at this point were on the second floor), and wanted many more computers and quiet areas, as well as open space. Perhaps most striking was the desire for clearly marked work areas and services.
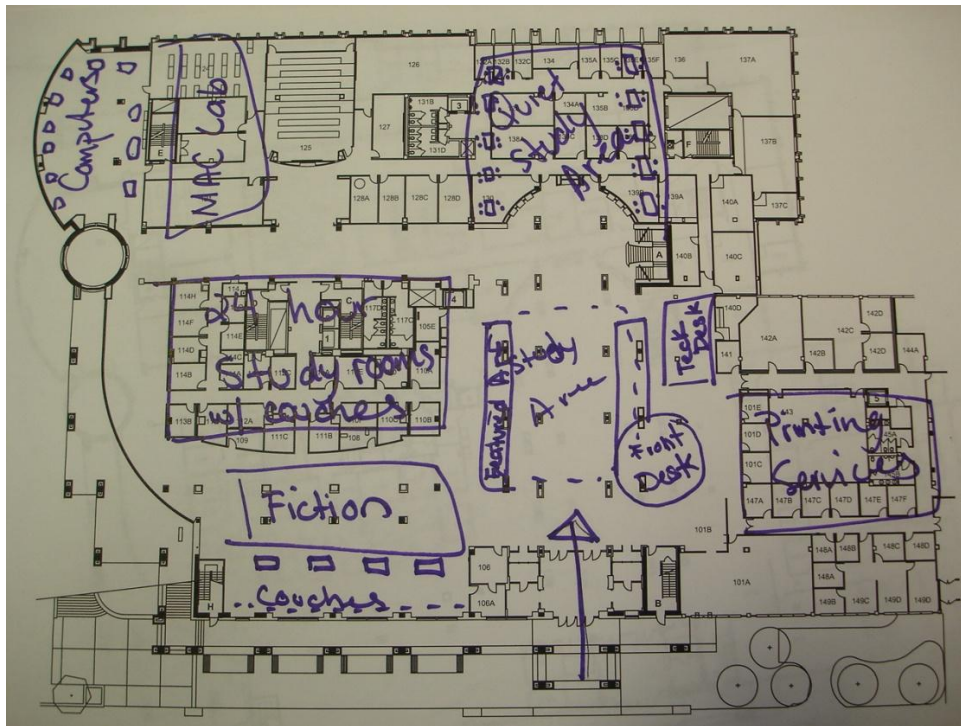

Figure 8: consolidated service desks (2 rather than 5), taking over current staff offices for group study rooms, desire for couches and other comfortable seating, clearly marked service and work areas.
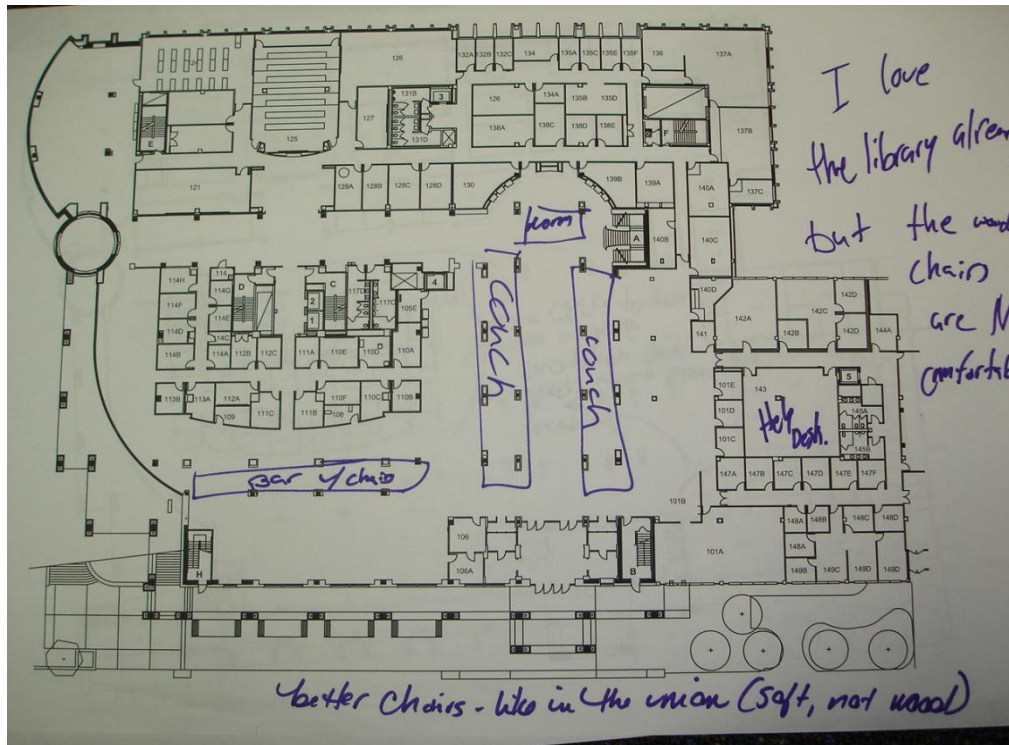
Figure 9: this student is all about the chairs and couches--takes over the space occupied by the reference stacks (at this point in Jan 2010) for more work space for patrons. Also note the single "help desk."

After the open forums in the Student Union, it was clear that we needed information from a wider selection of students, in particular students who use the library regularly. We experimented with using both print and virtual easels (Fig 11-12). We had a link to the virtual easel on the library's homepage throughout the redesign process. The student feedback was collected from the virtual easel cache regularly, and was primarily about the library's homepage redesign. Likewise large posters were placed in Atkins library building as a way of getting feedback on the physical space. In January and February, we put up large paper easels throughout the 1st floor, encouraging students to tell us what they needed in the library.
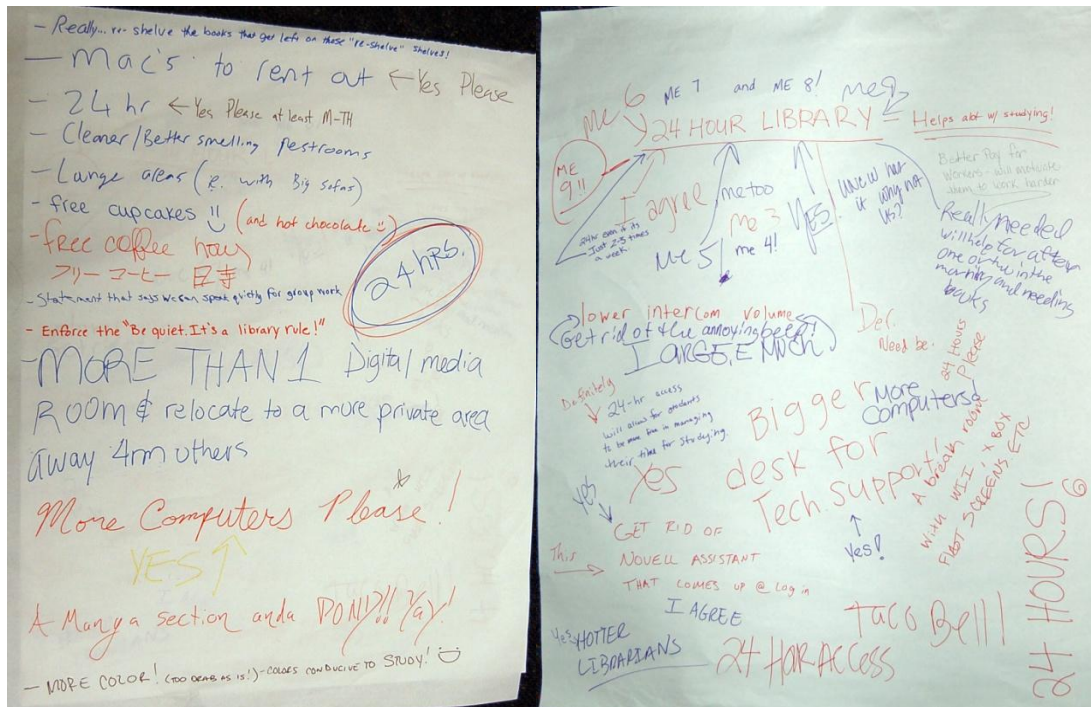

Figure 10: Virtual Easel

Figure 11: example of the easel feedback. Note plea for a 24 hour space, more computers, food, as well as a Pony.

The easels were left up until about mid-February, when the feedback started to get repetitive. The anthropologist compiled the comments on the easels, and broke down the requests into broad categories, like "computing," and "furniture." She also spent time observing and taking notes on the activity on the Atkins 1st floor, especially in February and March. A rough tally of about 2 weeks worth of the easel feedback is representative of the proportion of concerns represented by the students (counts are approximate because of difficulty in assessing which comments were duplicates):

- 24/7, longer hours   ~46
- Computer complaints   ~41
- Food/Drink services   ~24
- Quiet Zones/noise management   ~18
- Furniture   ~13
- Study Rooms /group study areas   ~8
- Art/better paint colors   ~7
- Parking   ~6

The overwhelming consensus on the easels was that the library needs to be open 24/7, affirming the right-thinking in experimenting with a 24/7 library during finals for the Fall 2009 semester. The J. Murrey Atkins library is now open on a 24/5 schedule during the regular semester, and 24/7 during and just before final exams.

Students were also clear about needing furniture and computer facilities that truly met their needs. Their need for food in the library (especially after the attached library café closes for the day) reflects their desire to be able to take breaks, yet remain in the focused space of the library, rather than having to break their concentration and head outside of the library when they are hungry. Vending machines were installed in early April 2010, to address the need for available food and drink for those who do not "brown bag" or bring fast food in from outside the library, as well as for those here in the middle of the night who cannot get any other food.

Some furniture changes have also already been made: the carrels were removed from the 1st floor atrium (as in Fig 7), and as of this writing, the space is now furnished with four large open tables, surrounded by desk chairs, as well as movable soft seating with built-in desks (Fig 13).

Figure 12: Atrium Jan 2010

The reference shelves on the 1st floor have been radically downsized. In January 2010 there were 700 tall shelves available on the 1st floor for the reference collection, concentrated in the middle of a large open space in the front of the library building, blocking the natural light. After judicious culling by the reference librarians, and re-integration of those volumes into the general collection, the reference collection on the 1st floor only occupies 78 shelves (in 13 short sections; stacks maintenance supervisor, personal communication). There is now there is a large open space where the collection used to be, ripe for experimentation with furniture and function.

Figure 13: Reference Stacks 2009 (Campus Photography)

Figure 14: main floor of the Atkins library, ready for new furniture

In terms of more clearly defining activity spaces (a desire expressed in the floor plan sketches, from the Open Forums, as well as on the easels), the third floor has been made into a Quiet Zone, in an attempt to meet the need for quiet spaces that also have computers in them, to facilitate quiet, focused work. 35 new computers were placed on the 2nd and 3rd floors, before the beginning of summer session 2010. We chose to put computers at a mix of carrels and open tables, because some students prefer carrels for their ability to enhance their focus, while other students need open table space to spread out materials while they are working on a computer. Student can also more effectively work in pairs or a small group with computers placed at open tables. We included Macs in our new computers (desktop and laptop) as well as PCs, because it is clear from student feedback and our observations of students working on their laptops in the library (as well as any number of student technology surveys) that there is a need for both kinds of computers in the library.

The key here is that we are attempting, in reconfiguring pre-existing furniture into new arrangements, to give students maximum flexibility in the ways they can use the main spaces of Atkins library, as well as a more clear sense of what spaces are best suited for which kinds of work. The first floor atrium is now a space for students to work, if they are comfortable working in airy open spaces with lots of movement, but is also a place for consultations with the reference staff, and for students to wait for and meet with their friends on the way to/from class or to a study session. The carrels have been moved to places further into the library building where students can have a reasonable expectation of quiet, focused study

The constant use of our existing group study rooms, as well as persistent complaints about not enough group study spaces/too much noise in areas "supposed" to be quiet prompted us to try to create a collaborative workspace on the ground floor, and a quiet Reading Room in the compact stacks, also on the ground floor.

Figure 15: new collaborative study space

The carrels have been removed from the ground floor area, and we have created a collaborative study space that includes whiteboards, couches, chairs, and study tables that can serve individuals as well as groups; all of the furniture can be configured in a variety of ways, to accommodate individual and group study needs (Fig 15). The space is already wildly successful, as is evidenced not just by observations of students using the space, but also in the extensive writing they leave behind on the whiteboards: engineering problems, language homework, business organization charts, and other sketched visualizations of their studies.

Conclusions

By turning to a research-based model of library policy, we have changed the way things look in our physical and digital spaces, and also how the library works, how decisions are made,

and the kinds of information that informs those decisions. Ethnography and usability, as driving forces in library policy, shift the impetus of decision making from top-down set priorities to priorities that diffuse upwards from patron needs, from patron work requirements.

Ethnographic practices such as those described in this article can provide information that surveys and other self-reporting methods cannot. Methods that direct us to the perspective of our patrons, and allow us to be surprised by their thoughts and actions, ground us in their everyday practices and motives. Participant observation and open-ended interviews can be particularly effective in revealing the gap between what people say they do, and what they actually do. Used in combination with more traditional information gathering strategies (such as surveys, environmental scans, etc.), ethnographic techniques are powerful tools, and can be wielded to great effect in the crafting of library policy, including approaches to the configuration of our physical and digital spaces.

In using ethnography to gain knowledge of patron needs and practices, we become a more agile library, one that responds more organically to the workflow of the university in which we are embedded. The constant presence of ethnography, and of research-based decision processes transforms the library as a whole into an experimental space, one in which we try solutions that are based on one interpretation of the facts, and then continue to study behavior to evaluate whether or not we were correct. Because research is a constant in our process, we have the ability to recognize when we are on the right (or wrong) track, and recalibrate.

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