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Assessing Learning Spaces

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Introduction

Many institutions of higher education are allocating resources to build new facilities or renovate existing facilities in order to offer new technologies and to accommodate new pedagogies that incorporate active learning, group work, and undergraduate research. These spaces include:

- Information or learning commons
- Multi-media studios or production areas
- Computer labs
- Classrooms

While creating or renovating these facilities generally requires a major resource investment by campuses, there is little indication that the developers of the facilities have a strategy to determine or demonstrate their effectiveness. Most institutions do not have data, either quantitative or qualitative, to demonstrate whether, in fact, the technologies in these spaces are being used and what impact they have had on student learning. They are not able to make a case based on data for additional improvements or similar renovations of other areas of the facility or campus. At present, there is no prevalent model in the library field for assessing learning spaces.

This paper presents a stage in the author's thinking about developing a framework of assessment of learning spaces, particularly those associated with library buildings and renovations. Frequently, these library building projects are centered on the creation of an information commons or learning commons – technology-rich spaces that offer a range of library and information technology services, sometimes including other campus units, and that provide group as well as individual spaces for study, learning, and interaction. These spaces may include a new style of reference area that incorporates technology assistance, multi-media production workstations or studios, and classrooms, particularly for information literacy sessions. Building on earlier presentations, this paper at the ARL Library Assessment Conference focuses on assessment of information commons and discusses:

- **Why** institutions may want to assess learning spaces
- **What**, specifically, they might assess
- **How** to assess, e.g. by what types of methodologies
- **Examples** of implementing assessment

- **Tips** for successful assessment implementation

Why Assess Learning Spaces?

There are many reasons one might want to assess learning spaces and more than one reason may motivate the development of an assessment plan for a particular learning space such as an information commons. When considering learning spaces, assessment can be incorporated beginning in the planning phase and through the post-occupancy stage. Before building or renovating a physical space, the institution may want to conduct a needs assessment to clarify the purpose of the project. For example, many information or learning commons incorporate space for other campus services, e.g. the writing center or faculty teaching and learning center. A needs assessment could help determine whether the incorporation of these units in library space is solely a matter of convenience, e.g. co-location of those services to related library activities, or whether a goal of the project is some integration of services into a new model. This kind of distinction would have implications for the kinds of areas probed in an assessment and also for the markers of success once the facility was finished and the services implemented. A needs assessment could also help determine the types of courses or programs that might take particular advantage of the facility, which would be useful if the institution wished to conduct a pre-and post-assessment of changes in the curriculum made possible by the existence of the facility. Planners may also want to think through what other kinds of data collection they will want to have in place prior to the renovation or construction in order to make before and after comparisons of things like number of people entering the library, impact of the renovation on collection use, and numbers of questions asked by users.

Frequently, library administrators will be interested in demonstrating the value or effectiveness of the investment in a new building or renovated space and will initiate some type of assessment program once the facility is in place. They want to provide evidence to others, such as higher education administrators, private funders, accrediting agencies, and state legislators, that the resource investment in the new space produced measurable results. In particular, many institutions' plans for renovation or new construction are motivated, at least in part, by accreditation standards, and institutions will want to have concrete plans for data collection and analysis that they can use in a subsequent cycle of accreditation. The ubiquitous push for accountability in higher education has an impact on assessment planning for learning spaces and can provide a useful opportunity for library administrators to contribute data to the institution's overall assessment program.

While typically much of the data collected for analysis is intended ultimately for an audience external to the library, the internal staff also has a need for data. The staff providing services for the new learning space are often interested in measuring user satisfaction in order to determine whether they have effectively addressed user needs and are providing services that enhance users' ability to make the best use of available resources. They also want to find out what changes users suggest for the physical layout, furniture, mix of equipment, software availability, and types of services. Their

primary purpose in implementing assessment is often to verify their informal perceptions of user need and satisfaction in order to plan and make improvements in what they offer.

<u>What to Assess about Learning Spaces</u>

Overall, the issue of what to assess about a newly constructed or renovated learning space needs to be matched up with the goals and objectives of the facility. For example, if the library administration wanted to demonstrate that the new facility had contributed to the overall institutional goal of increasing undergraduate research, gate count data would not be a particularly useful measure to provide such evidence. At the beginning of the planning stage for the new or renovated facility, a group of stakeholders should develop a consensus on the goals and objectives for the proposed space. This group may wish to gather data from a sample of the intended users of the space in order to verify their own perceptions of need, to expand the possibilities of what kinds of needs the facility might address, and to clarify how the campus perceives the proposed project. This will help planners develop an overall understanding of what they need to assess.

In the post-occupancy period, three broad questions that an institution might want to pose are:

- Have the intended purposes of the space been accomplished?
- Are users satisfied with the spaces?
- What changes are needed?

Measuring whether the goals and objectives have been achieved is not a simple task and may need to be addressed through multiple assessment strategies. Even if the intended purposes of the space have been accomplished, it is not a given that users will be satisfied with the spaces. Users may also have suggestions for changes whether or not they are satisfied with the spaces.

In addition to these three broad areas, a number of other issues might be addressed through assessment (Table 1). Institutions may wish to use an extensiveness measure to determine the degree to which their facilities are being used. They may desire an efficiency measure to determine costs for services, cost per hour of opening, etc. They may want an effectiveness measure to determine the degree to which the use of the facility assists in achieving a broader objective, such as increasing a sense of campus community. Measuring service quality can be another focus for assessment, and usefulness for achieving specified objectives can be another determinant of the facility's success.

Table 1. What to assess about learning spaces

MEASURE	EXAMPLE

Extensiveness	How many courses, students, faculty are using the facility?
Efficiency	What is the cost of support for each hour of service or course?
Effectiveness	Does the use or pedagogy incorporate innovations enabled by technology?
Service Quality	Can students receive the assistance they need with multimedia production tools?
Usefulness	Are faculty giving new types of assignments that enhance deeper learning as a result of the availability of the facility?

Methodologies: How to assess learning spaces

Planners will want to choose appropriate methods for carrying out assessment once they have determined why they want to assess and what they want to measure. This section describes a number of methodologies and also includes some examples. The author collected examples through campus visits and through an inquiry posted to a listserv on information commons topics and one on learning space design.[i]

Some of the methodologies that can be used to assess learning spaces include:

- Unobtrusive data collection
- Observation/Photos
- User surveys
- Focus Groups
- Case Studies
- Interviews

Libraries often have some systems in place that collect data in unobtrusive ways such as using a turnstile gate count as individuals enter a facility or by using a web statistics program to collect data on which parts of a website are being heavily accessed. When the topic of assessing learning spaces is raised, the most frequent method that comes to mind is measurement of the number of individuals using a new or newly renovated facility, especially when comparison data exists for the facility prior to a renovation. In the case of an information commons or multi-media production facility, libraries often want to monitor what types of technologies are being used, both hardware and software, and how often they are being used. It is important for some institutions to monitor the amount of time that all desktop equipment is in use in order to have data to back up requests for additional equipment, furniture, and space in which to deploy them. Facilities managers may also want to collect data that allows them to provide information on the costs of equipping and servicing the facility, including the cost of staff time. Some reference departments are part of information commons and will use their same data collection forms for keeping track of reference queries as they did in more

traditional reference areas. All of these types of data collection employ relatively simple techniques and, if used consistently over a period of years, enable managers to understand trends.

Two articles have asked librarians in new, expanded or renovated libraries to report some of their data via a web survey in order to understand the impact of these facilities on use patterns, and the availability of wired and wireless services, workstations, group study rooms, and other features.[ii]

Observation of user behavior has been employed by some institutions in the planning phase of the renovation project and in the post-occupancy phase. In the planning phase, observation can yield such information as the saturation of use of workstations or other equipment, the typical size or range of sizes of student groups, and the preferred furniture, particularly if some prototypes have been acquired in advance of the final furniture decisions. After occupancy, observation can be used to determine the mix of individual vs. group spaces being used. At Brigham Young University, library staff take hourly counts of three types of group use – at tables, at computer workstations, and in study rooms in order to better understand use patterns, identify busy times of day, and understand trends.[iii] A much more intense form of observation using ethnographic methods is being considered by colleagues at Wesleyan University and the University of Rochester.[iv] Some institutions supplement direct observation through the use of photographs; they post signs warning facility visitors that their photograph may be taken for study purposes. Unobtrusive data collection and observation can yield information on:

- How many students and faculty are using the spaces
- What types of technology are being used
- How often potential users are turned away because all equipment is in use or all seats are full
- What are the costs of equipping and servicing the facility
- How frequently reference, help or other services are being used

Surveys can be employed for a variety of purposes, including collecting data on user satisfaction, demographics of facility users, and specifics on the activities for which users are utilizing the facility and the hardware, software, and other features or services. Surveys can also be used to determine what users particularly value or what they'd like to see changed or improved. At Charles Darwin University in Australia, a student survey asked respondents to choose an answer from a Likert scale as to whether the facility helped them meet their learning needs. It also asked students to check off the reasons they visited the information commons, e.g. to do e-mail or to access books or journals.[v] The Hardin Library at University of Iowa developed three surveys to collect information on satisfaction with their information commons, classroom usage, and other matters as part of a larger self-study.[vi] Staff can hand out paper and pencil surveys to users in the facility or they may develop web-based surveys that pop up on the screens of the facility's workstations. Some campuses will wish to mail or e-mail a survey to a representative sample of all potential users in order to understand the behavior of both

current users of the facility and those who have not chosen to use it. Others will use data from the LibQual+ survey, administered through an Association of Research Libraries program, to gather data on user perceptions of the physical library facility, both before and after renovation.[vii] Surveys can yield information on:

- Users' expectations
- Student and/or faculty satisfaction with the space and/or services
- Types of uses of the space
- Most important and least important aspects of the space for users
- Changes desired
- Reasons for non-use

Focus groups are also conducted both in the planning stages and post-occupancy. In planning a facility, some institutions gather together small groups of target populations (e.g. undergraduates, or students in particular programs), and using some pre-determined questions, elicit their views of features of the planned space. At Sage Colleges, focus groups of students, faculty, and staff were convened and questions were devised using the framework of force field analysis. Participants were asked such questions as what would draw people into the library, what would keep them away, and what would they like to see in the new library.[viii] Some institutions provide drawings prepared by the architects or designers for the focus group participants to respond to, or they may provide photos of furniture or layout designs to gauge participant reaction. After occupancy, participants in a focus group might be asked about their usage, how the facility has enabled them to better achieve their academic objectives, or what improvements they would like to see in the facility.

Interviews can be conducted either in the planning phase, post-occupancy, or both. Prior to the renovation or new construction, interviews can yield more detailed impressions than are generally possible through more limited tools such as surveys. After the occupancy of the facility, interviews can yield in-depth accounts of the ways in which the facility is being used and can also provide detailed information of what users value or want changed. Interviews and focus groups can yield information on:

- The difference the availability the facility has made on faculty teaching and student learning
- The way in which availability of the facility promotes faculty and student innovation
- The way in which the facility promotes a sense of community for the institution
- The value of services available and the need for additional or different services

Case studies have been underutilized in assessing learning spaces. This type of qualitative research can yield powerful stories of the way that the facility has enabled change. Case studies can yield information on:

- The way in which the facility supported curricular changes of a particular department or school

- The way in which the facility supported incorporation of a new technology in a course and the impact on student success
- The innovative ways in which technology is being used by faculty and students
- The impact of the availability of the facility, technology, and services on at-risk students or other identified groups, e.g. commuter students or graduate students

Many assessment plans call for a combination of methods. For example, interviews can be used prior to the preparation of survey questions to gain a good understanding of the nature of questions that might be addressed. Interviews can be used after survey data is initially reviewed in order to clarify and more deeply understand the data, especially if the outcomes of the survey vary greatly from anticipated responses. Choosing methods within the context of careful assessment planning will assist institutions in allocating available resources wisely.

Assessment Planning

A campus group may be charged with developing an overall plan for the assessment of learning spaces that are slated for building or renovation throughout the institution; this may be a sub-group of a committee working on campus-wide facilities planning. The group may contain members from the university administration, facilities operation, faculty, student body, and other relevant services such as information technology and libraries. If such a group exists on campus, the individuals planning for an assessment of an information commons or new or renovated library facility should dovetail their work with that of the overall group. The same sectors listed above could be invited to participate in a planning group for assessment of an information commons. It would be very useful to have the perspectives of academic administrators, facilities planners, faculty, students, and other units as the overall objectives of the facility are discussed and various strategies for assessment are debated. In addition, campus assessment experts should be included, or outside assessment experts could be recruited to join the group.

An overall assessment plan for an information commons could include a variety of methods for data collection resulting in information that could be combined and used for various purposes. Such a plan could include: a needs assessment at the beginning of the project; unobtrusive measures such as gate and group study room counts to monitor use and use trends; student and faculty web-based satisfaction surveys; a case study focusing on a course in which students develop multi-media projects to determine whether the availability of the facility assisted them with their academic work; and, interviews with faculty, students, and staff to gain a deeper understanding of the survey data collected and to provide a mechanism for soliciting suggestions for needed improvements, changes, or additional services. At the University of Massachusetts, Amherst Library, a team of library and campus assessment experts working with the Provost's office, implemented an assessment strategy both pre-renovation and post-occupancy for their learning commons. It included observational surveys, use data comparisons, focus groups, and a survey.[ix]

Assessment Tips

Assessment often proves to be time-consuming and resource-intensive for institutions. In discussing assessment with representatives from many institutions, some key factors are apparent that could help those involved. They include: focusing on the big picture, particularly in aligning the assessment goals with institutional goals. If the institution has a particular emphasis on themes such as success for first-year students, development of a sense of campus community, or student involvement in research, the assessment planners should incorporate ways to measure the facility's contribution to the achievement of those institutional goals. Understanding the potential audience for the assessment results and the ways in which the results will be communicated to various audiences should also inform the assessment planning process. Involving individuals from a variety of stakeholder sectors can assist with understanding the potential audience or the assessment results and the types of communication mechanisms that might be most meaningful to them. Those involved in assessment planning will often need to be persistent since this topic, while on the "to do" list of many of the parties involved, is often at the bottom of that list and therefore the implementation can be postponed time and again. Working with assessment experts, found on many campuses in offices of institutional research, in educational improvement units, or in departments of statistics, particularly within schools of education, can greatly aid the work of assessment planning groups. These experts will assist the planners to clarify their assessment objectives, make informed choices on methods of assessment, and identify key questions or modes of inquiry. They may be available, often for fees, to develop the measures used, deploy them, and do the preliminary analysis of the data. Once the assessment is completed, it is important that there be a mechanism for ensuring the implementation of at least some of the recommended outcomes.

Assessment Resources

For those developing or extending assessment expertise in order to develop methods for assessing learning spaces, these resources are recommended:

ARL LibQUAL+ ™ program
www.libqual.org

Association of American Colleges and Universities. Liberal Education Outcomes.
http://www.aacu.org/publications/index.cfm

Chauncey, Bonnie. "Alternative assessment in higher education: Web sites for a learner-centered approach." (Internet Resources column) *C&RL News*, Nov. 2004 http://www.ala.org/ala/acrl/acrlpubs/crlnews/backissues2004/november04/alternativeassessment.htm

EDUCAUSE Learing Initiative (ELI)
http://www.educause.edu/SuccessfulLearning/6796

Project Kaleidoscope (PKAL)
www.pkal.org

TLT Flashlight Project
http://www.tltgroup.org

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August 1, 2006 and The EDUCAUSE Learning Space Design Constituent Group Listserv.
LEARNINGSPACE@LISTSERV.EDUCAUSE.EDU, August 1, 2006.
[ii] Shill, Harold B. and Shawn Tonner. "Does the Building Still Matter? Usage Patterns in New, Expanded,
and Renovated Libraries, 1995-2002. *College & Research Libraries*, vol. 65, no. 2, March 2004, pp. 123-
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Academic Libraries, 1995-2002*." College & Research Libraries*, vol. 64, no. 6, November, 2003, pp. 431-
466.
[iii] E-mail to the author from Michael Whitchurch, Brigham Young University, August 2, 2006.
[iv] E-mail to the author from Michael Roy, Wesleyan University, August 2, 2006.
[v] E-mail to the author from Anne Wilson, Charles Darwin University, August 1, 2006.
[vi] E-mail to the author from James Hardin, University of Iowa; Information Commons Self Study, May,
2006. http://www.lib.uiowa.edu/commons/selfstudy/
[vii] Association of Research Libraries. LibQUAL+ http://www.libqual.org/.
[viii] E-mail to the author from Margaret Lanoue, Sage Colleges, August 1, 2006.
[ix] University of Massachusetts, Amherst Libraries. Learning Commons Assessment.
http://www.library.umass.edu/assessment/learningcommons.html