Duke University School of Medicine

Library Space Planning Committee

Final Report – June 17, 2005

Creating Duke's
Learning and Knowledge Management Center

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Executive Summary

The Library Space Planning Committee was charged by the School of Medicine to think creatively about the changes in libraries and the future use of the Medical Center Library's facility. Three options were considered including maintaining the status quo, creating office space, and/or integrating educational activities, and related technologies, into the library facility. The specific information gathered and reviewed covered issues such as the current utilization of the library, off-site storage of older materials, and how other institutions are centralizing information and education services, as well the net assignable square footage and possible space renovations of the MUDD building. The committee's conclusion is that some of the library materials and services be moved to off site storage to provide space for the establishment of a Duke Learning and Knowledge Management Center. It is envisioned that this new center would provide a centralized location for integration of educational programs that cross disciplines within the Duke community.

The top three of ten recommendations are listed below.

Utilize the space in the Mudd building to support medical, health, prevention and wellness education activities

- The focus should be on integrated, multidisciplinary training across the educational continuum, from undergraduate to continuing medical education, including GME, in-service and patient education
- Specific educational activities should be considered for integration into the facility:
  - Clinical Practice Skills Center
  - Simulation Center
  - Multimedia Technology Training Center
  - Computer Workstations/Web Café for research, learning, collaboration and computerized testing
  - Multimedia Service Center
  - Multifunctional Spaces
  - Teleconferencing/Distance Learning
- It should be a multi-use facility that promotes innovation
- The facility should support multimedia, learning tools, teaching and learning spaces, and simulation and virtual reality tools and models

Retain Library materials and services within the Mudd building, but move older print materials to storage

- Maintain a collection on site that adequately supports the ready access to print materials, which are not available online, to support education, research and patient care
- Provide a variety of study spaces for students – individual, informal, formal, quiet, group – including access to computers and other technologies
- Consider using the library service desk as a central point for other services and assistance
- Continue to provide space to house Library staff who deliver services, process materials, and support IT functions

Renovate and expand the Library/Mudd facility to accommodate the integration of various educational activities and technology

- Expansion of the library over the terrace areas should be considered to increase the square footage of the library
- Current computer classroom and workstation space should be reconfigured to support the focus on new educational technologies, while still providing basic computer support to students
- The central staircase should remain since it is an aesthetic focal point of the Library.
- The electrical, network, environmental infrastructure and other systems will need to be upgraded to support the various activities and technologies, as well as to bring some systems up to code

Full implementation will necessitate recruitment of additional funding, with the potential of external fundraising. This should include naming opportunities for the library and other spaces or functions within the library space, as well as corporate partnerships for implementing innovative educational technologies. The costs of off-site storage must be explored and considered as part of the costs of the renovations, including possible storage charges, expenses involved in desk-top delivery, and whether a new fee structure should be implemented for delivering information to faculty, students and researchers.

An assessment of manpower needs – skills, expertise, and FTE – will be a necessary component of planning for this enhanced educational technology facility. While some staff and expertise may exist within the Library, DHTS, SOM and other units, it may also be necessary to hire additional staff. Even current staff may require additional training and retooling in order to adequately support the various educational, information, and technology components of the center.

A building program study should be initiated, which should include focus groups with faculty and students to obtain additional feedback about the facilities and services that they need now and in the future to support for teaching and learning as well as information access and retrieval. The Committee recommends a program study that delivers phased improvements in the facility to meet these recommendations. A phased approach will allow immediate implementation of some of the recommendations through simpler renovations, while allowing for fuller development of plans and funding for the more complex components of the project.

Many universities and medical schools are grappling with the issues of the future of libraries and their facilities. Electronic resources and new technologies are becoming essential tools for information retrieval and learning. Recent renovations and building plans at other medical schools have still focused on the more traditional aspects of a library facility. Duke has the unique opportunity to rethink the future of the library and the integration of educational activities and technologies into information services over the next 10 years. Duke SOM can be the leader in designing the library and educational facilities of the future through the creation of a center that integrates knowledge resources and information technologies into a dynamic and innovative teaching and learning environment.

If the School decides to pursue the recommendations in this report, the Committee members volunteer to continue to serve as guides and advisors to the program study and planning process.

Library Space Planning Committee

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Creating Duke's Learning and Knowledge Management Center

Introduction

The Library Space Planning Committee was charged by the School of Medicine to think creatively about the changes in libraries and the future use of the Medical Center Library's (MCL) facility. The Committee considered the following options for the space in the library facility:

- Status quo (make no changes)
- Administrative office building
- Educational facility

It quickly became clear that maintaining the status quo was not the optimal decision. The location of the Mudd building provides an ideal opportunity to centralize and coordinate various activities within the heart of the medical center campus. With the advent of electronic resources and Web-based services, the use of the Medical Center Library has changed with patrons relying more and more on remote access to resources and services. The Duke University storage facility provides the ideal opportunity to move older and less frequently used materials out of the Library facility allowing space to be used for other activities.

The concept of using the facility for administrative offices and activities was considered, but also discarded. The location of the Mudd building lends itself to bring together a number of activities that would benefit the faculty and learners spread throughout the adjoining buildings.

The third option of creating an innovative learning and educational facility quickly emerged as the preferred long-term use of the building. The Committee immediately identified numerous possibilities for consolidating and bringing together teaching activities, while integrating new technologies and methodologies into the learning environment. The committee decided to think outside the box about the potential activities and services that could serve the broader "student" community, including undergraduate, graduate, in-service, patient and continuing education. The concept of the Duke Learning and Knowledge Management Center emerged from the committee's deliberations.

Committee Deliberations

The Library Space Planning Committee has been meeting since January. During those meetings the Committee has reviewed the following issues:

- Current utilization of Library space (Appendices D and E)
- Off-site storage of back volumes and related issues (Appendix H)
- Initial estimates of space needed to support library functions in future years (Appendices F and G)

- Architectural analysis of the building, including potential uses and expansion (Appendix C)
- How other institutions have approached the support of education, technology and library services for the future, specifically Ohio State University, Washington University, and University of North Carolina Chapel Hill (Appendices I and J)

The Committee has also discussed educational activities throughout the schools and medical center that need additional space or support, and that could benefit from a more centralized location and coordinated approach. During the site visits, committee members also saw the great possibilities for synergism that can occur when information, computer and educational specialists are brought together in one location, making the whole system more efficient for those who use learning and knowledge management services and resources.

In reviewing how other institutions have addressed libraries, library facilities, and educational spaces, the Committee became aware of the unique opportunity for Duke to become a leader in designing the learning and knowledge management center of the future. Over the past several years, most institutions that have renovated or built libraries based their facilities on the traditional models centering on the print collection. At Duke several factors have come together to create a nexus for planning library and education services for the next ten years:

- The Library facility and Mudd building are located in the heart of the clinical, research and teaching communities, the perfect location for centralizing shared educational activities
- New electronic information resources can be accessed from any location at any time making them the preferred format over print materials
- The Duke Library Services Center provides a high-quality storage facility that allows the university to convert stack spaces to other uses while still preserving valuable research materials
- Connectivity can be ubiquitous through remote access and wireless networks
- Curricular changes are underway that demand new approaches to teaching and learning
- Academic accrediting bodies are requiring competencies in informatics skills including information technologies and computer-based clinical systems (Appendix K)
- The practice of health care is changing as well which requires ongoing training in and use of computerized clinical systems and other new technologies
- Duke School of Medicine is considering other changes and priorities as it goes through its strategic planning process
- The new medical school in Singapore will require many of the same approaches in terms of technologies, learning and knowledge management

The time is right for Duke not only to rethink its library and educational facilities, but to lead the way to the future by creating an ideal learning environment and contributing to the broader organizational learning environment.

The Committee was also given a brief overview of the final findings of the main campus committee charged with reviewing science and engineering library services. The recommendations did not directly address MCL's collection, services or facility, but called for further collaboration and work between future planning efforts since multidisciplinary research and programs are increasing and access to biomedical information is becoming more important for other programs.

The initial projections for utilization of the approximate 50,000 net assignable square feet are:

- 31,000 net assignable square feet for Library services and collection
- 19,000 net assignable square feet that could be reconfigured for the use of educational technologies and learning activities.

Based on the information it gathered and reviewed, the Committee makes the following recommendations.

General Recommendations

- **Utilize the space in the Mudd building to create a Learning and Knowledge Management Center that supports medical, health, prevention and wellness education activities**
  - The focus should be on integrated, multidisciplinary training across the educational continuum, from undergraduate to continuing medical education, including GME, in-service and patient education
  - Specific educational activities should be considered for integration into the facility (more detailed information appears below):
    - Clinical Practice Skills Center
    - Simulation Center
    - Multimedia Technology Training Center
    - Computer Workstations/Web Café
    - Multimedia Service Center
    - Multifunctional Spaces
    - Teleconferencing/Distance Learning
  - This facility should be become the Duke Learning and Knowledge Management Center which fosters innovation and builds excellence in the application of simulation and telecommunications technologies
  - It should be a multi-use facility that promotes innovation
  - The facility should support multimedia, learning tools, teaching and learning spaces, and simulation and virtual reality tools and models
  - The consolidation of training activities, such as simulations and clinical skills practice, should be considered
  - Different sizes of meeting and classroom space should be incorporated into the building
  - The design should be flexible to accommodate future and changing needs
  - Spaces for students and faculty, such as lounges or meeting spaces, must be considered
  - Additional staff spaces will be needed to support these new activities
  - The primary use of the space should not be for offices

- **Retain Library materials and services within the Mudd building, but move older print materials to storage**
  - Consider using the library service desk as a central point for all educational and knowledge management services and assistance

- Maintain a collection on site that adequately supports the ready access to print materials, which are not available online, to support education, research and patient care
  - The Library should retain the last 20 to 25 years of print journals onsite as well as current books and reference materials to support research as well as education and patient care
  - Older journals should be moved to storage
  - Older books, at least pre 1980, should be moved to storage as well, with a study of usage over the past year to confirm or change the pre-1980 storage date
- Provide a variety of study spaces for students – individual, informal, formal, quiet, group – including access to computers and other technologies
- Continue to provide space to house Library staff who deliver services, process materials, and support the IT functions
- Provide a café, if not within the Library, perhaps in conjunction with the Searle Center
- The History of Medicine and Trent collections should remain in place.
- Consider integrating the other space on the lower level, including those areas housing other departments, into the overall educational facility plan

- **Renovate and Expand the Library/Mudd facility to accommodate the integration of various educational activities and technology**
  - Expansion of the library over the terrace areas should be considered to increase the square footage of the library
  - Current computer classroom and workstation space should be reconfigured to support the focus on new educational technologies, while still providing basic computer support to students
  - The central staircase should remain since it is an aesthetic focal point of the Library.
  - The electrical, network and environmental infrastructure will need to be upgraded to support the various activities and technology
  - The building will have to be brought up to code, including increasing the number of restrooms and adding a sprinkler system
  - Adding an additional floor to the building may not be feasible due to the higher costs of extending the infrastructure to another level

- **Next Steps**
  - Conduct focus groups among faculty and students to provide additional input into planning process for both library and educational services and resources
  - Initiate building program design study that delivers phased improvements in the facility

The Committee recommends a program study that considers a phased approach for two reasons. First, progress on some the recommendations can be achieved in the short-run through basic renovations, and improving connectivity and infrastructure within the existing facility. A phased approach will allow immediate implementation of some of the recommendations, while allowing for fuller development of plans and funding for the more complex components of the project. The second reason is that library resources and educational technologies are still evolving. A phased approach would allow for accommodating new developments in both fields as they occur over the next 10 years.

If the School decides to pursue these recommendations, the Library Space Planning Committee offers it volunteers to continue its work with the architect and others on the building program study and other planning processes.

Additional Issues Requiring Consideration

In its deliberations, the Committee has identified several key issues that must be addressed by the School of Medicine as part of any renovation or construction project.

- Development work in terms of naming opportunities and corporate gifts should be pursued
- Opportunities for corporate partnerships for the implementation of innovative technologies should be explored
- Support of off-site storage costs for print materials if the University begins charging other Duke libraries for storage and retrieval of materials in the Library Service Center – the Library's current budget cannot support these additional charges
- Financial support for a fast and reliable retrieval of articles in stored journals to ensure easy access to older materials to support research and clinical care
    - Providing additional staff and equipment to provide desktop delivery
    - Determining if it will be a free or fee-based service charged back to departments
    - Providing the necessary financial support to the Library to provide either type of service

An assessment of manpower needs – skills, expertise, and FTE – will be a necessary component of planning for this enhanced educational technology facility. While some staff and expertise may exist within the Library, DHTS, SOM and other units, it may also be necessary to hire additional staff. Even current staff may require additional training and retooling in order to adequately support the various educational, information, and technology components of the center. Specifically future plans need to:

- Specify skills and expertise needed to support the educational activities and new services
- Identify existing staff in the Library, DHTS, and SOM that currently support these activities and could provide the support and services
- Identify the number of new FTEs that will be need to be funded to adequately support the educational activities and new technologies
- Retrain and retool existing staff to deliver new services.

Recommendations for Integration of Specific Educational Activities

The Committee discussed numerous educational activities and technologies that would benefit from the centralized location of the Mudd building. Below are those activities, in priority order, that the Committee recommends be incorporated into an expanded and renovated facility. Some of these services (such as the multimedia workstations/cyber cafe) would be an expansion and enhancement of the Library's current educational and technological services and resources, replacing and improving existing facilities.

Clinical Practice Skills Center
A Center for learners to practice clinical skills under observation, in a controlled environment, and for assessment of their clinical competencies.

- SOM center currently located in Duke south in orange zone in borrowed space; nursing has off-campus location; PA uses Hanes house
- Activity in this area is increasing due to new national CPx exams
- Move current SOM services to library facility
- At least 10 to 12 standardized exam rooms
- Space for standardized patients and area to keep them separate from students
- Video streaming capabilities
- Remote access to tapes/video
- Better camera placement in the rooms
- Computer stations for patient logs
- Faculty observation capabilities
- Audio for faculty observers
- Alternate usage such as interviewing, mock optimal workflow, etc.
- Noise control
- Flexible, modular spaces

Simulation Center
A centralized simulation center, available to all schools and departments, that would bring together and expand on existing simulation models.

- Central location for current center
- Centralized simulation models (Harvey doll, surgical simulation models)
- Larger facility to handle nursing students, nursing staff, CME,
- Access for students and all learners to practice at any time
- Observatory, gallery
- Streaming video to another room/viewing area
- Video capture and playback
- Resource available to all units
- New funding allocation instead of per use fee

Multimedia Technology Training Center
Create a training center that uses multimedia and other methodologies to prepare undergraduate and graduate students, and others in the use of computer-based medical information technologies. (Appendix B)

- State-of-the-art multimedia training center to create a virtual patient care scenario
- Key analytical and decision support tools that support clinical practice and optimize workflow
- Integration of distance-learning opportunities
- Curriculum for undergraduate medical education in information technologies and their use in medical practice
- One-year research track for those interested in the integration of IT in medical practice
- Interdisciplinary postgraduate medical informatics fellowships
- CME and CEU sessions

Computer Workstations/Web Café
A flexible space for research, learning, collaboration, and computerized exams, including informal use of desktop and laptop computers through wireless and LAN connections, in combination with a café.

- Access to applications
- Multimedia programs
- Support of group collaboration
- Open lounge, casual seating as well as workstations
- Desktop computers and laptop use
- Wireless access and LAN connections
- Laptop checkout
- Screens on wall for display, brainstorming
- Support of reference work, email, access to patient information systems
- Integration of computerized exam capabilities for small groups

Multimedia Service Center
Develop a centralized service desk for various multimedia and IT services for placing service requests, answering questions, and consulting with staff.

- Provision of equipment and software for developing posters and multimedia presentations, obtaining assistance, and placing orders for poster printing
- Hardware and software for development of posters, multimedia presentations
- Service point for placing orders for posters (poster production and design provided elsewhere)
- Provide IT services, upgrades – kiosk for information and access to upgrades
- Integration with library service desk functions

Multifunctional Spaces
Flexible spaces and configurations that can support a number of educational and library activities.

- Group meeting rooms/conference rooms
- Collaborative workspaces
- Medium-sized classrooms
- Special functions/event facilities
- Student/faculty lounge
- Access to high-speed connections
- Smart boards and other collaborative work technologies

Teleconferencing/Distance Learning
Create facilities that support interactive teaching and learning, as well as collaborative activities between Duke and other remote students, faculty and colleagues.

- E-learning tools that facilitate distance learning
- Video hook-ups with other sites, such as Singapore
- High-speed connections for interactions
- Web-cams for sharing brainstorming sessions
- Interactive commenting, discussion

Other Functions for Future Consideration or Support by Other Units:
While not considered a priority by the Committee, some of these other activities may need to be considered in the future for possible integration into the library facility or into other units and facilities.

- Intellectual property center – centrally located services that handle intellectual property issues and questions, including providing guidance in the use of materials for educational activities, seeking permissions for using copyrighted materials, and paying royalty fees.

- Patient/family education – creating a centralized patient education facility for the Hospital and other clinical entities.

- Patient/family business center – providing access to business services such as desktop computing, email, fax transmissions, copying, etc. to patients and family members; when wireless connections and Internet access capabilities are added to the hospital rooms need for these services may decrease.

Library Space Planning Committee

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