Practical Lessons from User-Experience Design for Spaces for Learning

Abstract

In the International Journal for Academic Development, Peter Jamieson (2003) reported that colleges, universities, and educational centers around the world are engaged in the construction and renovation of built and digital spaces to meet the growing demands of a population in search of education. As these spaces are built, educators, administrators, and student development professionals need a common language to discuss the qualities necessary for these spaces. This study seeks to further Jamieson’s (2003) claim by investigating the means whereby user-experience design principles can influence the design of spaces of learning. This study begins with two unrelated texts – Cooley’s (2000) model of human-centered systems from information design and Oblinger’s (2006) compilation of current practices in built space from education – and organizes a conceptual framework to define a common design language for educators and creators of educational spaces.

Problem Statement

User-experience design (UXD) offers communication and education scholars, practitioners, and student development teams a new lens through which space and instruction can be mutually considered. This study aims to advance the notion that assessment and research into the user-experience design can benefit the designs of spaces of learning. For those familiar with the field of information design, this study offers a translation of information design concepts to the practical construction of physical space. For those unfamiliar with the field, this study also offers a brief primer for the rationale of using UXD as a tool for integrated collaboration between academic developers, communication researchers, and practitioners in the fields of education, design, and architecture.

Many institutions are currently engaged in construction and/or renovation projects, laying the foundation for this practice of assessment, design, and experience creation, and several authors (AS&U, 2001; Dober, 1992; Oblinger, 2006) have chronicled some of these trends in built space. As these spaces continue to grow in number and prevalence, UXD is a theoretical tool that can bolster the quality of these designs and may provide educational researchers with a theoretical framework through which spaces of learning can be formally assessed, designed, and renovated or created.

This study begins with an introduction to the concept of UXD, theorizes a relationship between Cooley’s (2000) human-centered system design and the design of built space, and confirms this link through current examples of built educational space crafted for user-experience. From a methodological perspective, this study is a conceptual argument, framed alongside the guidelines established by Whetten (1989) for conceptual papers.

The shift from information design to UXD. Before theorizing the application of UXD to educational spaces, this study situates UXD in the historical grounding for the practice of information design. Albers and Mazur (2003) offers a historically situated view of information design: “The field of information design applies traditional and evolving design principles to the process of translating complex, unorganized, or unstructured data into valuable, meaningful information” (p. 23). Information designers tried to find the most effective way to organize
information so that it was the most accessible to the largest number of people. The power and focus was situated on the designers (both of classroom instruction and information) and their role in the one-way delivery of information. Information design finds its contemporary roots in innovators who pioneered new concepts for information presentation. One of the most influential sources of this innovation was in the genre of graphical design. In the late 1700s, William Playfair developed the first time-series charts (the most commonly designed and used chart in history), pie charts, bar charts, and other visual displays of information still in use today (Tufte, 1997). Florence Nightingale is credited as the first person to use visual display of statistics for the benefit of public policy when she reported on the medical crisis during the Crimean War to government officials in England (Albers & Mazur, 2003). Such practice is widespread today as good visual displays allow for the rapid transmission of complex information to a broad audience.

Other influences of information design include the fields of document design, public information documents, and wayfinding (Williams, 2007). Like graphical design, these types of design sought out new ways to transition data into information which could then be used to benefit viewers and aid in their creation of knowledge. Tufte (1997), Wurman (1997), and their contemporaries established the concept that the merger of artistic license with simplicity and efficiency could create information that is both usable and visually stunning.

Research in fields outside of information design in the 1990s complicated the view of information design. Much of this influence came through psychology. Goleman (2006) suggests that information was not the bottom line for intelligence. Rather, emotion and IQ must work together to produce the best results. Csikszentmihalyi (1990) suggests that the optimum state of experience occurred when the user could tune out everything else and be present within the design. The experience of flow is one that people might have if they were totally immersed in a book, movie, or, better yet, video game. These foci on affective response and experience aided information design theorists in the shift toward UXD.

Thus, recent scholarship in information design now incorporates the physical, emotional, and visceral responses of the user. Carliner (2001) argues for a new framework of technical communication that involves features of physical design, concepts of cognitive understanding, and issues of affective appeal. His demonstration in terms of technical communication signals a need for change in the design of information to match the changing media and a need for the consideration of the emotional impact of design on the user. Norman (2005) calls this emotional impact a visceral response: “We either feel good or bad, relaxed or tense. Emotions are judgmental and prepare the body accordingly” (p. 13). A gut reaction to a design occurs before the user can even consider whether or not to have the reaction. Furthermore, Jordan (2000) suggests that the user’s emotional response is crucial in understanding how information design functions. Functionality and usability must be combined with pleasure ability to create a clear picture of information design.

The shift from information design as document delivery to information design as user-experience design, is made paramount by Experience Design 1, in which Shedroff (2001) writes that “meaning resides only in the minds of the audience” (p. 60). Meaning equates with derived understanding from a cognitive, behavioral, and affective response. Shedroff (2001) argues that experience is necessary for the user. Experiences should attract users, engage them, and conclude in a meaningful way (p. 4). Likewise, Bolter and Gromala (2003) argue that design must not only deliver information, but it must also allow the user to engage with information experientially. Coates (2003) expands this to the study of built things suggesting that items (like
watches, cars, or teapots) must demonstrate “concinnity” (p. 30), the successful harmony of practical, ergonomic, and aesthetic design, to offer an experience to their users. By analogy, this is true for spaces of learning in the model of communication-as-transaction (Beebe, Beebe, & Ivy, 2004) in which the instructor and students become mutual collaborators in the learning process. As educators begin to consider the aesthetics, comfort, and interest of the user, they will also consider new factors of the classroom experience.

The affective response of the user (students and teachers) is already crucial to not only student perceptions of the instructor (Andersen, 1979; Sanders & Wiseman, 1990), but more importantly to an understanding of learning (Krathwohl, Bloom, & Masia, 1964; Mottet, Richmond & McCroskey, 2006; McArthur, 2008; Witt & Wheeless, 2001). Thus, aesthetics, comfort, and experience can be defined as factors influencing affective learning in the physical space of learning. The experience of the user is as much a part of the design as the content and, thus, the user must play a justified role in new conceptualizations of the spaces of learning. In this synectical framework, spaces of learning can be considered as sites which engage instructors and learners. Users’ experiences in these spaces are of vital importance when considering the design of these spaces and equipping the spaces of learning for student and instructor success.

**Theorizing UXD in the creation of spaces of learning.** Cooley (2000) critiques the “mechanistic paradigm of technological and societal development” (p. 64) suggesting that systems often favor an industrial approach rather than a human-centered one. He expands this conversation from information design to education by offering that education is too often focused on the product, not the process. This industrial-educational model favors teaching over learning, grades over knowledge, and diplomas over competence. Such an educational model, in Cooley’s (2000) assessment, is both unfortunate and ill-advised.

Rather, Cooley (2000) suggests that human-centered systems should contain nine specific elements:

1. Transcendence: The system challenges users to move beyond the boundaries of the system.
2. Engagement: The system sparks creativity and innovation.
3. Malleability: The system is flexible and adaptable to changes.
4. Purpose: The system fulfills the purpose for which it was designed.
5. Ownership: Users feel that they are a part of the design and upkeep of the system.
6. Panoramic: The system fits into a wider view of the community of systems.
7. Responsiveness: The system responds efficiently and adequately to user needs.
8. Inclusiveness: The system invites participation.
9. Coherence: The system is transparent.

Together, these nine elements frame Cooley’s criteria for a well-designed, human-centered system. This framework for understanding a system applies both to the communication which creates the system (function) but also the organizational and physical structure which houses that system.

Cooley’s (2000) concept of systems design provides a noteworthy framework for envisioning and assessing instructional space from a human-centered, UXD perspective. The concepts he suggests are directly related to the success of a built environment in achieving its purpose and facilitating the experience of the user. His concepts require that one envision the entirety of a space, not simply a single classroom or venue for campus meetings. As such, his concepts echo those of experience designers (Jordan, 2000; Norman, 2005; Shatroff, 2001) who
suggest that the initial contact with a product must drive attraction which leads to engagement. The design of space for the delivery and discovery of information (which is the foundation of the design of spaces of learning) should be of paramount importance to administrators, educators, and researchers alike. Using Cooley’s (2000) framework may lay a foundation for one appropriate means of envisioning spaces of learning from the perspective of its users.

**Realizing UXD in the spaces of learning.** This analysis moves beyond the theoretical to comment on current practice in the creation of these spaces. Institutions around the country and the world are shaping their designs based on current trends in spaces of learning, and these trends often have definitive pedagogical aims (Strange & Banning, 2001). Oblinger (2006) chronicles current trends in built space, not from a theoretical perspective, but rather through a series of observations of current practices in built space. Using varied examples from current practices in campus architecture, Oblinger (2006) defines the following seven emerging trends in design: (1) emphasizing learning, not teaching; (2) enabling social encounters; (3) designing learning complexes; (4) creating a service philosophy; (5) integrating technology; (6) allocating space for experimentation and innovation; and, (7) involving users. These seven trends point to the overarching drives whereby faculty, staff, librarians, and administrators are bringing together space, technology, and pedagogy to ensure learner engagement and success. Moreover, these trends overlap and intertwine with several of the theoretical components of a human-centered, user-centered system as defined by Cooley (2000).

The importance of these trends is paramount to this study. This study suggests that UXD can provide a lens through which these trends can be assessed. Thus, using Cooley’s (2000) framework, this study has created a paradigm for envisioning and assessing spaces of learning in an effort to continue current conversations about the role of human-centered, user-experience design in the creation of spaces of learning.

Table 1 depicts Cooley’s (2000) framework alongside (1) the applications of this framework for spaces of learning; and (2) some examples of current and possible practices which can be achieved in the construction of physical spaces of learning.

Table 1

*Paradigm for Envisioning Instructional Space through an Information Design Perspective*

<table>
<thead>
<tr>
<th>UXD Concept</th>
<th>Applications for Spaces of Learning</th>
<th>Examples of Current &amp; Possible Practices</th>
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| Transcendence | The space should be designed to facilitate interaction between faculty & students and among various disciplines. | · Locating offices near classrooms  
· Assigning diverse disciplines to the same space  
· Creating informal learning spaces close to the formal ones (cafes, corridors, etc.) |

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<th>UXD Concept</th>
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| Engagement  | The space should have areas devoted solely to experimentation and innovation. | · Designating accessible areas for individual and group work  
· Providing accessible materials to encourage creativity (whiteboards/computer software) |
| Malleability | The space should be modifiable to meet the needs of its variety of users. | · Investing in flexible furniture and technology  
· Guaranteeing ubiquitous wireless access to the Internet  
· Designing convertible spaces which can expand/contract |
| Purpose     | The space should be designed with learning (not teaching) in mind. | · Considering pedagogy-based assessment in the design phase of the building |
| Ownership   | The design phase should integrate the views of students, faculty, facilities management, and tech support; and/or the building should be accessible to each of these parties when needed and often. | · Forming user-councils to address practices and changes in the space  
· Allowing access to formal and informal spaces for all users at regular times |
| Panoramic   | The space should fit into the overall model of campus architecture. It should also allow pass-throughs to and from other buildings. | · Aligning the building with campus architecture  
· Supporting user-access  
· Demonstrating quality wayfinding practices |
| Responsiveness | The space should include in-house tech support and necessary student services. | · Locating information and technology support and students service in dedicated spaces within the building |
| Inclusiveness | The space should be comfortable, aesthetically-pleasing, and inviting. | · Assessing color, lighting, temperature, and comfort of the users of the space |
| Coherence   | The space should managed by a team of representatives, selected from each of its user constituencies, who are responsible for relaying information about the space to its users. | · Empowering user-councils to address changes in the space  
· Creating routes and channels for information delivery within and about the space. |
Specific examples from Oblinger (2006), as well as from campuses around the nation, speak to the usefulness of such a UXD framework in the assessment of spaces of learning. The list that follows is a sample of several spaces drawn heavily from Oblinger’s (2006) compilation of examples, but also including and the work of other practitioners as they relate to Cooley’s (2000) model. It is not intended to be a comprehensive list, but rather a beginning point for the launch of research and discussion into each one of these applications.

1. **Transcendence.** Transcendence refers to the system’s ability to challenge its users to move beyond the boundaries of the system, to blur the channels of communication and encourage communication across typical departmental boundaries. From a built space perspective, this might be evidenced by the dispersal of faculty offices amongst formal classroom spaces and by creating informal learning spaces for social encounters (Oblinger, 2006). In *Architectural Record*, Kolleny (2003) made a note of this emerging trend and gave examples of several spaces which were created to inspire social encounters. For Kolleny (2003), and for Oblinger (2006), these types of social encounters allowed students to meet with other students, faculty to meet with students, and students and faculty to interact together in informal settings.

The Corridor Project at Indiana University-Purdue University Indianapolis (IUPUI Center for Teaching and Learning, 2005) is a successful example of this concept which turned the university’s hallways into informal learning environments. Through the use of seating areas, gathering places, and nodes in the passageways, this project encourages connections between all members of the campus community as they move through the space. Beyond hallways, designed informal gathering spaces like the Steam Café at Massachusetts Institute of Technology (2005) serve as more than food-service facilities. Steam Café is a “spatial experiment, both physical and virtual, in ‘open source’ problem solving, bringing people together around an ongoing design challenge: creating food and space that inspires and meets the needs of our community” (para. 2). These two unique design concepts illustrate the possibility of re-imagining spaces from the perspective of transcendence.

2. **Engagement.** Engagement represents the system’s ability to spark creativity and innovation. Current practices in this area include designating areas for group work and providing accessible materials to encourage creativity. The GroupSpaces Project at Stanford University was an effort to provide small hubs across campus which allowed for group work to occur (Oblinger, 2006). These spaces are equipped with multi-user platforms so that three to six individuals can all access the same document digitally at the same time. The sharing of ownership of these documents is essential to productive group work in a digital workplace.

The trend toward providing spaces for experimentation and innovation is a tricky one. It requires that schools devote monetary support and dedicated physical space to experimentation – space that is not available for class meetings and frequently accessible to students and faculty. These spaces also allow for multiple disciplines to come together to stimulate creativity. This type of space is used in industry for brainstorming sessions. Microsoft’s MEDX lab is devoted to understanding and conceptualizing mobile communication equipment. The users of this space (who are anthropologists, technologists, mobile phone users, designers, etc.) enter for the sole purpose of coming up with new ideas and collaborating upon them (Acohido, 2007). On university campuses, there are several examples of this kind of dedicated facility as compiled by
Oblinger (2006). The Mix Lab at Denison University was transformed from an obsolete dining facility into a single interdisciplinary computing center for fine arts. Majors and faculty from across the fine art disciplines use the space simultaneously to encourage, motivate, and collaborate. SCALE-UP at North Carolina State is a large, open area devoted to re-imagining large lectures as sessions requiring small group, collaborative work. Teachers and graduate assistants float from group to group to engage in teaching. The entire facility from walls to doors is covered in white boards to encourage experimentation and innovation.

However, the provision of spaces for experimentation and innovation does not have to be a dramatic expense. The community art project at Queens University of Charlotte (2009a) offers a section of wall-space in a main thoroughfare for the purpose of engaging users in a weekly visual rhetoric experiment. Participants write and draw on a white board that encourages passers-by to pause, reflect, and engage in the space. On both large and small scales, these examples embody the application of engagement.

3. **Malleability.** Malleability is the tendency of a system to be both flexible and adaptable to change. Some theorists and architects are suggesting that one of the best ways to promote learning rather than teaching is through the use of a combination of formal and informal learning spaces and the integration of flexible furniture into the classroom. Venezky (2004) suggests that such changes will allow educational space to enhance the collaborative nature of the Vygotsky (1978) model of education over the skill and drill models based on the learning theories of Piaget (1970). In 1998, the American School and University Magazine reported that the flexible learning space was one of the top 10 design ideas for the 21st century. Monahan (2002) defined the flexibility of spaces using five categories: versatility (the space can be used for multiple purposes); convertibility (the space can be easily transitioned for multiple purposes); scalability (the space can expand and contract); fluidity (the space allows for the flow of people, sound, and light); and modifiability (the space invites constant, active manipulation). Spaces that are created to be flexible inspire collaborative learning processes by allowing students and teachers to work together in groups, offering opportunities for using spaces for functions other than formal learning; and providing accessibility for learning in a variety of ways.

Examples of practice from the field include the classrooms at Estrella Mountain Community College, known for their radical flexibility (Oblinger, 2006). Large spaces are divided by zigzag whiteboard walls on casters that can be reconfigured for various learning opportunities of all sizes. This type of set-up allows the space to achieve Monahan’s (2002) rare category of modifiability because the space incorporates all four of the other features and is so extraordinarily flexible. At Clemson University, the Class of 1941 Studio for Student Communication offers flexibility of the space’s furnishings and equipment and is commonly used for meetings, classes, receptions, events, and tutoring (Billings, Fishman, Neal, Ramirez, & Yancey, in press).

4. **Purpose.** The concept of purpose suggests that the system fulfills the purpose for which it was designed. This concept could be addressed through pedagogy-based assessment of spaces. Theorists in instructional communication and education have chronicled a shift in pedagogy reflecting the need to assess educational spaces as
spaces of learning rather than spaces for teaching (Beebe, Beebe, & Ivy, 2004; Jamieson, 2003; McArthur, 2008). Thereby, spaces can be designed to meet pedagogical aims and purpose. Oblinger (2006) offers that these buildings can and should be one-stop shops for students and faculty. The appeal of taking classes, meeting professors, dining, socializing, and studying without exiting a building is the appeal of building learning complexes. Examples of these learning complexes currently in use include the Smeal College of Business at Penn State which boasts a 4-story atrium entry point (Oblinger, 2006). As users climb through this atrium, they can peer into cafés, classrooms, computer labs, and offices through the glass structures of the interior. This complex is a one-stop shop for students of the college of business including dining and a mailroom. The visibility in and through this space provides transparent system for learning designed with a purpose in mind.

5. Ownership. Ownership refers to a perception of the users: the feeling that they are a part of the design and upkeep of the system. Users might be identified as students, faculty, technology support staff, administrators, custodial staff, and anyone else who would enter the space. Oblinger (2006) verifies the trend toward involving users in the design phase and in the management of the learning space: The Sir John Cass School of Business at City of London University involved 13 different user groups in the design phase of the study. The user groups designed the building, its learning spaces, the artifacts within the center, and the flow of the space. The result is a unified, multi-functional, accessible, and beautiful building which serves its users and encourages active participation from all stakeholders.

6. Panoramic. Panoramic refers to the system’s fit into a wider view of the community of systems. In the case of university campuses, a panoramic view would incorporate the alignment of a space with the pervading campus architecture, the practices of quality wayfinding, and the support of user-access. The Saltire Centre at Scotland’s Glasgow Caldonian University houses the university library, lounges, formal and informal learning spaces, and spaces designated for different purposes. One of the centre’s strong suits is wayfinding. The maps of the centre are coded with icons indicating appropriate spaces for eating, socializing, “quieter areas,” cell-phone friendly areas, and dedicated spaces. This centre is a highly technologized and functional, and since its opening in 2006, it has become a hub of activity for the campus (Glasgow Caldonian University, 2007).

Torgersen Hall at Virginia Tech and the Student Learning Center at the University of Georgia are excellent examples of complexes built both with technological prowess and an eye for campus architecture. Torgersen Hall at Virginia Tech is built of Virginia Tech’s signature grey stone and the connecting bridge from the hall to the university library spans the main entryway of campus. It is architecturally beautiful and extremely user-conscious (Oblinger, 2006). The Student Learning Center at the University of Georgia flanks the campus’ famous football stadium. Matching the other Georgian architecture of the campus, the red-bricked, columned structure is both formidable and welcoming, and it is designed as a center for student needs.
7. **Responsiveness.** Responsiveness refers to the system’s ability to respond efficiently and adequately to user needs. For built and virtual campus environments, responsiveness comes in the forms of information and technology support. Oblinger (2006) identifies this trend as a process of technology integration. Technology integration has perhaps been one of the better documented trends in educational development. People across institutions have offered advice on the best ways to integrate technology into instruction. Aiken and Hawley (1995) offer a computer classroom at Ole Miss as the largest computer-based classroom in the nation at the time. It had 55 hard-wired computers in a lecture hall. With changes in technology, perceptions of integrated technology have changed from this model of computer classroom to spaces which have ubiquitous wireless access, discipline-specific technologies, and innovative approaches to computer-based learning.

Studies of integrated technology include a survey promoted by Intel Corporation (2005) which assessed the wireless accessibility of college and university campuses. Campuses were rated on the percentage of the campus on which wireless Internet access was available. This included indoor and outdoor areas. As a result of their survey and other agenda setting devices, campuses continue to make wireless access as ubiquitous as possible. Some examples of this trend in practice include the Knight-Crane Convergence Lab at Queens University of Charlotte (2009b) which provides students with access to multiple print, broadcast, and digital media platforms. In addition, the university provides dedicated staff for the oversight of the space. Hamilton College’s Science Center provides students and faculty in the science departments with discipline-specific laboratories equipped with technology. A microscopy lab allows for group collaboration, touch screen technology, and display of the view of specimens from the microscope to plasma screens in the facility (Oblinger, 2006).

8. **Inclusiveness.** Inclusiveness refers to the system’s ability to invite participation from its users. In an educational setting, this concept requires the consideration of color, lighting, temperature, artifacts, and user comfort. Several media outlets suggested this change (Nair & Fielding, 2007; Read, 2006) and researchers have been studying these issues. Carter-Ching, Levin, and Parisi (2004) studied the artifacts of the classroom including concrete carriers, concrete conveyors, physical and virtual artifacts, texts, and inscriptions to assess the integration of a variety of items into the college classroom. Welch (2005) assessed classrooms based on topoi she defined as lighting, color and texture of surfaces, budgetary support, and others to create a standard for understanding the physical design of the technologized classroom. McArthur (2008) assessed the comfort of users in classrooms as a correlate of affective learning and teacher behavior. These studies lay a foundation for the continuation of research into the inclusiveness of spaces of learning.

9. **Coherence.** Cooley’s (2000) concept of coherence reflects a transparent operational process within the system. Pedretti, Mayer-Smith, and Woodrow (2003) underscores the importance of this concept by indicating that all stakeholders should be considered in the design and maintenance of facilities. Williams (2002) addresses computing centers by indicating that administrator-technologist partnerships are not only important for these centers but also vital to their success. Understanding the
management and use of the centers is of paramount importance to the success of the center as a learning space. Examples of this trend from the field include spaces that have developed boards of stakeholders to address center issues. The Manuel Pacheco Learning Center at the University of Arizona enlists a management team which handles the decision-making and problem-solving aspects of the facility (Oblinger, 2006). This team is made up of representatives from user groups (students, faculty, staff, technologists, maintenance, budget, etc.) and handles the operations of the center. Coherence from this perspective seems similar to the previously mentioned concept of ownership. The latter, ownership, is a feeling in the minds of the users, whereas coherence reflects the process of transparent management and administration. The routes to the successful implementation of these two are often intertwined in the current discussion as feelings of ownership can be instilled by coherence.

The nine concepts in practice. As this list demonstrates, the building and renovating practices are currently underway and new spaces are being developed on campuses across the world. By bringing together Cooley’s (2000) theoretical approach to human-centered systems and Oblinger’s (2006) practitioner-based compilation of examples of built space, this categorization gives communicators, practitioners, and developers a common language for considering the rationale for these current trends as well as a common language for making claims for the necessity of these trends in the built designs of higher education.

Concluding Thoughts

Current trends in the design of spaces of learning (Oblinger, 2006) reflect the theoretical components of human-centered, user-centered design (Cooley, 2000). The trends and the theory are operating simultaneously as designs of innovative spaces of learning are being created. This study has aimed to offer UXD as a viable lens through which the spaces of learning can be understood, assessed, and strategically improved.

The advantage of this lens for educational spaces is the emphasis that it places on the users of a space. In 1969, psychologist and educational researcher Robert Sommer wrote, “Teachers are hindered by their insensitivity to and fatalistic acceptance of the classroom environment” (p. 119). The framework of UXD creates the opportunity for educators and students to have a voice and role in the creation of the spaces they inhabit as learners. Using a UXD framework reminds building designers to contemplate and consider the experiences that occur in the space, to incorporate users into the decision making, and to create opportunities for spaces that are convertible and flexible to meet user needs.

This lens has some notable limitations. First, spaces of learning are complex and difficult environments to assess. In a space of learning, the design of the built space is necessarily accompanied by the design of instructional communication as pedagogical practice. Both the container and the content impact the experience of the user and must be considered in any well-designed study. Secondly, UXD has only recently expanded its scope to include space and the complexities of proxemics and other uses of space. Attraction, wayfinding (navigating from place to place) and directional cues, wait-times, and engagement are flourishing area of study in the design of spaces; but study into the spaces of learning is remarkably limited. Each of Cooley’s (2000) concepts and Oblinger’s (2006) trends offer unique arenas for continued
research into the spaces of learning. This research certainly extends beyond spaces of learning to other built spaces that are concerned with the experience of users.

In addition, this theoretical lens may need to be refined and honed to address systems more specific than human-centered or user-centered. Perhaps this lens can be refined for educational systems, for organizational systems, and for entertainment and cultural systems and spaces. Future research will continue to break this theoretical into its specific arenas on the micro level and also allow this theoretical lens to be expanded on the macro level.

Nevertheless, user-experience design is a valuable tool for considering the built spaces of learning used in educational institutions everywhere. Its conception and framework provide a foundation for the assessment of the quality of student and instructor experience, and suggest that the spaces of learning contribute, alongside pedagogical practice, to successful learning. In sum, the UXD lens offers educational researchers the opportunity to assess, to design, and to refine built space so that the student experience can be enhanced by the spaces of learning.

References


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