In August 2008, Duke University opened an innovative, technology-enhanced learning space, the Link, in Perkins Library. The physical layout, technical infrastructure and support model provide a new type of highly flexible, active learning environment, supporting collaborative pedagogies, group work, and connections with remote participants, in close proximity to library resources.
strategy behind the project

• Support goals outlined in Duke’s IT strategic plan
  – Greater consistency & coordination to the equipping and scheduling of learning spaces, while increasing the number of specialized classrooms supporting teaching & learning innovation.
  – Focus resources on new applications of technologies and teaching models that fit Duke’s culture and goals, positively impact the classroom experience, and generate readily assessable learning outcomes.

• Provide a significant opportunity for evaluation and assessment to inform future academic space planning.
planning and assessment

• The project was sponsored by the Provost with senior leadership engagement throughout the implementation.
• The project team included key stakeholders and consultation with the user community.
• Assessment was planned at the beginning of the project, to be completed within the first 9 months with follow up assessments within 3 years of the initial opening of the space.
advancing the project

• Project team responsibilities
  – Identify the use cases
  – Confirm the technology, furniture and space needs based on use cases
  – Develop the service model
  – Assign the curriculum
  – Confirm the operational costs
  – Communicate with senior leadership and the Duke Community
  – Plan for the assessment
goals of the project

- Create a flexible, interdisciplinary learning environment
- Promote collaborative, authentic, project-based learning
- Support intensive and interactive technology use
- Support the complete learning process, within and beyond class time
special features of the Link

- Integrated group/breakout space
- On-site support and mobile equipment checkout
- Extended hours access for students
- Improved space for study groups, project work after hours
- Proximity to library resources & services
breakdown of space

- six classrooms: four with room for 20-30, one seating 40, one seating 50
- four seminar rooms (15-20 seats)
- eleven group study rooms (6-12 seats)
- informal space for collaboration or individual work
- kiosk-style computing stations
- service desk
breakdown of space

Average Square Foot per Seat
20-25 Seat Classrooms

<table>
<thead>
<tr>
<th>Link</th>
<th>2008 prototypes</th>
<th>All other A&amp;S and Eng. rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>27</td>
<td>22</td>
</tr>
</tbody>
</table>
design principles

• excellent teaching environments
• flexibility in furniture, infrastructure and technologies
• support for diverse disciplines, learning styles, pedagogies
• experimentation to inform the development of learning environments at Duke
technology in the Link

- 40 tablet PCs and 20 MacBooks for loan
- Mimeo whiteboard capture device
- portable digital whiteboard
- 100 Flip video cameras
- 100 web cameras
- 100 mini-DV tape video kits
- 10 hard drive video kits
technology in the Link

• 5 high definition video kits
• 50 microphone headsets
• 200 5th generation iPods
• Over 600 loans of multi-media equipment were processed in the fall of 2008
service desk and faculty support

- OIT service desk relocated to the Link
- 68% increase in walk-in traffic
- room to improve communication, outreach, and marketing
elements of the Link’s success

• architecture and design concept
• central location
• co-location of formal/informal learning spaces and flexible classroom features
• convenient access to technology, services, and support
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reactions to the project

1. High levels of satisfaction with the design and aesthetic
reactions to the project

2. Praise for whiteboards and glass walls as being conducive to collaboration and learning
reactions to the project

3. Link attracted courses and faculty from a broad range of disciplines.
reactions to the project

<table>
<thead>
<tr>
<th>Rank</th>
<th>Students</th>
<th>Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ambiance</td>
<td>ambiance</td>
</tr>
<tr>
<td>2</td>
<td>technology</td>
<td>help desk</td>
</tr>
<tr>
<td>3</td>
<td>furniture</td>
<td>whiteboard walls</td>
</tr>
<tr>
<td>4</td>
<td>study space</td>
<td>technology</td>
</tr>
<tr>
<td>5</td>
<td>group study rooms</td>
<td>location</td>
</tr>
<tr>
<td>6</td>
<td>whiteboard walls</td>
<td>spaciousness</td>
</tr>
</tbody>
</table>
current challenges / future needs

- academic use top priority while also accommodating non-academic events
- provide technology infrastructure for high-end users and baseline users
- engage more faculty and experimental courses
- develop a seamless, scalable support structure
- improve communication and outreach about Link
current challenges / future needs

• identify ways to prioritize group use of group study space

• ensure that lessons learned are captured and shared broadly with the community
lessons learned

• Fall Semester 2009 report
  – Technology adjustments improved support for video capture and videoconferencing
  – Space utilization increased
    • Courses increased to 76 with no significant increase in support
    • Group study space utilization quadrupled
  – Faculty interest in integrating technology in the classroom
  – Regional and national interest draws attention
lessons learned

• May 2010 report
  – Videoconferencing needs expanded to two additional rooms
    • More use of videoconferencing to support pedagogy
    • More ad-hoc requests for videoconferences
  – Space utilization
    • Courses increased to 105 with no significant increase in support
    • Lead time requirements expanded for group study reservations reduced
      administrative overhead without reducing usage
  – Circulation of camera equipment increased dramatically
    • More courses integrating multimedia, especially HD video
future planning

• New broader assessment is scheduled for May 2011

• Potential change in organizational support model are being considered

• Experimentation with new technologies on the horizon