Practical Research for Library Space and Service Design

Bertha P. Chang and Honora N. Eskridge
NCSU Libraries
James B. Hunt, Jr. Library

Opening January 2, 2013
North Carolina State University

• Main Campus
  – 1 central library
  – 2 branches

• Centennial Campus
  – Hunt Library
  – Colleges of Textiles and Engineering

• Centennial Biomedical Campus
  – 1 branch library
Methodology

• Team of nine subject specialist librarians
• Interviews with faculty and graduate students:
  – College of Textiles
  – College of Engineering
  – College of Agricultural and Life Sciences
  – College of Physical and Mathematical Sciences
• Two librarians per interview
• Interviews recorded and transcribed
Methodology

- Practical approach – quick turn-around for each phase
- Study conceived for purposes of Hunt Library planning, not academic research
- Adjustments made along the way as needed (e.g., addition of new interview questions)

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 31, 2011</td>
<td>Kick-off meeting (9 librarians)</td>
</tr>
<tr>
<td>February 2011</td>
<td>Questionnaire developed</td>
</tr>
<tr>
<td>February 28 – May 5, 2011</td>
<td>Interviewed 40 faculty members and 31 graduate students (60 interviews)</td>
</tr>
<tr>
<td>June 10, 2011</td>
<td>Preliminary overview report + personas</td>
</tr>
<tr>
<td>September 2011</td>
<td>Analysis of COE and COT data</td>
</tr>
<tr>
<td>October – November 2011</td>
<td>Analysis of all data, final report</td>
</tr>
<tr>
<td>February/March 2012 (2 weeks)</td>
<td>Additional 8 graduate students interviewed</td>
</tr>
</tbody>
</table>
Analysis and Results

- Work spaces
- Technology use
- Library use and services
- Anticipated use of Hunt

→ Discovery of “hidden” user groups
## Graduate Students: Activities

<table>
<thead>
<tr>
<th>Coursework–based</th>
<th>Research-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Problem sets, assignments</td>
<td>• Experimental/lab work, field work</td>
</tr>
<tr>
<td>• Exams</td>
<td>• Collaborative work: group meetings, research discussions</td>
</tr>
<tr>
<td>• Group projects</td>
<td>• Finding and reading of field-specific literature</td>
</tr>
<tr>
<td></td>
<td>• Writing: papers, thesis or dissertation</td>
</tr>
</tbody>
</table>

- Other activities: TA responsibilities (8)

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**“work spectrum”**

- **MS students (non-thesis)**
- **MS students (thesis)**
- **PhD students**
Graduate Students: Work spaces used

<table>
<thead>
<tr>
<th>Work space</th>
<th>Total users (n=39)</th>
<th>PhD (n=29)</th>
<th>Master’s (T) (n=5)</th>
<th>Master’s (NT) (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office or lab desk</td>
<td>33</td>
<td>29</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Libraries*</td>
<td>27</td>
<td>20</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Departmental or building spaces</td>
<td>20</td>
<td>13</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Home</td>
<td>19</td>
<td>14</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

*Includes both past and current library use
Graduate Students: Library use (spaces)

<table>
<thead>
<tr>
<th>Work space</th>
<th>Total users (n=39)</th>
<th>PhD (n=29)</th>
<th>Master’s (thesis) (n=5)</th>
<th>Master’s (non-thesis) (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total use*:</td>
<td>27</td>
<td>20</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Current users:</td>
<td>19</td>
<td>13</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Goes to library on another campus</td>
<td>10</td>
<td>5 out of 13</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Would definitely use Hunt:</td>
<td>24</td>
<td>18</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

*Includes both past and current library use
Graduate Students: Significant findings

- The design of the Graduate Commons anticipates needs for varying types of spaces
- Identification of hidden populations
  - Non-thesis master’s students
  - TAs
## Faculty: Work Activities

<table>
<thead>
<tr>
<th>Individual</th>
<th>Collaborative</th>
<th>Student-centered</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reading</td>
<td>• Group meetings</td>
<td>• Advising research students</td>
</tr>
<tr>
<td>• Writing: papers, grants</td>
<td>• Research discussions</td>
<td>• Academic advising</td>
</tr>
<tr>
<td>• Grading</td>
<td>• Research discussions</td>
<td>• Office hours</td>
</tr>
</tbody>
</table>

### Spaces Currently Used

<table>
<thead>
<tr>
<th>Individual</th>
<th>Collaborative</th>
<th>Student-centered</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Office (40)</td>
<td>• Offices (40)</td>
<td>• Offices</td>
</tr>
<tr>
<td>• Home (22)</td>
<td>• Dept. conference rooms (36)</td>
<td>• Building lobbies</td>
</tr>
<tr>
<td>• Libraries (10)</td>
<td>• “Virtual” space (8)</td>
<td>• Library</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Classrooms</td>
</tr>
</tbody>
</table>

### Gaps and Needs

<table>
<thead>
<tr>
<th>Individual</th>
<th>Collaborative</th>
<th>Student-centered</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Campus-based quiet spaces during M-F working hours</td>
<td>• Lack of conference rooms</td>
<td>• Spaces that can accommodate groups of students</td>
</tr>
<tr>
<td></td>
<td>• Inadequate projection or display equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Video-conferencing</td>
<td></td>
</tr>
</tbody>
</table>

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**NC State University**
### Faculty: Library use (space)

<table>
<thead>
<tr>
<th>Current usage (Main Campus):</th>
<th>Engineering and Textiles</th>
<th>Agricultural/Life and Physical Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 out of 25</td>
<td>4 out of 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hunt usage: Yes</th>
<th>18 out of 25</th>
<th>3 out of 15</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hunt usage: Unsure</th>
<th>7 out of 25</th>
<th>8 out of 15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Includes 2 who think walk is too long/far</td>
<td></td>
</tr>
</tbody>
</table>

| Hunt usage: No              | 0                        | 4 out of 15                             |

| Current + Projected use of Main Campus and Hunt Libraries | 76%                        | 40%                                      |
Faculty: Anticipated uses of Hunt

• Everyday work:
  – Meet current gaps in spaces for individual work and group meetings
  – Facilitate cross-campus collaborations

• New opportunities:
  – A showcase for learning and engineering
  – Location to meet with outside visitors/collaborators
  – Venue for campus and engineering/scientific communities

• Non-users
  – Faculty who may be too busy to go to Hunt
Personas

• Archetypal users representing core needs
• 4 faculty, 2 grad, 4 undergrad
• Blended “data driven” and “ad hoc” approaches.
Tina Tweed, Associate Professor, Textile Engineering

“It’s all about the students!”

WHAT’S YOUR WORK LIFE LIKE?

I am a member of the Textiles faculty and so I have always worked on Centennial Campus. I rarely go over to main campus except for special meetings. Most semesters I teach two undergraduate courses, one of which has an associated lab. I have a TA to help cover the lab sections and do the grading, so that helps. I also officially advise about 20 students per semester, although informally it’s probably a lot more. Students have a tendency to knock on my door when they need advice or just to talk. I generally work about 6 days per week during the regular semester. I have small children so I try to work from home on the weekends if possible.

I have a small office, just like everyone else in the College. I try to make it a bit more warm and welcoming for students (I secretly painted over the standard battleship grey color a few years back – that made a big difference). Still, I can only meet with one or two people comfortably in there. Sometimes I go to the Port City Java to meet with students and faculty; it’s a nicer environment, and they have a small conference room you can book.

HOW DO YOU USE TECHNOLOGY?

Basically I just use what they give us. The standard technology provided in our classrooms has become something I can’t live without. I am really interested in new technologies that might be useful in the classroom, but to be honest I don’t have the time to investigate them.

HOW DO YOU USE THE LIBRARY?

I don’t really use the library. I mainly just get my journal articles through Google Scholar, and I bookmark my favorite e-journals. Really, I think the library is for the students, but I truly value all the library does for them. I put about a dozen books on reserve in the Textiles Library each semester and sometimes I use the library to hold an exam (the classrooms are very tightly packed and students need space during a test). I really believe that engineers need to know how to search for information, so I work with our reference librarians and bring them into class once a year to go over the important engineering resources.

ABOUT ME

- 41 years old
- Married with two children, ages 7 and 10
- Originally from Birmingham, UK
- PhD, Mechanical Engineering, University of Manchester
- Tenured, with NCSU for 13 years
- Hobbies: knitting, needlepoint and crochet

MY NEEDS

- My students to know how to use the library.
- To put stuff on reserve for my courses.
- An alternative teaching space.
- To book a room to meet with my students.
- A room with special technology to use with my students.
- Training or assistance using technology in the library.
- Food and drink
WHAT'S YOUR WORK LIFE LIKE?

I am a Chemist, pure and simple. I have been here a long time and I've served my department in a variety of roles, but I am happiest working in my lab with my grad students, which is what I do pretty much full time now. I work a standard week, 8-5/M-F, and I spend 100% of my time on Centennial Campus. I have a standard office like everyone else in the College, and there is a desk in the lab that I use a lot. I don't really need to meet with others except for my lab meeting once a week (I have eight grad students and a post-doc at the moment). Sometimes I have trouble securing a conference room for that. I meet with my students individually once a week as well (I devote a whole day to this).

HOW DO YOU USE TECHNOLOGY?

I have a lot of pretty high-tech stuff in my lab, but other than that, I'm not exactly what you'd call an early adopter. My kids are always teasing me because my cell phone is old. I guess I don't seek out new technology - if something works, I tend to stick with it, but if I find something new that works better, I will absolutely use it. A good example is the new book scanner up in the library. As soon as I heard about that machine, I was up there being shown how to use it.

HOW DO YOU USE THE LIBRARY?

As a trained chemist, I learned early on the importance of libraries. I love to do library research - I always have - I am just as comfortable searching the databases as I was using print indexes decades ago. I still remember how to use Chemical Abstracts in print! I like to tease the young librarians about that; they don't know what they're missing! Speaking of librarians, we have some great ones here and I enjoy working with them. I am always referring my students to them. Like everyone else, I guess I use e-journals the most, but I usually have a dozen or so books checked out at any given time too. I use ILL once in a while, too; it gives me an excuse to go to the library and "breathe in the atmosphere!" I am sure I will do the same in Hunt Library, although I must admit I'm worried about losing the browsing experience. I'm trying to keep an open mind, though! Libraries mean a lot to me; they are such an important place of learning, and while I don't love some of the noisier aspects of the library these days, I am happy that the library is still a vibrant place on campus.

ABOUT ME

- 60 years old
- Married, 3 adult children and 2 grandchildren
- Tenured, joined NCSU from Purdue 25 years ago
- PhD, Organic Chemistry, University of Pennsylvania
- Hobbies: stained glass making, home brewing

MY NEEDS

- To find and discover print content.
- To fix a problem with my library account
- To pick up stuff that is being held for me.
- To print/copy/scan.
- Expert research assistance.
- To use special or alternative format collections.
- To be able to book a room for a whole semester.
- Food and drink
Larry Leadwell, 
Professor and Associate Head, 
Mechanical and Aerospace Engineering

“Wait till you see this!”

WHAT’S YOUR WORK LIFE LIKE?

For most of my career here I’ve been focused on research projects in aerospace engineering. We’ve done a lot of interesting work for the space program, for instance. But for the last 7 years I’ve been serving as Associate Head of the MAE department, which has meant spending less time on research and more on administrative tasks. This is one of the bigger engineering departments with 1500 students and about 50 faculty, so there’s a lot going on, but basically I’m a people person so I enjoy it. I also serve on a lot of committees and collaborate with colleagues in some of the other departments. I’ve been here a long time so I know quite a lot of people! In addition to my administrative work, I’ve got two graduate students and about half a dozen seniors working on projects in my research areas.

One of the perks of being Associate Department Head is that I get a bigger office. I’ve got a table for four and some additional seating by my desk, plus we’ve got a conference room down the hall if I need to meet with bigger groups of people. I am planning a conference next year, but I am having trouble figuring out where to have the meetings. There is no place on Centennial with spaces big enough for the event.

When we were on main campus I would walk to Hillsborough Street for coffee or lunch with other faculty members. That is the thing I’ve missed the most since we moved out to Centennial last summer.

HOW DO YOU USE TECHNOLOGY?

I’m not sure what you mean by that... as an engineer, I’m immersed in technology all the time.

HOW DO YOU USE THE LIBRARY?

I rarely use the library although I know several members of the staff. I’m really excited about Hunt Library because of its Importance to NC State and I look forward to bringing visitors, faculty candidates, and others over to the spaces to “show off” the University. I’m also looking forward to having someplace to walk for coffee and just to meet informally with people.

ABOUT ME

• 55 years old
• Married, an empty-nester
• Hobbies: camping, fishing, hiking, golf
• Wolfpack Club Member
• NCSU Alumni Club
• PhD, Mechanical Engineering, NC State
• Tenured, with NCSU 26 years

MY NEEDS

• To attend library-sponsored events.
• Turnkey professional video-conferencing.
• A place to meet informally with others.
• To impress someone.
• A bookable space for a formal event.
• A space to meet with people outside my department.
• Food and drink
WHAT’S YOUR WORK LIFE LIKE?

In a word: busy. I teach undergrads, have a research group, and I have a joint appointment with Carolina. My office in the BME department is centrally located – my grad students work right outside my door, and my undergrads have no trouble finding me. This means that during the day I deal with constant interruption. I want to help the students, but I also have a ton of papers to read and proposals to get written. Some of my grants are through the federal government and they require constant update reports. Working from home is not an option – we have a toddler and it’s just too distracting. Sometimes I go to the Starbucks up at North Hills; I don’t dare work any place close to NC State because the students will find me. The problem with this is that all the stuff I need is in my office. I have resorted to closing my door and shutting off the lights so that they think I’m not here! I have covered the window on my door with paper too, but I worry they can see me through my exterior window. It is a pretty desperate situation! I generally work at least 6 days a week, and tend to stay as late as I can in the evenings. I have meetings at UNC so I am generally out there at least one day a week, and whenever possible we hold meetings via videoconference.

HOW DO YOU USE TECHNOLOGY?

In addition to videoconferencing technology, I mainly use standard office technologies. I have an iPad and a laptop that I carry around, depending on what I need that day. When I meet with collaborators we often need to pull up journal articles or images on a screen, so I like to use rooms with really good projection. High fidelity and accurate color representation are critically important to me.

HOW DO YOU USE THE LIBRARY?

Since I am part of the joint UNC-NCSU BME program, I have access to collections at both universities. So I am able to get pretty much everything I need from one library or the other. I don’t go to D. H. Hill Library very often; it’s too far away and I just don’t have time, and besides I don’t think they would have a place where I could completely isolate myself the way I need to. I need a professional work space where I can get away for quality block of time. I am sure there are a bunch of services that the library offers but because I’m so crunched for time, I really don’t know what is available. I tend to just handle things on my own.

ABOUT ME

- 35 years old
- Married, 1 child (age 3) and 1 on the way
- PhD, Penn State University
- Non-tenured, joined NCSU 5 years ago
- Hobbies: musician (guitar)

MY NEEDS

- A place to get away on my own
- An office
- Food and drink
Ahman Green,
Master’s Candidate
Electrical and Computer Engineering

“...slowly figuring it out”

WHAT’S YOUR WORK LIFE LIKE?

I am in my first semester of the ECE master’s program. I am taking four classes plus the graduate seminar so my schedule is very busy. I did my undergrad in Turkey and it is very different here so I am still adjusting. My classes are very big and it is sometimes hard to hear and follow what is going on. My English is good but sometimes I miss things. I spend most of my day in EB2, because that’s where all my classes are. I have no car so I take the bus or walk to campus. I bring food and drinks with me so I don’t have to go home during the day and to save money. During the week I am generally here most of the day, from about 9-4. For my schoolwork, I need to use the high-powered computing available in the labs in EB2, that’s the only place where I can access it. I also need access to my textbooks, which are down at the Textiles Library. Every week I walk down there and scan what I need. If I am lucky the book won’t be already checked out, but if you have 150 classmates and only 1 textbook, odds aren’t in your favor. Still, it is better than buying the book.

WHERE DO YOU STUDY?

In between classes I try to do homework in the computer labs, an empty classroom or sometimes on the sofas at the ends of the hallways in EB2. I don’t have an office yet because I’m still in my first year. There aren’t really any good spaces for groups to meet in EB2. I never go to D. H. Hill during the day; it is too far away and for me everything is on Centennial. Also, if I want to take a break I have to shut everything down and take it with me. In the evenings I will take the bus over to D. H. Hill Library because I can eat there and then work alone or in groups. I had never used a western library before coming here so at first I was very confused by D. H. Hill Library, but I am slowly figuring it out.

ABOUT ME

• Age 23
• First year graduate student
• Undergrad in EE from Ankara University, Turkey
• First time in the US
• Shares an apartment off Avent Ferry Road with 3 roommates from Turkey

MY NEEDS

• To print/copy/scan
• A quiet place where I can work without distractions
• To borrow technology
• Multiple computer screens
• To get to/from the library safely and conveniently
• A secure place to store my things.
• Space to work with others in a group.
• Access to my textbooks.
• An orientation to the library.
• Food and drink
WHAT'S YOUR WORK LIFE LIKE?

I am at the stage where I've finished my course work, and am primarily focused on research. I pretty much live in the Textiles buildings these days. During the daytime I spend a lot of time in my office. This semester I am TA-ing for Dr. Lee, so I teach, grade papers, and hold office hours 2 days per week. And I answer a lot of student emails! I spend a good portion of my time in either the Textile Management Science lab or the Digital Design Lab. Right now I am doing a lot of literature searches. I also have to prepare and give presentations to some of our industry partners. I meet with my advisor weekly and probably stop by her office at least a couple times a day to talk to her about something.

The librarians know me pretty well because I am always stopping by their offices to get help with my searches! My research has also involved using special collections, and they helped me with that, too. They even hooked me up with another library in Michigan that has materials I might use; I am going to fly out there over break to do some work.

I haven't started writing my dissertation yet but I am thinking about it all the time and I am really confused about the writing process. I've talked to my advisor and to other students but it doesn't seem like there is one definitive source to go to. I'd like to get this figured out before I start writing, but I don't think it's going to work out that way.

WHERE DO YOU STUDY?

I frequently go to the Textiles Library to get away from my office, which I share with 4 other grad students. It can get noisy in there, and if I really need to focus it's not the best place to be. I use one of the study rooms in the library, it has tables to spread out and also a couple of comfortable chairs. It has a door I can close if I really want to isolate myself. If I need to study late, I will go over to D. H. Hill after Textiles closes. I like to work with multi-media for my presentations, so I frequently end up in the DML.
Conclusions and Future Work

• What we learned
  – Power of asking, & listening
  – Familiarity with methods
  – We can divide and conquer
  – Creating a culture of talking to the user

• Future Plans – Fall 2012 and Spring 2013 and beyond