Learning Curve: Adapting Library Workspaces

Student insights and suggestions help maximize collaborative and individual learning in the information commons

By **James C. Haug**

Yale University Librarian Emeritus Scott Bennett describes libraries as *learning spaces* in "recognition of the essential social dimension of knowledge and learning…where learning is the primary activity."[1] At the same time, in order to ensure support for and easy access to research, reference, and other learning resources in a collaborative setting, libraries must accommodate many of the characteristics that Dan Tapscott attributes to the Net Generation, including independence, curiosity, innovation, the desire for social acceptance, and expectations of immediacy.[2] Students are quick to recognize this all-important social dimension, and today's college and university recruiters understand that "new student facilities and services are needed to attract and retain students."[3]

An institution's library is frequently the building targeted for hosting these new attractions. Instead of viewing the library as simply the place to find information or a quiet place to study, contemporary students have come to expect an information commons, with learning spaces that are modern and user-centered, with comfortable chairs, good lighting, room to spread out, and everything at their fingertips.[4]

In the late 1990s, libraries began rearranging their reference resources, facilities, furniture, and equipment in an effort to improve physical ambience and thus encourage more extensive use of their services. The quiet sitting rooms of the traditional library have evolved into the most technologically advanced spots on campus, providing an "environment where print, nonprint, and electronic resources can be used simultaneously for individual or group research."[5]

Background

One of the hubs of campus life at Longwood University—located in the small central Virginia town of Farmville—is the Janet D. Greenwood Library.[6] In fall 2004, reference materials were relocated to free up space, and 15 computer workstations, which had been lined up against a wall, were replaced with 48 new PCs. These new workstations were arranged in a fairly typical layout for the time: the computers were arranged back-to-back on tables, with chairs facing each other on either side of the tables.

In 2005, library staff began observing that groups of students frequently crowded around a single PC to work on collaborative projects. University professors seemed to be assigning more and more group activities, and library staff saw that the commons area should be redesigned to meet the need for more collaborative-style workspaces. In December 2006, Longwood University's Dean of the Library, Wendell Barbour, and librarians Virginia Kinman and Elizabeth Kocevar-Weidinger, began a multiyear collaboration with a commercial sales/design company to design an effective informal learning environment that seamlessly integrates students with learning activities and technology. The final phase of the project wrapped up in January 2008.

Additional reference materials and books were moved to provide room for expansion of the learning space. The library installed new computers, wired them to new ports, and furnished the area with new chairs, colorful tables, and fabric-panel systems. Some of the more than 50 workstations also provide vertical, swing-out whiteboards and employ overhead light-diffusing fixtures called "petals" (see Figures 1 and 2). These fixtures also serve as noise dampeners in the open area near the front of the commons space. Many of the new workstations have tall screens for greater privacy and are suitable for students working individually or in pairs, whereas a handful of the workstations are intended as collaborative learning spaces for larger groups.

As part of the redesign of the learning commons, Longwood authorized a study of student attitudes and usage of the new space. Research and analysis for this study focused on answering two questions:

- *Do students like the new learning spaces?* Do students view the changes as positive or negative, as evidenced by survey results and increased usage?
- *What other changes would maximize learning in the new library spaces?*

Would additional strategies, logistical arrangements, or other amenities improve learning in the new information commons/collaborative workstation areas?

Research Process

To answer the study questions, I implemented a five-phase research process with the cooperation of library staff.

Phase 1: Conduct a Focus Group

To start the process, researchers conducted a focus group to spotlight issues for survey questions related to the topic of collaborative spaces at the Greenwood Library. The focus group, which I facilitated, consisted of nine seniors from the College of Business and Economics, all of whom had experience working in the library's collaborative spaces. Focus group participants were shown a series of nine photos of the library's new learning spaces. I mentioned several possible areas of interest for discussion, and several students contributed their own concerns and issues. The nine issues most often cited by focus group participants served as the basis of a survey designed to elicit student reactions to and comments about the redesigned learning spaces:

- Privacy and noise level
- Table work space
- Size of viewing screen
- Number of viewing screens
- Vertical, swing-out whiteboards
- Colors of fabric coverings on partitions
- Number of seats at workstations
- Comfort of chairs
- Lighting level

The survey also provided space where respondents could enter free-form comments about the new learning space.

Figure 1

Workstation with Whiteboard

Figure 2

Workstation and Petals

Phase 2: Determine the Survey Sample Size

Using a standard statistics equation, I calculated a desired sample size for the survey. Assuming a confidence level of 90 percent and acceptable error of ±10 percent, a population proportion of 0.5 was selected, given that no prior knowledge about library patrons' preferences was available. Based on a standard set of statistical variables used to determine sample size (including confidence level, acceptable error, and population proportion),[7] the appropriate sample size was determined to be 68.

Phase 3: Administer the Survey

The survey was then distributed to a sample of Longwood students. I asked a group of 74 seniors from the College of Business and Economics to complete the survey, all of whom had experience using the newly reconfigured learning centers in the library. A total of 73 students responded to the survey, slightly exceeding the desired sample size; however, the actual number of responses varies by question, since some participants chose not to answer all questions.

Phase 4: Analyze Survey Results

The nine survey questions offered response choices that, for the purposes of analysis, can be defined as either "satisfied" or "dissatisfied" with the current situation. By looking at the proportion of responses for each issue, it was possible to gauge student satisfaction with the new workstations and, in some cases, draw inferences about the kinds of changes that would increase the workstations' usefulness to students.

Phase 5: Review Open-Ended Participant Comments

Of the 73 respondents, 24 (33 percent) included open-ended comments about the new information commons and learning spaces. These comments were evaluated separately in order to identify patterns and other indicators that might shed light on the effectiveness of the reconfigured space, as well as student thoughts about aspects of the learning spaces not covered by the nine more-focused survey questions.

Summary of Survey Results

The survey was designed to provide a sample of student views about the new information commons, and analysis of the results reflected a strong positive reaction. Longwood students who have used the "new" Greenwood Library would probably agree that the revamped information commons is barely recognizable as the old library space. Response data from the survey, as shown in Table 1, indicate high levels of satisfaction among students on six of the nine issues.

The split of responses to preferred colors for the fabric covering the partitions likely reflects the broad range of personal preferences and tastes associated with color selection. Researchers later deemed this issue too divisive to address. For the two remaining issues—the number of viewing screens in each collaborative workstation and the inclusion of vertical whiteboards—students were nearly evenly split in their responses. Forty-nine percent of students said that two screens per workstation would be preferable to one, and 55 percent said that each workstation should have an erasable, vertical whiteboard. Despite the fact that roughly half the students saw no need for either an additional screen or a whiteboard in each workstation, it can be inferred that the other half consider those technologies beneficial and that the university should—as budgets allow—invest in these tools for the workstations.

In their open-ended comments, students provided a more nuanced picture of the value of the new workstations. The comments also raised a number of issues related to the learning commons that were not included in the survey.

Table 1

Response Rates for Survey Questions

Issue	Satisfied	Dissatisfied
Privacy/noise	92%	8%
Lighting levels	92%	8%
Viewing screen size	88%	12%
Table work space	76%	24%
Comfort of chairs	74%	26%
Number of seats at workstations	64%	36%
Number of viewing screens	51%	49%
Vertical, swing-out whiteboards	45%	55%
Colors of fabric coverings on partitions*	37%	63%

* This question offered three possible responses: while 37% were satisfied with the current colors, the other 63% preferred either "calming pastels" (30%) or "neutral beige" (33%).

- Six of the student comments were positive in their assessment of the new design/reconfiguration. Students cited privacy, the new cell phone policy (which permits text messaging only), and the collaborative workstations as big improvements. Two of the comments were negative, expressing a preference for the previous library setup.
- Six comments indicated that the new design made it more difficult to locate available computers, noting that it now takes more time to walk around and view all workstations and that more computers are needed because frequently all of the workstations are occupied.
- Four students cited the need for more computers/screens per workstation and more chairs so that students can work side by side. A separate comment also cited the need for more chairs.
- One student's comment indicated a general lack of privacy at the stations, while another stated that the new arrangement was good for privacy. Still another student criticized the high barriers as an obstruction when trying to find people he was meeting in the library.
- One student suggested that campus areas with Internet access (such as the library) should remain open 24 hours a day, especially during the last few weeks of each semester.
- One student suggested adding areas for food, drink, and entertainment.

Additional Evaluation Data

As part of evaluating the new library design, researchers looked at other metrics to see if correlations between the changes to the learning commons and usage of that space could be discerned. They compared statistics for several data points, including library gate records, circulation records, computer usage counts, and the number of questions asked by patrons. Virginia R. Kinman, electronic resources librarian and associate professor, provided the following data:

- Between fall 2003 and fall 2004, when the original information commons with 48 lab-style PCs was first opened

to patrons, the library experienced a 32 percent increase in gate count, a 24 percent increase in circulation, and a 37 percent increase in reference questions.[8]

- The total number of questions fielded by the information commons staff remained stable from fall 2004 to fall 2007, but the computer usage count *almost doubled* in that time.
- A comparison of the first three months of 2007 to the first three months of 2008 (after the entire information commons area had been reconfigured) reveals an 11 percent increase in reference questions and a 39 percent increase in the computer usage count.

Although gate counts and other usage statistics do not necessarily reflect an increase in learning, researchers believe that greater numbers of students using the library and the new learning spaces demonstrate that students do find value in the new space and are able to participate in the kind of collaborative education that is increasingly common on the Longwood campus.

Observations and Recommendations

Based on the survey analysis, as well as the evaluation of related data, researchers developed the following observations and recommendations for dealing with collaborative learning spaces in general, seating and other logistical concerns, and proper etiquette for collaborative learning.

Improving Collaborative Learning Spaces

Observations

- Students support the addition of at least one more computer viewing screen to each collaborative workstation.
- Student responses also support the addition of vertical, swing-out whiteboards to all collaborative workstations.
- The new information commons areas support wireless technology.

Because Longwood students are now required to have access to computers for coursework, many choose laptops for their mobility and to take advantage of wireless capabilities in a variety of venues, including the library.

- A recent study at Indiana State University (ISU) noted that "collaboration is a bit noisier than other coursework."[9] This is supported by even brief observations of the new collaborative workstations at Longwood: where students gather, the volume increases.

Recommendations

- As the library budget permits, acquire additional flat-screen monitors for connection to existing CPUs in collaboration areas. If possible, take advantage of discounts for purchasing multiple monitors on a single order. If additional screens are required for collaborative research or projects, encourage students to connect their laptops to the commons area wireless network.
- As the library budget permits, acquire additional whiteboards for collaboration areas.
- As the ISU study suggests, place "the collaborative workstations as far apart as possible to reduce noise."[10]

Improving Seating and Computer Usage Options

Observations

- Collaborative learning is difficult to achieve if there is only a single chair at a large table designed to accommodate groups of three to five.
- Often a single student is seated at (and spread out over) a collaborative workstation, perhaps because frequently only that one seat is available.
- Students who are using a collaborative workstation to surf the Net for personal entertainment or to complete individual research projects have other options, including the PCs relocated to the second-floor computer lab or their own laptops.

Recommendations

- As the library budget permits, acquire additional workstation chairs.
- Place at least two (and if possible three) chairs at each collaborative workstation to differentiate these group work areas from individual computer stations or ports.
- Provide easy access to extra chairs in opposite diagonal corners of the commons area, enabling additional group members to "pull up a chair" at will. Signs about the extra chairs should be posted in a visible spot.
- Provide privacy for individual research projects by encouraging use of fabric-partitioned individual workstations.
- Clearly post signs indicating whether a workstation is intended for individual or collaborative/group work.

Increasing Awareness of Commons Etiquette

Observations

- Most students like to snack and sip drinks while studying. Unfortunately, food crumbs, liquids, and computer hardware do not combine well. Meanwhile, library spaces with adjacent food and drink service (café or snack bar) have become more commonplace.
- Colorful signage and library website saturation successfully promoted the new commons area cell phone policy.
- Most students are willing to follow posted rules and are likely to

cooperate when the rights of others are concerned.

Recommendations

- Continue the current policy that allows students to bring food and drink into the learning commons, but reserves the right of library staff members to determine whether specific foods or drinks are allowed in certain areas. Encourage the café near the learning commons to sell only drinks with lids and non-sticky food items.
- Post colorful, friendly signs in the information commons to educate users about rules and expectations for etiquette among library patrons. Signs should inform users about such issues as whether a workstation is intended for individuals or groups; the food and drink policy; availability of additional individual workstations on the second floor; and the accessibility of extra chairs for use at collaborative workstations. Signs could also encourage students to limit their use of workstations to two hours or less, directing them to the reference librarian or staffer on duty for help with questions.

Conclusion

With its most recent changes to the Greenwood Library, Longwood has taken a practical and effective step toward answering the question library systems across the nation are asking: How can libraries provide support that makes effective collaborative learning possible?[11] Along with the overall information collected, the survey also gathered insightful student suggestions, recommendations, and observations about how to enhance collaborative learning experiences.

These end-user ideas are both reinforced and supplemented by observation of the information commons/collaborative workstation areas by two individuals at various times of the day in January and February 2008. One observer was an independent contractor, unaffiliated with the university. On two separate occasions, she spent approximately 20–25 minutes per visit observing the library commons, taking notes about the habits of, and situations created by, various library users. Though the observed users were both young and old, of both sexes, students and professors, they were viewed as having many tendencies in common, including the following:

- Walked repeatedly up and down the aisles upon entering the commons area, apparently looking for a free PC or seat
- Assumed that it is appropriate for one person to sit at a collaborative space with two or more chairs, spreading gear across the entire desk
- Created a slightly higher noise volume when working in groups
- Drank covered beverages, both bottled and in cups

As the second observer, I monitored the library situation on at least 10 different occasions; the tendencies I noted mirrored those of the first observer. Additionally, I had the opportunity to confirm these "typical" tendencies with both students and staffers who work in the library.

Like many universities, Longwood must continue to use creative techniques to direct budget dollars to the ever-evolving and all-important learning commons. As many of these recommendations are implemented, simple communications about upcoming changes and new policies will be key to maximizing learning effectiveness in information commons and learning spaces. A library can have all the "right stuff"—bright and inviting interior design, the latest in technology, work spaces set up for both collaborative and individual projects—but to capitalize on these advancements, library patrons must also understand how to use information commons learning spaces appropriately and courteously. *e*

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Endnotes

1. Scott Bennett, *Libraries Designed for Learning* (Washington, D.C.: Council on Library and Information Resources, 2003), p. 4.
2. Don Tapscott, *Growing Up Digital: The Rise of the Net Generation* (New York: McGraw Hill, 1998).
3. Harold B. Shill and Shawn Tonner, "Creating a Better Place: Physical Improvements in Academic Libraries, 1995–2002," *College & Research Libraries*, November 2003, p. 431.
4. Julia Gelfand, "Library as Changing Place: Viewpoints from University Undergraduates," *Library Hi Tech News*, no. 4 (2005), p. 11.
5. Shill and Tonner, "Creating a Better Place," p. 462.
6. For additional information about the Janet D. Greenwood Library at Longwood University, or to contact the library, go to http://www.longwood.edu/library/.
7. David M. Levine, Timothy C. Krehbiel, and Mark L. Berenson, *Business Statistics: A First Course* (New York: Pearson Prentice-Hall, 2006), p. 254.
8. Elizabeth Kocevar-Weldinger, Virginia Kinman, and Sharon McCaslin, "Case Study: The Inch and the Mile," *Library Administration & Management*, vol. 21, no. 1 (Winter 2007), p. 32.
9. Ralph B. Gabbard, Anthony Kaiser, and David Kaunelis, "Developing Collaborative Workstations," *EDUCAUSE Quarterly*, vol. 30, no. 2 (2007), p. 59, http://www.educause.ed/ir/library/pdf/EQM07210.pdf.
10. Ibid.
11. Ibid., p. 54.

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