

EXERCISE 1: WHAT WOULD YOU CHANGE?

We've all been there. You know, in a learning environment that, well, wasn't quite right: maybe the air conditioning was terrible, the layout awful, or somehow the color was simply wrong. Take a moment to think about the learning environments you've been in (including this one) or that you're responsible for. What's one thing you would change about that environment or, in case of your spaces back home, are too embarrassed to admit to your administration? The thing can be simple or wacky. Take a moment and write down one item that irks you.



ENVISIONING A PROGRAM

Emily Baker, Director of Learning Environments
University of Chicago

A computer laboratory is more than a room, full of computers.

*Public Computing Laboratories Analysis & Recommendations Report
University of Chicago (1997)*

The design looks great, but we have to remember that this is still a
computer lab.

*Comment regarding the overall **lack** of computers in the space design.
USITE 61 Computing Laboratory Design & Development Meeting
University of Chicago (2006)*

EXAMPLE: UNIVERSITY OF CHICAGO PUBLIC COMPUTING LABORATORIES ANALYSIS & RECOMMENDATIONS REPORT (1997)

Shortly after his arrival, the new Associate Provost for Information Technology charged a committee to analyze and make recommendations relating to the University's public computing environment. A group consisting of central and divisional IT staff, deans, and technology-savvy instructors assembled and described what was, at the time, a new way of thinking about the relationship between public computing and the instructional mission of the University. The following excerpts from the committee's 1997 report demonstrate how to develop a space program to support the activities that you wish to take place there. Although we've passed through that long-ago era of justifying why academic institutions need computer labs, I think some of the arguments we made way back then are relevant again, as institutions wonder why, in an age of ubiquitous student laptops, we still need computer labs!

High quality and availability of public computing laboratories are crucial to the University's instructional mission. Recent advances in technology, specialized projects like the new College virtual mailroom, increased availability of online resources for research and instruction, and growing reliance on electronic communication are among the forces driving the demand for additional computing facilities on campus. The growing student population, especially undergraduates, and the shifting composition of undergraduate concentrators and graduate students toward subjects which require computer-related coursework also highlight the need for additional facilities and support.

Faculty initiatives in instructional technologies are increasing. Faculty have come to rely on electronic communication to maintain contact with students. Use of instructional software to complement classroom learning is increasing rapidly. However, such initiatives are restricted by the scarcity of public computing resources on campus.

Also, the Computing Laboratories Committee urges the University to recognize the importance of information technology to other processes such as the acquisition of grants to fund leading-edge research, and the recruitment and retention of talented students and researchers.

Recommended Support Services

A computing laboratory is more than a room, full of computers. In addition to networked computers and basic software, public computing facilities should offer hardware, software and services not generally acquired by individuals, like scanners, high-speed laser printers and instructional software packages, as well as staff on hand to maintain the laboratories and assist users. At minimum, a model public computing facility should provide the following services:

- Direct Access to the Network
- Printing Service
- Scanning Service
- Basic Training Programs
- Basic Technical Support
- Enhanced Support for Instructional Software Initiatives
- DHCP Support
- Data and Media Conversion Service
- Virus Protection
- Diskette Recovery Service
- Desktop Video Conferencing
- Departmental Tutoring and Support

Space Requirements Per Station

The large model laboratory is equipped with 100 user stations. Two of the computers are used as scanning stations. Approximately 80% of the stations are designed for single users and 20% of the stations are large enough to accommodate collaboration of up to three students. Also, there are two high-quality black-and-

white laser printers, on color laser printer, and space for five laptop users to plug their own computers into the campus network. As shown below, such a facility would require at least 4,875 square feet of space, or 48.75 square feet per station.

Minimum Space Requirements for Model Lab (circa 1997)

Items	# of Items	Sq. Ft. per Item	Total Sq. Ft.
Single Stations	78	35	2730
Collaboration Stations	20	65	1300
Scanning Stations	2	50	100
Laptop Stations	5	35	175
B/W Printers	2	50	100
Color Printer	1	50	50
Help Desk Area	1	200	200
Storage Closet	1	200	200
Wiring Closet	1	20	20
Square Feet Required			4875

EXAMPLE: UNIVERSITY OF CHICAGO USITE/CRERAR INITIAL HIGH-LEVEL PROGRAMMING MEETING

Below are excerpts of the notes from the first formal programming meeting (April 6, 1998) of what would become the USITE/Crerar Computing Cluster & CyberCafé. In attendance were the Associate Provost for Information Technology, Head of the Crerar Library, Director of Library IT, Master of the Biological Sciences Collegiate Division (undergraduate), and IT Director for the Biological Sciences Division (BSD) & Medical School (graduate programs).

This meeting was organized to explore a proposal to expand the space in the Crerar Library dedicated to University-wide public computing. The area adjacent to the existing Crerar computer cluster was identified for possible conversion to an expanded computing site. This large area at the south end of the Lower Level includes the student canteen, the former Photoduplication Dept., and a large foyer at the base of the stairwell from the first floor. Passenger elevator, restrooms, and public lockers are close by. This particular proposal grew from an examination of computing needs in the Biological Sciences Division and the Science Libraries developed during the course of a still pending grant proposal to the National Library of Medicine's Integrated Advanced Information Management Services (IAIMS) Program.

The general interests of each 'party' were briefly described. University computing services has been examining opportunities to enlarge existing or acquire new general computing sites on campus. [The CIO] described both 30 seat and 100 seat models that had been developed by his office to help accommodate the under-served campus general computing community. To this end capital for creation of some number of general computing sites/seats and for staff support is available. The Library's interests include encouragement of increased use of its electronic resources in expanded computing sites; directing general computing usage, e-mail, and internet browsing to the general computing clusters; and greater campus visibility as an institution supporting public computing. The BSD is looking for ways to redefine existing BSD Learning Center facilities and direct some computing uses (word, excel, e-mail, internet browsing) to general facilities so to be able to emphasize higher end and particularly curricula driven computing (e.g. BioSim) at the Learning Center.

Program Considerations

Access: both general University and Medical Center

Staffing: expanded facility must have regular staff available for technical assistance and support both for maintenance and user support. 30 seat model was developed by Computing Services as minimum size for staffed facility. Staff support might also be available from BSD as a co-share based on a specialized computing hardware/software incorporated into Crerar site.

Security: onsite access might be managed through use of Chicago card and Medical Center key card coordinated by site support staff and/or Crerar Library evening desk attendants (Crerar is 'open' to faculty, medical staff, and BSD and PSD graduate students 24 hours/7 days week). The Library would probably want to separate access to the Cluster area from access to the building...

Physical layout: general agreement that facility should move beyond limited, production style layout now present at Crerar cluster. Users should have more generous workspace; laptop users should be accommodated; any specialized computing needs cannot be at the expense of general user needs; site should provide both Windows and MacOS platforms; separate training or teaching area might be incorporated into plan. The considerable space could allow for development of 'cybercafe' area to absorb social computing interests (computer-related magazines, games, e-mail, etc.). Area should be attractive to users as well as potential donors who might wish to underwrite cost of developing the area...

Training needs: how would training needs shape this space? Low priority for training services from University perspective; the Library is interested in training for use of its electronic resources, BSD acknowledges needs for staff and user training for general and specialized computer as well as curricula and research based. Much more discussion needed on this item as there are wide differences of opinion.

Next Steps

1. Form working group composed of representatives from NSIT; from Library; and BSD.
2. Get general [planning] approval of Library and Provost's Office. Also, touch base with the Physical Sciences Division.
3. Seek preliminary walk through of area by "knowledgeable" architect/designer.
4. Establish meeting agenda, priorities, and begin project planning.

EXAMPLE: UNIVERSITY OF CHICAGO USITE/CRERAR FIRST FULL WORKING GROUP MEETING

Shortly after the initial high-level programming meeting, the working group was assembled that included participants from Networking Services & Information Technologies (central IT), the Library, and the Biological Sciences Division as well as a project manager from Facilities Services (who also happened to be a Divinity School graduate student) and architects from VMC Architects. Here's excerpts from the May 22, 1998, meeting when the architects and project manager joined the working group for the first time.

The group made several summarizing comments about the look and feel of the spaces to be built. Key words/phrases were: not over-designed or over engineered with "hardwired" limitations, collaborative spaces, open design; creative, eg. use of corner spaces as mini-training/teaching nooks; bundle power and data connectivity together. For the cafe, atmospherics are very important, emphasize curvilinear features, allow for both loaners and group needs; encourage people to use cafe, but not set up residence; be aware that the cafe and computing laboratory are in a science library – not a 19th century Gothic relic.

Schedule: [Project manager] affirmed that this project would require a building permit from the city (a 3 to 4 month process or longer...

Accounts: [NSIT] has established an University account and basic budget for this project that will enable us to cover start-up costs, particularly those associated with the engineering survey.

Access: Entry control is feasible at two points... Key card access is assumed, but differences between Chicago card and Medical Center card will probably require two readers at each entry control point.

[BSD] will identify the key person in Medical Center security to include in discussions about access and security management. A brief security review needs to be prepared.

Additional Thoughts from the Director of Biological Sciences IT...

Target Audience: I'd like to focus primarily on Graduate and Medical Students - I feel that the new cluster space will certainly provide the necessary computing service... for the undergraduate population. By providing a lab space that combines both PC (4-6 total) and Unix workstations (4-6 total), located in a collaborative work space (combining the computing desk space with a small collaborative space) we can provide a location within Crerar that grad and/or medical students can congregate. I'm not sure of the total square footage requirements - I'd like to let the architects recommend some scenarios...

Technology: I'd be looking at both 'WinTel' and Unix (Sun) workstations in this space. This would enable grad and med students to gain access to BSD-specific applications (BioSym, GCG, etc) on machines that were configured specifically for BSD course requirements. In addition to the workstations (no more than 12 total), technology would include a printer and appropriate UPS equipment for power protection.

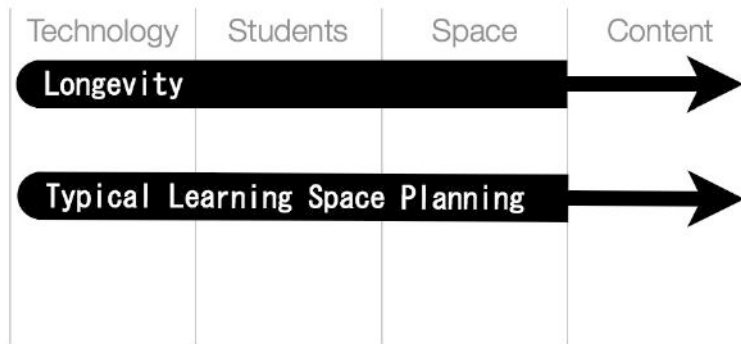
Other Elements: I'd like to see this space be a mix of 'sit down computing space' (which will let us pack in the machines to some extent) and some open collaborative space (conference table/chairs, white board) for idea sharing and group work. I don't have any specific ideas regarding additional amenities, however, this description may modify slightly over time...

SEEKING INSPIRATION

Chad J. Kainz, Senior Director for Academic Technologies
University of Chicago

TRADITIONAL PARADIGM

When thinking about spaces, it is easy to envision the technological possibilities within the context of students. If such thinking drives a project from the beginning, this can lead to a potential pitfall – envisioning a space for the here and now, and not for the future. Technology is in a lifecycle of months, so to design around something that will be different before the space is complete seems dangerous. The same is true for students as they change year-to-year and from an expectation standpoint, vary on three to four year cycles. Space lasts much longer than that – minimally a decade but typically 15-25 years. Ultimately, academic content, materials, and outcomes have the longest lifespan, certainly lasting a generation but could extend for hundreds of years. Space fits between the here and now and the legacy of the institution and as such, focusing on the shortest-term element as a starting point for a new space may not lead to the best results. Or to put it another way, the traditional paradigm encourages a solution before understanding the problem.



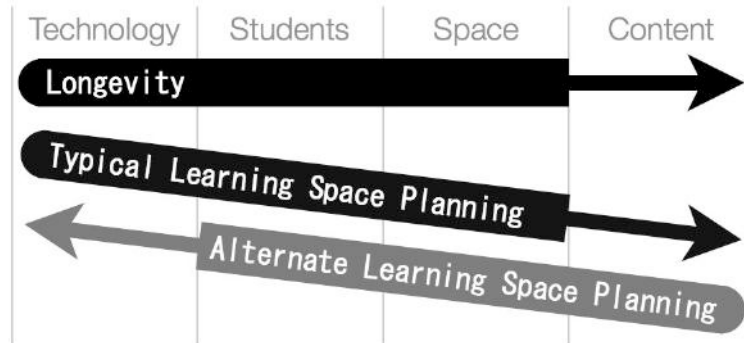
ALTERNATE PARADIGM

The industrial design group, IDEO, has developed a rather successful and widely accepted methodology for developing consumer products. In brief, the process works like this:

- First, observe how people work;
- Second, brainstorm using the observations as starting points;
- Third, rapid prototype some of the brainstorming ideas;
- Fourth, refine the ideas into something one can use; and
- Finally, implement the idea.¹

¹ Nussbaum, Bruce, "The Power of Design," *Business Week*, 17 May 2004, <http://www.businessweek.com/pdf/240512BWePrint2.pdf>

The same principles can be applied to space and environment design. IDEO focuses on understanding the problem from a number of perspectives, often beyond the scope of the original issue. Essentially, the model starts from where one wants to be and works back from there.



If one flips the traditional academic space planning paradigm around and starts from the content and outcomes perspective, takes into account the physical realities of the space, then considers the ever-fluid needs of students, and finally fills in gaps with technology, spaces have the potential for evolving and “learning” over time, adjusting to the needs of the institution, students, and the possibilities afforded by technology without the expense of being completely redeveloped and reconstructed when one of the shorter-term elements change. In this paradigm, conversations quickly shift from projectors and computers to “what *kind* of space do we want and how should it *relate* to campus?”

TIP: When brainstorming, keep the duration short – no more than 45 minutes to an hour, and focus on getting ideas out into the open without over-analysis or immediate criticism.

TIP: One brainstorming technique involves tossing ideas out as quickly as possible and capturing them in an unstructured manner on a whiteboard or flipchart, much like tossing darts at a dartboard. When you begin to lose creative steam, you can stop and see where ideas cluster and begin to organize items around larger concepts.

TIP: Consider including physical objects in your brainstorming sessions. Sometimes fiddling with an object helps to trigger creativity.

TIP: Capture those brainstorm ideas on sticky notes that can be organized, reorganized, and prioritized quickly and easily.

Square Feet

Going Off the Beaten Path For New Design Ideas

By LISA CHAMBERLAIN

WHEN most other design firms were still using the same old focus-group techniques, IDEO invented the unfocus group, in which side conversations among participants are also recorded — to hear what they were really thinking. Finding out not just what people really think, but also how they really live, is the lifeblood of IDEO's innovative design work.

The firm made its name in designing products, including the Palm V hand-held organizer, but it has been turning its attention to spaces, or environment design. IDEO, founded in San Francisco in 1991, is delving into the psychology of space and coming up with unusual approaches for companies like **Marriott International** and **Forest City Enterprises**, two of the largest real estate businesses in the country.

Although IDEO has grown to 400 employees, it has retained its research techniques and small-firm attitude.

No one has a formal title, including Fred Dust, who might be described as the team leader of Smart Space, the company's real estate division. With a bachelor's degree in art history from Reed College in Oregon and a master's in architecture from the University of California, Berkeley, Mr. Dust is much like the firm itself: studied yet unpretentious, casually hip, optimistic by nature — and very hard-working.

Smart Space takes on 45 projects a year. They range from designing a better office cubicle to a project to redevelop commercial ventures within an African-American neighborhood in Kansas City. "We design for activity as much for space," Mr. Dust said.

To achieve this, the team starts with a "deep dive," during which Smart Space designers, anthropologists and researchers spend days — sometimes weeks — shadowing people to observe how they live: when and where they eat, what time they go to bed, what their hobbies are, how they spend their money. The results of this research are often quite different from the conventional wisdom.



Jessica Brandi Lifland for The New York Times, above left; Sean Ferry/IDEO, above right; IDEO, below



Dana Cho, Fred Dust and Roshi Givechi of IDEO, the design firm, above left. For the TownePlace Suites unit of Marriott International, IDEO created a prototype of a flexible modular wall unit, above, which can be used as both a workspace and a dining table. Marriott employees, left, tested the sample suite.

An example is a project that Smart Space recently completed for a Marriott's extended-stay hotel chain, TownePlace Suites. The prevailing wisdom about travelers who need extended-stay accommodations is that they want all their needs to be met by the hotel itself. IDEO researchers found this assumption to be incorrect after spending weeks talking with TownePlace guests.

What they found was that people on extended stays do not talk about "staying" in the hotel but "living" in the city. They want to get to know the community around them, and they do not want to spend a lot of time hanging around the hotel. And because they have fewer chores — like mowing the lawn or walking the dog — they also want to use their spare time on such things as learning a new language or taking piano lessons.

IDEO translated those results into a design concept. In the new lobby, instead of the traditional couch, coffee table and

television set that nobody is watching, there are "10-minute perches" — benches, stools and places to stand and lean — where a guest can flip through a magazine while finishing a cup of coffee.

More significantly, the Smart Space team designed a map wall: a huge rendering of the immediate area, with notations about local shopping, restaurants, parks and recreation areas. But it is more than just a map. It can be annotated by guests who find their own hidden treasures in the community, and it serves as a conversation starter.

The team also found that because guests often need the equivalent of a home office, they may turn their bedrooms into work spaces. So it came up with a highly flexible modular wall unit where there had previously been a only large dining table; guests can adapt the elements to use them as an office as well as a place to eat.

The client, of course, has to buy into a design concept. So the Smart Space team

built a life-size lobby and suite out of white foam core and invited Marriott executives, hotel managers and even guests to interact with the new design and to make suggestions.

"We've never gone through anything like this," said Laura Bates, senior vice president for extended-stay brands at Marriott. "We have built sample rooms, but it's more of a décor approach. This was fundamentally changing the space layout and the architecture. Not only did we get a strategy based on the anthropology of the guest, but we got very quickly to tangible design."

Marriott hired an architecture firm to carry out the redesign, which will be rolled out at all 122 TownePlace Suites sites starting in April.

One of IDEO's biggest clients is Forest City Enterprises, the real estate development company based in Cleveland.

For most residential projects, "the typical developer programs the number of one-, two- and three-bedroom units based on some kind of research of the area, and then hires an architect," said Gregory Vilkin, president of Forest City Residential West. "That's not very sophisticated," he added. "We wanted to really understand — what is urban housing and who lives there? They conducted extensive research and came up with five different prototypes of the urban dweller, and we tested that against our clients, and it was remarkably accurate."

For example, Smart Space researchers identified one group as "explorers" — curious and investigative people who like to explore the neighborhood and are attracted to old commercial buildings converted into housing and other creative living spaces. Another group is "modern romantics," who tend to be highly educated, want comfort and seek to live in traditional apartment buildings.

Using anthropology to understand what people want from a room.

Because of the researchers' work, the Smart Space team recommended scrapping the old-fashioned leasing office and replacing it with a "welcoming center." One will open soon at University Park Living, a four-building development in Cambridge, Mass.

Rather than just selling units, the welcoming center will also showcase the surrounding area with a "Five, Five, Five" map that shows neighborhood amenities

within five minutes, five blocks and five miles. Potential residents are also offered a selection of postcards that include facts about the development and the neighborhood; one card, for example, might have a picture of a dog with information about nearby veterinary clinics. People take the cards that interest them and essentially create their own brochures, instead of being handed general ones by sales agents.

An interactive area will have computers where people can take a tongue-in-cheek personality test to find out which of the four Forest City buildings — all very different in design — will best suit them.

"It's a whole different way to experience leasing," said Adam Siegal, vice president for strategic marketing at the Forest City Enterprises residential group.

Though Forest City Enterprises and IDEO have worked together for only a little more than a year, the company expects the relationship to have a significant impact on how developments are ultimately designed, not just marketed. Forest City Enterprises has signed an exclusive contract with IDEO, which now has a team that works solely on Forest City projects, focusing on its high-end urban rental housing.

"When you're building a new space, the client has to own it," Mr. Dust said. "So we are at our best when we're teaching our clients how to be their own design advocates."

FINDING INSPIRATION



We're surrounded by little details that can provide ideas for nearly every project. Before writing off a chain restaurant as uninspiring, take a moment to look at how traffic moves through the space. Have you considered traffic flow in your project? How will people enter and exit your space? Will you need a waiting area? Is there a need for a service counter? Will the counter need to support crowds of individuals seeking assistance? Chain restaurants think a lot about moving people through their spaces and can provide hints and clues to tackle equally complex issues in your project.

Common places to seek inspiration include restaurants, hotels, coffee shops, airports, transit stations, libraries, churches, shopping malls, and theme parks. And don't forget to look at what other institutions do as well. A wealth of ideas can be found by examining the work of others. In studying these spaces, look for things like lighting, color, traffic flow, work space, textures and materials, access to power and data, seating, space arrangement, deployment of technology, etc. Take note of the environmental conditions such as heating and cooling, ceiling height, and natural lighting. Finally, study the durability of the materials used throughout the space and the area program elements consume within the space.

An environment should reflect your institution's needs and values, so resist the temptation to merely copy an idea from somewhere else. Use someone else's concept as a foundation to create something that is appropriate to your campus. In the end, a space should reflect the values and needs of the campus in which it exists, not what is appropriate for someplace else.

TIP: *Whenever you travel, take a digital camera with you and take pictures of spaces that inspire you. Look for tiny details in seemingly mundane spaces – you'll be surprised at what you'll find.*

TRYING IDEAS



What appears on paper may not necessarily work out as planned. When developing ideas for a space, it is important to get a real sense of whether or not particular ideas will be successful early on before committing them to drywall and concrete. Prototyping is a common method of quickly determining if an idea will work as it provides opportunities to refine the idea into something better.

Prototyping can be something quite formal with a full evaluative program associated with it or off-the-cuff and at a moment's notice. Simply rearranging the furniture to "get a feel" for the space might suffice – it really depends on the kind of feedback you're seeking. In all cases, the goal should be to receive constructive feedback that can be used to refine the idea more fully or to determine whether or not to move forward with the concept at all. It is important, however, to explain to others participating in the prototyping session that what they're looking at and will comment on is merely a concept or idea. All too often, people are willing to shoot down a prototype because it isn't the right color or they don't understand the goals you're trying to achieve. Be clear, be concise, and by all means, have fun! Fill whiteboards with ideas, move the furniture, make cardboard mockups, lay things out in full scale on the floor, use a data projector to display scenes on a wall, build something with toys, create 3D visualizations, etc.

Prototyping is a chance to experiment and try something different, so if one idea doesn't work for your project, it might work for another. In that sense, file away ideas for future use. Having a stash of concepts that can be trotted out with little or notice may prove to be handy one day.



TIP: Figuring out how much space something consumes can be difficult without some way of measuring the area. Since people are generally uncomfortable with strangers pulling out tape measures or formally stepping-off distances (especially in airports and other public spaces these days), other forms of measurement may be necessary. For example, to get a rough idea as to how large a space is, count ceiling tiles. Standard ceiling tiles in the U.S. are generally 2'x2' square or 2'x4'. If a ceiling lacks tiles, base your measurements off of a fluorescent lighting fixture. The bulbs in tube lighting fixtures are typically 4' long. Other quick measurement references include doors which are typically 3' wide, carpet tiles which are usually 18" or 24" square, and floor tiles that are often 12" square (9" in older buildings). When working from digital photos where such environmental objects don't exist, include a reference object in the photo. You can measure that object and calculate approximate dimensions from that.

EXERCISE 2: CATCHING YOUR EYE

The spaces around you are filled with details that can inform or inspire creative thinking on a learning environment project. Something as simple as the location of the light switch can make the experience within a space more successful. During the break, take a look around you and identify one detail that interests you or you feel is clever or successful.

SYNTHESIS

Mark Cheng, President
MDC Architects

AN ARCHITECT'S PERSPECTIVE

So far we've talked about thinking, learning, and getting inspired. We've talked about organizing the ideas, thoughts and goals for a project. At some point in the process, the go ahead is given, it's time to build, and along comes an architect...

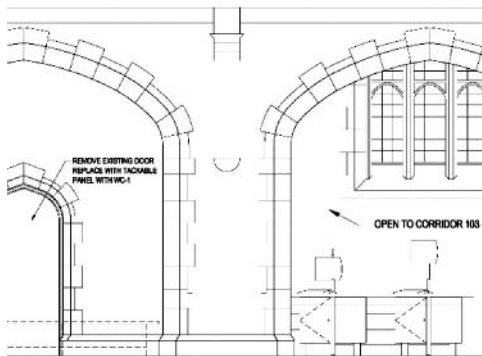
The first step is to get up to speed as quickly as possible. By the time an architect is hired, the need for the facility probably has been talked about for months, or even years. Some very bright people have been having discussions, meetings, and have survived the obstacle course of campus politics to appropriate funding and a location. In this age of instant gratification, you now have a few months to get the facility designed and built.

To complicate things, we have asked you to bring ideas, examples, a detailed list of objectives and requirements, and dump them on the poor, unsuspecting (but grateful) soul hired to orchestrate the effort. For the most part, each bit of information has some merit. Many ideas are vital and will form the back bone of the project. Some ideas are interesting, but may not fit the parameters of this particular project. A good architect will listen well and collect all the bits of information and ideas. Nothing can be dismissed until the project and the goals are thoroughly understood.

The architect has to serve as the bridge between conceptual thinking and the nuts and bolts of the built environment. An effective bridge connects at both ends, so it is important not to get hung up at one end at the expense of the successful joining of the two extremes. The architect should be grateful for a client who has a wealth of knowledge and ideas. We are trained to conceptualize and visualize, and are all too happy to have company in this creative endeavor. We are also well aware that there are very important parameters that require that our feet stay firmly on the ground of reality. Budget, schedule, site conditions, governing bodies, and even politics can be sobering factors that can take the buzz out of any conceptual party.

But never fear, we are here to help. Even the most constraining of parameters are no match for creativity. Where there's a will, there's a way, and we will find a way to get to the crux of the project and with the help of involved and spirited team members, create a learning environment that is functional and vital to the campus.

TOOLS OF THE TRADE



MEANS TO CONVEY IDEAS

- Pen and Napkin
- Bubble Diagrams
- Conceptual Plans
- Furniture Plans
- Material Boards
- Construction Documents (also known as CD's)
- Layouts by the Contractor
- Site Visits (In Progress Construction)
- Mock ups (Full Scale Prototype)
- Finished Product

One can not underestimate the value, or difficulty of perceiving an idea in three dimensions. It is critical that the design team helps all team members have a firm grasp on what the end product will look and feel like. Nothing is more frustrating than to have surprises when walking through the finished space. There are additional tools that can be used throughout the design process that can help convey what the space will feel like. These are even more useful when creating innovative solutions that do not currently exist.

THE THIRD DIMENSION

- Computer Modeling
- Sketches
- Perspective Views
- Elevations
- Scale Models
- Full Scale Models

TIP: If you have a TabletPC, a good sketching package is Autodesk SketchBook Pro.
<http://usa.autodesk.com/adsk/servlet/index?siteID=123112&id=6848332>

TIP: If you want to experiment with 3d modeling, try the free version of Google SketchUp!
<http://sketchup.google.com/>

KEYS TO SUCCESS

1. Build a good team with good team members.
2. Flexibility of the space will prolong useful life.
3. The built environment is an evolving environment.
4. Think outside the box, don't be confined by preconceptions or gypsum board.
5. The increasing mobility of technology (laptops, wireless, etc.).
6. Comfort level for the users (corner café, hot spots).
7. Collaborative learning environment supported by evolving technology.
8. "Build it and they will come" no longer works for discerning users who have choices.
9. Become a discerning creator of spaces.
10. There is no magic formula, sorry, too many factors involved.
11. There is a magic approach: have a full mind, yet an open mind.

Try to approach each project with a clean slate. You learn from things you have seen and experienced, but a new project is an opportunity to advance the quality of the learning environment. Even if the step is relatively small, there is no need to repeat the past verbatim if there are things that can make the learning environment more functional and vital. Each project is an opportunity to evolve with an academic community that is learning, growing, and improving. They are not standing still, and neither should the facilities.

EXAMPLE: UNIVERSITY OF CHICAGO USITE 61 PROGRAM

USITE 61 is a new environment at the University of Chicago that is scheduled to open in the 2008-2009 academic year. The original draft was a conceptual program that was presented to the administration. Over time, the conceptual program was refined into the document that now guides the project and informs the entire project team – from central IT to the architects and planners.

Technology is a key component of academic life at the University of Chicago, and the facilities the University provides should reflect both the academic and social values of campus. A computing cluster should not be a rigid environment with a static mission, but rather a dynamic venue that can adapt to changing needs and be incorporated into a number of academic, social, and collaborative programs and contexts. This is the vision of USITE.

NSIT Academic Technologies is developing a USITE technology and collaboration environment to address the academic computing needs of the undergraduates within the new residence hall at 61st and Ellis as well as the current graduate students in the Harris School, Law School, and Social Service Administration. Such a facility will also serve the students residing within the Woodlawn neighborhood, and allow the proposed digital media computing laboratory and classroom in the Center for the Creative & Performing Arts to remain focused on the academic needs of the arts without the added pressure of being the central public computing facility for the neighborhood, residence halls, and professional schools of South Campus.

This new facility, USITE Sixty One, is part of a larger USITE technology ecosystem and as such, should be viewed as one element in a larger system of technologically common, but architecturally and physically diverse and individual facilities. Like all USITE facilities, it should meet a large part of the general academic computing needs of the students within its surrounding geographical region, but not compromise itself by trying to meet all needs at all times as other USITE facilities can serve similar needs when necessary. The environment should provide technology-enabled team space for students to collaborate on group projects and accommodate group study needs. On a social level, the space should be a technology-enabled destination with the potential of being programmed into College activities. The environment should also act as a teaching and learning venue when technology and media needs are required, and could be an extension of existing programs within the vicinity of the site. Finally, the entire space can be thought of as an event area for workshops, conferences, meetings, RSO activities, and other events that may need multiple technology-enabled spaces tied together by a common work environment.

Using the USITE Crerar Computing Cluster & CyberCafé and our observations of the 24-hour study space on the A-Level of Regenstein Library as key guides and feedback from nearly 200 students and representatives from a number of RSOs, we envision a space geared more toward collaboration, digital media, openness and flexibility that better matches the student usage patterns we've observed over the last six years. The environment should act as both as an academic space as well as a social destination (although not necessarily at the same time).

PROGRAM

We envision USITE Sixty One as a location of multiple personalities, not unlike the A-Level of Regenstein Library. During the morning and afternoon, we believe USITE Sixty One will be primarily an academic work environment providing technologies and services related to student academic life. Like A-Level, however, we envision USITE Sixty One transforming after dark into a much more social space and a student destination augmented by technology and related services. It is this evening and night character that we wish to capture in the space. Reinforced by the modern facades of Edystone and Mies Van de Rohe Social Service Administration buildings to the west, we believe it should reflect a modern, almost Chicago nightclub aesthetic different from the Gothic and Ivy tone of the rest of campus that is well out of view.

In terms of the space, we believe it should contain a collection of zones that encompass a variety of sub-environments to allow for a range of individual work and group collaboration options in very different physical settings. Conceptually keying off of the Chicago's relationship with the lake, we've divided the space into five distinct zones: Shoreline, Parks, Pier, Metro, and the Quays. Shoreline represents the transitional area from the retail dining operation to the north through and into USITE Sixty One to the south. The Shoreline leads into the Parks, a collection of individual and group meeting and collaboration spaces characterized by a rather comfortable, soft, and informal layout dotted with LCD and plasma display "trees" throughout the space. The Parks extend to the windows on the west and the walls to the north and east. Centered along the east wall at the intersection of the west Park and north Park is the Pier, a media presentation and stage venue that has as its focal point, minimally a GeoWall large projection display or optimally a multi-screen display array. Lectures, data visualization sessions, student visual art installations and live performances of student musical groups all can be hosted at the Pier with seating provided in the Parks. Moving further south, one encounters the Metro, an edgy urban technology-dense zone that has a small number of acoustically private audio recording and video editing booths, two enclosed and semi-acoustically private small group collaboration areas, and a collection of digital media systems and services. Finally, along the southern-most perimeter are the Quays, the staff areas that ultimately provide support to USITE Sixty One. These areas include the main computing assistant desk, fulltime staff offices, student staff break and work rooms, paper and equipment storage, and a server room.

A "seat" refers to an actual workspace equipped with a computer. All seats assume a desktop computer with an LCD flat-panel display that is operating 24-hours per day, seven days per week. A "public seat" is one available to any faculty, student, or staff member at the university. "People" refers to the number of individuals who will occupy the space. Because of the nature of the environment, it should be "media rich" and contain a significant number of large plasma/LCD displays, data projectors, and a GeoWall/display array. In addition, we envision this venue as a performance/lecture space and include appropriate lighting and live sound reinforcement.

From an infrastructure estimation standpoint, one should assume one data location and two duplex power outlets for every two seats. In addition, one should also anticipate a higher-than-average duplex power outlet density to accommodate laptop usage, and wireless networking should be available throughout the space. The space will require air conditioning and should be designed around 80% occupancy and full computer usage during day and evening hours and should factor in 24-operations at 50% capacity. There will be peak times of 100% (or greater) occupancy approximately three weeks out of every quarter, for a total of nine weeks out of the year.

Second Revision: July 10, 2006
 First Revision: Sept. 24, 2004
 Initial Draft: June 9, 2004

SHORELINE Program Elements	People	Seats (Public & Private)	Area (NSF)	Qty	Subtotal (People)	Subtotal (Public Seats)	Subtotal (NSF)
Entry Path	0	0	TBD	TBD	0	0	TBD
WebStation Kiosks	1	1	10	5	5	5	50
"Bake Sale" Kiosks w/WebStation and "Media Tree"	2	1	35	2	4	2	70
Retail Kiosks w/WebStation, "Media Tree," and storage cabinet	2	1	50	3	6	3	150
					15	10	

PARKS Program Elements	People	Seats (Public & Private)	Area (NSF)	Qty	Subtotal (People)	Subtotal (Public Seats)	Subtotal (NSF)
Collaboration Areas with "Media Trees", Table Seating	4	2	80	TBD	TBD	TBD	TBD
Banquettes	3	1	60	TBD	TBD	TBD	TBD
Table Seating	2	0	40	TBD	TBD	TBD	TBD
Printing Zone	0	1	50	1	0	0	50
Lounge Seating with "Media Trees"	4	1	80	TBD	TBD	TBD	TBD

PIER Program Elements	People	Seats (Public & Private)	Area (NSF)	Qty	Subtotal (People)	Subtotal (Public Seats)	Subtotal (NSF)
Stage/Visualization Area	10	1	400	1	10	1	400
AV/Media Support Room/Space	0	0	60	1	0	0	60
					10	1	460

METRO Program Elements	People	Seats (Public & Private)	Area (NSF)	Qty	Subtotal (People)	Subtotal (Public Seats)	Subtotal (NSF)
Digital Media Studios w/acoustical isolation	3	1	60	3	3	1	180
5-6 Person Collaboration Areas with "Media Trees" and acoustical separation	6	2	120	2	12	4	240
Single-Person Digital Media Workstations	1	1	20	TBD	TBD	TBD	TBD
Printing Zone	0	1	50	1	0	0	50

QUAYS Program Elements	People	Seats (Public & Private)	Area (NSF)	Qty	Subtotal (People)	Subtotal (Public Seats)	Subtotal (NSF)
CA/Consultant Desk	4	4	160	1	4	0	200
Printing Zone	0	1	50	1	0	0	50
Staff Office	2	4	160	1	2	0	200
Server Room	0	0	100	1	0	0	100
Staging/Storage	0	0	150	1	0	0	150
Student Staff Area	4	4	160	1	4	0	150
					10	0	850

EXERCISE 3: ELEVATOR PITCH

Your team, made up of the individuals seated at your table, are members of a fictional institution who have been assigned the task of developing a concept for a new learning space. With approximately 40 minutes to complete the task and little background to develop a fully-fleshed out concept for an entire space, your team should focus on one element or idea that can be quickly shared with the group. At the end of the planning time, each team will be asked to make a 2-minute “elevator pitch” to the group, who will collectively represent the Administration at your institution. Your team goal is to develop a compelling idea or concept, pitch the idea, and receive the support of the Administration to move your project forward.

To provide a common background for your team, the session leader will assign each table a fictional institutional profile of a community college, public university, liberal arts college, or private university that should guide the development of your concept.

In addition to the profile, the session leader will assign a specific scenario to each team. Although somewhat fictionalized, the scenarios are based on actual events and in some cases, actual timeframes. Your concept will need to address some – but not all – of the issues outlined in the scenario.

The physical space of the environment is equal to the seminar space for the workshop session, and you may use any items within the workshop space (except those directly associated with the presentation area) to develop the concept. In addition, a camera will be attached to the session leader’s computer to facilitate the display of drawings, mockups, and other elements that may illustrate your team’s ideas and add to your pitch to the Administration.

Things to keep in mind:

1. You don’t need to develop a concept for the entire space.
2. Your concept should reflect the values of your assigned institution.
3. Your concept should be based on your assigned scenario.
4. You can use anything available to you to illustrate or flesh out your ideas.
5. You will have approximately 40 minutes to develop a concept for your learning space.
6. You will have only 2 minutes to present your idea to the Administration.
7. The Administration will vote on whether to lend its support to your concept.

INSTITUTIONAL PROFILE: _____

SCENARIO: _____

PROFILE: SPIRITWOOD COMMUNITY COLLEGE

Founded in 1946 in the heart of the Lakes Region, Spiritwood Community College (SCC) serves the training and professional development needs of the region's workforce by providing certificate and associates/bachelors degree programs that directly relate to the employment opportunities in the surrounding area. Over 8,000 commuter students ranging from high school graduates to retirees take advantage of SCC's day and evening programs that are staffed with both full-time teaching and contract faculty, the latter being a majority of advanced graduate students and working professionals. SCC prides itself on its ability to rapidly adjust to the region's educational requirements: certificate programs can be launched within six months and full degree programs within two years. Because of its nimble academic nature, all services and resources must be adaptable to a wide range of current and future needs across multiple programs. Like the people of the Lakes Region, SCC spends its money wisely and operates as efficiently as possible as not to give an impression of wastefulness or extravagance. SCC's relationship with the region is as important as the academic programs themselves.

FACTS

Founded: 1946 (Spiritwood Junior College), renamed in 1972

Motto: We put the you in education.

Classification: Public, 4-year primarily Associates

Student Enrollment: 8,000

Residential: 0 Commuter: 8,000

Associates/Bachelors: 4,500 Graduate/Professional: 0 Certificate/Other: 3,500

Colleges/Schools: 1

Athletic Team: Hornets

School Colors: Yellow and black

PROFILE: LAKES REGION STATE UNIVERSITY

Founded as the state land grant agricultural and teachers college in 1877, Lakes Region State University has evolved into a major public research institution of 25,000 students. The university offers degrees ranging from bachelors to doctorates in six schools: Arts & Humanities, Education, Science & Engineering, Agriculture, Business, and Medicine. Academically, LRSU is largely decentralized with most decisions being made at the school level by the various deans. From an administrative perspective, LRSU is highly centralized with a strong administration that works closely with the schools in an effort to maintain the university's national competitiveness for faculty, students, and research programs. That said, visibility on regional, state, and national stages is often seen as critical to the university's future as reflected by the high degree of administrator and faculty participation in issues of state and national importance. This emphasis on high-profile competitiveness extends deep into the culture of the institution as students and alumni often start conversations with "the Kingfishers were the first to have..."

FACTS

Founded: 1877 (Agricultural & Teachers College of Spiritwood), renamed in 1905

Classification: Public, Research University

Motto: *Duc, sequere, aut de via deceda* (Latin)
Lead, follow, or get out of the way

Student Enrollment: 25,000
Residential: 10,000 Commuter: 15,000
Associates/Bachelors: 18,000 Graduate/Professional: 5,000 Certificate/Other: 2,000

Colleges/Schools: 6
Arts & Humanities
Education
Science & Engineering
Agriculture
Business
Medicine

Athletic Team: Kingfishers

School Colors: Purple and white

PROFILE: COLLEGE OF SPIRITWOOD LAKE

Founded in 1924 by a group of local philanthropists, the College of Spiritwood Lake is a small liberal arts college of 2,000 students that has both a strong residential character and respected outreach program. The College emphasizes creativity, community, and ethics, and prides itself on its small class sizes and a flexible approach to learning. The undergraduate program centers on a liberal arts core on which the College's interconnected curriculum is built. Emphasis is placed on the whole learning experience rather than individual classes, so science lectures directly relate to literature courses, which tie to music and philosophy seminars. The tightly knit nature of the academic program is reinforced by the campus itself as it has maintained its Art Deco architectural style throughout the College's storied history – creating an architecturally coherent campus while nearly bankrupting the institution in the process. Facing closure in the early 1990s, the College reinvented itself as a holistic learning experience, focused on its strengths (arts, music, and cultures), and invested in life-long learning to rebuild its connection with alumni. This program of rejuvenation and reconstruction has paid off – enrollments are up, alumni interest is at an all-time high, and the endowment has grown significantly.

FACTS

Founded: 1924 (College of Spiritwood Lake)

Classification: Private, 4-year Liberal Arts

Motto: *Veita hinn er vættki veit* (Old Norse)
He does not know, he who knows nothing

Student Enrollment: 2,000

Residential: 1,300 Commuter: 700

Associates/Bachelors: 1,600 Graduate/Professional: 0 Certificate/Other: 400

Colleges/Schools: 2

Arts & Sciences

Lifelong Learning

Athletic Team: Vikings

School Colors: Blue and green

PROFILE: MCELROY UNIVERSITY

Books send forth victory to each of the righteous and are a safe harbor to him who loves them was a favorite quote of the shipping tycoon Commodore Jonas McElroy and is the motto of McElroy University, a world-renowned “top 20” private research institution. Founded in 1855 as a Catholic liberal arts college and re-established as a research university by the Commodore in 1891, McElroy is a highly decentralized institution originally modeled on Oxford where each college had its own endowment and was responsible for its own administrative and academic needs. Over the years, the colleges moved away from the traditional college model and toward subject areas. The transition to subject area colleges is now complete with the recent addition of the newly merged College of Humanities, Arts & Social Sciences (formerly Alexandria, Guerton and Von Roche Colleges). As one might expect, the repercussions of the merger are still being felt all across the institution, most significantly among the alumni and students of the three former colleges. McElroy is a faculty-run institution and as such, there’s a strong division between the academic and administrative sides of the university; the faculty direct the academic future, which by extension includes deciding the university’s operating budget, whereas the president and trustees are expected to do everything they can to enable the academic needs of the faculty. Advancement of knowledge comes first, everything else, second.

FACTS

Founded: 1855 (Cardinal Newman College), re-established in 1891 as McElroy University

Classification: Private, Research University (Very High)

Motto: *Bec sige onsendað soðfaestra gehwam, hælo hyðe, ðam ðe hie lufað* (Old English)
Books send forth victory to each of the righteous and are a safe harbor to him who loves them

Student Enrollment: 13,000

Residential: 9,000

Commuter: 4,000

Associates/Bachelors: 6,000

Graduate/Professional: 7,000

Certificate/Other: 0

Colleges/Schools: 7

Alfred & Washington College (Naval Architecture, Transportation & Space Science)

Jackson College (Law)

Morgan College (Management & Business Administration)

Cardinal Newman College (Divinity)

Siemens College (Information & Library Sciences)

Horton College (Physical & Biological Sciences)

College of Humanities, Arts & Social Sciences

Athletic Team: Boatmen

School Color: Red

SCENARIO A: LANGUAGE CENTER

A year ago, the Task Force on Languages submitted its report on the future of language teaching and learning on campus. In the report there were a number of recommendations, but the largest was to reorganize and restructure the support of language programs. The recommendation stated that support should focus on activities that encourage small group interaction in collaborative settings with ready access to media resources, online tools, and other related technologies. In other words, the headset lab, cassette tape checkout model, and the support structure around the whole package was on the way out. In addition, the creation of original content that could be delivered anytime, anywhere should be central to the new academic program. Although anytime, anywhere implies no need for a venue, the task force believed that there is even more of a need for hub of related activity, the Language Center, but not as the venue to learn a language. Instead, it should be at the center of an immersive experience to learn a culture.

Wandering over to your favorite coffee shop Monday morning, you meet with the new Director of the Language Center to discuss the report and get your input on how the current space could be used after the reorganization. After listening to him describe the new direction for the Center, you quickly come to the conclusion that the design of the existing facility will hinder, rather than advance, the new model of language teaching. You point out that the area is largely “drywall and paint,” so one might want to think big and explore what’s possible if one were not constrained by the existing walls. In the course of conversation, you learn that the language faculty want:

- Spaces to support small tutorial groups of no more than six in a very comfortable and inviting environment (most language tutorials have shifted away from the current lab and to the campus coffee shops because the headsets and lecture classrooms don’t encourage natural conversation)
- Classroom lecture spaces for up to 18 people for Monday-Wednesday-Friday classes and smaller seminar spaces of no more than 12 on Tuesday-Thursday
- Media capabilities (video, audio, Web) in every collaboration and learning space including video conferencing in at least one room, if not more
- A number of development areas for faculty projects including studio space
- Office space for staff (including the director) that relates to the entire space as well as room for an audio/visual equipment and media lending operation
- Some lounge-like spaces for informal learning (including international TV broadcasts)
- An experimental space for trying “stuff” (whatever that means), and
- The whole space should act as one large conference center when needed (they believe there’s enough campus demand for conference space that they can rent out the Language Center to other groups on weekends, evenings, and summers to generate revenue to offset operating costs)

“Can you help us?” the director asks.

“Sure,” you reply.

“Great! I need to show something to the Dean by Friday.”

SCENARIO B: LACK OF COMPUTERS

Over lunch on Friday of last week, the Director of the Library, the Chief Information Officer, and the Dean of Student Services discussed the state of student computing on campus. Among the broad range of topics, four items stood out:

- Most students had laptops, but they didn't necessarily take them to class (too heavy, not enough battery life, theft, etc.), and with email, chat, and social networking sites becoming more and more popular, students wanted to be more connected than ever before
- The widespread adoption of the learning management system coupled with the growth in electronic reserves was driving more use of technology in the classroom, but also triggered the need for students to constantly check materials online
- Students were doing more group projects that incorporated digital media and other content into "mashed-up" packages that were both personal and academic in nature, and
- More faculty than not were adopting specialized off-the-shelf applications as integral parts of the learning experience

In short, the existing computer labs were overcrowded, not for word processing, but for online communication, group study and collaboration, digital media production, and specialized application use. By the end of lunch, the team decided something needed to be done.

Unfortunately for you, it is capital budget season and the deadline for submissions for the next fiscal year is rapidly approaching. The CIO has asked you and a few others to come together and develop an idea for a new space for students that would minimally address the four areas they discussed on Friday. The library has agreed to "donate" some space that will be freed up after the compact shelving project is complete, so the charge is to come up with a concept that will fit into the library's swing space. You learn of this today, Monday, and the deadline capital project proposals is on Friday. Anything is fair game at this point – the important thing is to put together a compelling proposal by the end of the week.

SCENARIO C: NEW STUDENT CENTER

It is early on Monday morning when you receive a phone call from the Associate Vice President for Planning who asks “do we *need* a computing lab on the far end of campus?”

“Sure, we’ve brought it up from time to time,” you swiftly respond.

“If a lab were over there,” she adds, “would it be possible include a couple of teaching spaces in it?”

“Depending on the space available, I don’t see why not...”

She breaks in, “if food were nearby, would that be a problem?”

“Maybe. It all really depends on the kind of food. People are better these days about food around computers, so it shouldn’t be too much of an issue.”

“And could the lab operate around the clock?”

At this stage, you realize this is not the typical space conversation. “Yes, depending on the operating budget, the design of the space, etc. Why do you...”

“Great!” she chimes in. “The President needs a concept for this new space for a trustees meeting at the end of the week. Can you put something together for me by Friday morning?”

“...ask?”

She informs you that the institution will be building a new large student center and as part of the building program, several senior administrators have suggested that a large computing laboratory with lots of workstations be incorporated into the design to serve the computing needs of students on that end of campus. If possible, the space should also:

- Mesh with the retail dining program (which you have no clue as to the nature or form of the dining model)
- Incorporate teaching spaces to help address the space needs of the Registrar
- Provide some space for “student center” activities (whatever that means)
- Act as a conference venue for community events, and
- Operate around the clock as a potential social destination for all students, not just ones who happen to have most of their courses on that end of campus.

You realize that “lots of workstations” isn’t the norm anymore and fitting the program elements into the space is going to be a serious challenge. Unfortunately, you don’t have time to debate the issue. You start contacting folks for an emergency planning meeting.

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