The Case for a Learning Space Performance Rating System

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Learning spaces are mission-critical for colleges and universities. Yet institutions lack a commonly accepted set of standards for learning spaces, lack a way to measure how well they work through a third-party certification, and lack a substantive way to compare their spaces to peer and aspirant institutions. Inspired by the success of environmental building rating systems, this paper makes the case for a Learning Space Performance Rating System and describes the development of such as system – currently in its early stages – so as to enlist broader interest and support in the initiative.

Introduction

A Cautionary Tale and an Exemplary One

Imagine this scenario, which is unfortunately all too real. There is a classroom renovation project planned for the summer funded by your institution's annual budget to update its spaces. The time to plan the renovation is tight and there is pressure to go with traditional models – to build the same configuration of space, furniture, and technology that you've always had. Since you're doing what you've always done, you work with architects and technology consultants that work from these old models. Since the project must be done in time for fall semester, there is not much time to solicit input from faculty or students. There are a few faculty and learning space experts on campus who have ideas to make the spaces more learner-centered, more interactive, and more focused on creative problem-solving. But they are consulted too late in the process and their ideas ultimately lose out to the inertia of the status quo – the need to standardize, to mitigate risk, and to cut costs. And so, you renovate the classrooms, spending over a hundred thousand dollars to create spaces that look much like they always have, only maybe a bit cleaner, and have no sense of whether or not they are effective.

Compare this with the story of the University of Minnesota's Active Learning Classrooms. It begins with a faculty vision for teaching in a new way. The University selects two locations to create pilot classrooms for active learning with the support of academic leadership. They consult best-practices from similar SCALE-UP initiatives (North Carolina State University PER&D Group, 2011) at other campuses, and researchers at the University carefully monitor and evaluate the use of these pilot classrooms. The research findings are then shared broadly in journals and at conferences (Whiteside, Brooks, and Walker, 2010), and the short video of the spaces in action goes viral (University of Minnesota, 2011). Faculty support programs are put in place to aide more faculty in course redesign and technical support during use. As the benefits become clear, the university decides to take these pilots mainstream and builds ten Active Learning Classrooms ("ALC") (University of Minnesota, 2011) in an upcoming building, creating the largest concentration of such spaces in the U.S.

Creating a Learning Space Performance Rating System

How can colleges and universities move from the former scenario to the latter one? The EDUCAUSE Learning Initiative (ELI) and a core group of institutional representatives and learning space consultants and vendors are in the initial stages of creating a learning space performance rating system which will define a common, updatable standard for learning spaces that can be used to guide the design of new spaces, assess the design of existing spaces, and create a platform for comparison across institutions through a third-party certification. The initiative was originated by Shirley Dugdale (DEGW) and the core group of contributors includes: Malcolm Brown (ELI), Elliot Felix (brightspot strategy), Phil Long (University of Queensland), Rich Holeton (Stanford University), Joseph Cevetello (University of Southern California), Carole Myers (Emory University), Andrew Milne (Tidebreak), Bob Beichner (NC State University), and Linda Jorn (University of Wisconsin, Madison)

Drawing from the work of this group, this paper will make the case for a learning space rating system inspired by green building rating systems such as the U.S. Green

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Building Council's LEED system, the Australian Green Building Council's Green Star, and the BREEAM in wide use in the U.K. and throughout Europe. The paper will first describe the context and current issues surrounding the planning, construction, use, evaluation, and updating of learning space. Secondly, it will provide an overview of the goals of such a system, how it could work, how it is being developed, and what benefits are anticipated. In making this case, we aim to draw attention to current problems and begin engaging the broader learning space community in crafting a system that works for institutions, their designers, and 21st Century learners.

The Role and Scale of Learning Spaces on Campus Learning spaces remain a vital part of the campus, whether informal spaces like libraries, lounges, and cafes or formal spaces like classrooms. Classrooms – the initial focus of the rating system, with plans to address informal spaces in subsequent iterations – are not only numerous, with most campuses having dozens if not hundreds, they are also a sizable investment. One liberal arts institution spends $235 per student per year on classroom infrastructure (with a student population of about 1600) while a public research school with about 21,000 students spends $50 per student per year. Some universities invest well into the seven-figure range (personal communications, August 2011). Hence, these spaces represent both a significant investment of resources and are of key concern to both faculty and students.

But recent trends compel us to widen the scope of our thinking beyond the classroom. "Where" and "how" learning happens are shifting rapidly. The factors at work include:

• The growth of mobile computing. It began with the shift from desktop to laptop computers, and has continued with the rapid adoption of smart phones and tablets. The increased capability of the mobile devices now enable knowledge creation along with information consumption.

• The shift to network-based learning resources and tools. The information and resources that students need to access for learning is increasingly network-based. This, along with mobile computing, allows students to do their work anywhere and anytime. The classroom is now only one place among many.

• The fiscal constraints and increasing calls for accountability in higher education. Universities and colleges are being urged to adopt standards and measures to enable them to assess and improve the effectiveness of their teaching and learning practices.

• The shift to the constructivist learning paradigm. Research on how people learn (Bransford, Brown, and Cocking, 1999) as shown that learners are not passive receivers of knowledge. Knowledge is actively constructed by each learner. Active and collaborative learning engagements, whose goal is knowledge creation by the students (Honebein, 1996), is a far more effective model for learning.

These factors have required us to completely rethink the instructional model, and the term "learning spaces" represents a fundamental shift in our thinking (Brown and Lippincott, 2003). This shift brings with it two fundamental challenges:

• Rethinking the classroom. Traditionally, the classroom was seen as the locus where knowledge was transmitted from the instructor to the students. The challenge is to completely revise this model, designing classrooms that support, encourage, and enable active learning engagements.

• Designing informal learning spaces. Given the anywhere/anytime and collaborative nature of student work, institutions now have the opportunity to design learning spaces apart from the classroom, spaces in libraries, dorms, lounges, hallways, and even cafés – all well described by Jamieson (2009).

Hence, the exploration of new learning space designs is an opportunity as well as a challenge. It opens the door to new and innovative instructional designs along constructivist lines, since new designs of the physical space enable and encourage innovation in the design of the pedagogical "space." The new learning space designs are powerful encouragements of the cultural shifts needed to assist faculty to evolve their instructional techniques to take advantage of the new opportunities.

Current problems with planning, use, and evaluation of learning space

We have seen that learning spaces represent an enormous infrastructure for colleges and universities, serving hundreds of courses every term. These courses cover the full spectrum of academic disciplines, from chemistry to studio art, requiring a wide diversity of classroom types and technology. In our experience working with dozens of institutions, many of these learning spaces are not equipped to support the current and coming trends in teaching and learning, such as, mobility, collaboration, and active and problem-based learning (Joint Information Services Committee, 2006). Rarer still is the ability for institutions to provide support such as technology support, event programming, consultation, instructional design, and content development in a way that integrates space, technology, furniture, and services.

Though each campus is different, there are several physical issues with learning spaces that are quite common. The condition of spaces is often variable, ranging from good to poor. Many of these rooms were designed in the

late 19th and early 20th centuries, delivering poor environmental performance. In these times of fiscal austerity, it is a challenge to maintain them, addressing aging furniture, daily wear and tear, and outdated technology. This present a challenge as students often equate the condition of a learning space to the importance the institution places on the activities taking place inside of it, based on dozens of focus groups conducted by the authors. Additionally, rooms are often densely packed with tablet arm or fixed seating, which inhibits any teaching style other than lecturing. Lastly, the process used to plan, evaluate, and update spaces may not have considered future technological and pedagogical trends or may have lacked input from students, faculty, and staff who will use and support these spaces.

There are also many common support and operational problems with learning spaces, such as a lack of technology support and training for users, lack of standard equipment and interfaces across spaces, and insufficient scheduling information to match desired classroom activities with available spaces. The support implications for a learning space are often not considered during its planning and construction, resulting in configurations that make support harder or hindering the user experience. A lack of forward-thinking, regularly-refreshed standards increases the complexity and confusion of the users and the multiply the challenges of support. As a positive example, when Duke University created its "Link" project to provide innovative, versatile classrooms and informal learning spaces, they provided an on-site help desk with classroom support at a ratio of staff to rooms at five times their typical levels – 1:10 as compared to 1:47 (Gomes, Edward, "The Link at Duke University," PKAL Learning Spaces Collaboratory National Colloquium, PKAL Learning Spaces Collaboratory, Chantilly, VA, November 6, 2010).

The management and administration of learning spaces is also challenging. Often there is a lack of strategic direction to consistently inform design decisions in renovations and new construction. This direction might include: accurate inventories of spaces, learning outcomes that illustrate institutional values, vision, and goals, or a learning space master plan. This shortcoming may be coupled with a lack of tactical information such as design guidelines or standards. Lastly, most institutions do not have an established, systematic way to assess the performance of their space or to compare them with other institutions.

As a result of these issues, institutions are struggling with learning spaces that underperform or work in haphazard or inconsistent ways. These underperforming and miss a rare opportunity to increase economic, social, and environmental sustainability. Most importantly, compromised learning spaces fail to adequately support teaching and learning, the core mission of higher education.

The Goals of a Learning Space Rating System

A learning space rating system is needed to help address these issues, which are only going to become more severe over time as technological change hastens, budgets tighten, renovation is deferred, and new approaches to education are needed. Such a rating system will provide numerous benefits to institutions including:

- creating a common set of measurable criteria to guide the planning, design, and support of learning spaces
- encouraging the design of learning spaces that promote active learning and student engagement
- enabling institutions to standardize design and support across campus
- facilitating inter-institutional sharing of best practices in learning space design and comparison with peer institutions
- measuring institutional progress toward strategic active learning goals

Building on Successful Models

To achieve these goals we can look to the successful precedent of rating systems which evaluate the environmental sustainability of spaces, such as LEED, Green Star, and BREEAM. While these systems may differ in their details, at their core, they are each comprised of a set of design performance criteria that, when achieved (as proven by documentation submitted by institutions and their designers), grant the project a specified number of points according to the degree of achievement and the relative weighting or importance of the criterion or "credit." These criteria or credits are generally grouped into sections that represent different aspects of a project; for instance, the LEED system for new construction has categories in Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design, and Regional Priority. The adoption of LEED in the United States and now globally has undoubtedly raised awareness of improving environmental performance of buildings, with now over 1.5 billion square feet of space certified (US Green Building Council, 2011).

Defining Performance For Learning Spaces

In order to create a successful performance rating system for learning spaces and build on the successful precedents

of various environmental or "green building" systems, we must first define "performance." Several initiatives, such as the EDUCAUSE "Seeking Evidence of Impact" program (EDUCAUSE, 2011) and the Association of College Research Libraries "Value of Libraries" (ACRL, 2010) study endeavor to tie learning space with positive impact on learning outcomes. While we see the merit of this approach, we posit that measuring each space's impact on learning through a post-occupancy evaluation and longitudinal research is far too costly and time-consuming an approach to be viable for a rating system. It is also quite difficult to assert a definitive causal link between attributes within a space and improved learning outcomes. Thus, rather than measure actual performance, we plan for the system – at least initially – to measure potential performance, that is, to assess what the space enables students and faculty to do in it. So, the Learning Space Rating system will contain a series of design criteria that have been correlated with more effective learning and/or established best practices and we will evaluate how well those criteria have been met rather than how well the room is being used.

The Sections of a Learning Space Performance Rating System

The core of the system will be design criteria – organized in categories – that can be used both to inform the design of new and renovated spaces as well as to evaluate existing space. These criteria fall in two basic types: (1) those which concern a specific space or spaces: the potential activities and interactions occurring inside or nearby the space and it's configuration, equipment, and location; and (2) those which concern the institution's overall practices, such as how space is planned and is supported. In doing so, the rating system will address the full lifecycle of planning, design, construction, use, support, evaluation, and updating spaces. To address this full lifecycle, the system is comprised of six main sections in the current "alpha version" draft.

Spatial Characteristics

1. Enabled activities: the types of interactions which are enabled among participants (in the space and outside of it) and between participants and information.
2. Tools, Technology, and Furniture: the equipment within the space to facilitate the desired learning activities, including displays, capture systems, storage, and infrastructure.
3. Environmental Quality and Atmosphere: the atmosphere or environment for learning, including

sightlines and proportion; temperature, lighting, and acoustics, and daylight and view.

Institutional Characteristics

4. Integration with Campus Context: the connection of the space to adjacent areas and activities as well as alignment with institutional goals and planning documents.
5. Planning Process: the process by which the space was planned, including stakeholder engagement, the use of evidence-based design practices, and how the space is evaluated and findings communicated.
6. Support and Operations: the ways in which the space and its users are supported, including the orientation and training of users and staff, availability and applicability of on-call support, and the enabling of high utilization.

Understanding a Section of the Rating System

To understand how the certification standard works, let's take a closer look at one of these sections: Environmental Quality and Atmosphere (EQA). This section promotes human-centered design in the learning space, identifying the foundational element crucial to a space's success as a learning environment.

The EQA section defines a series of credits or points that a space can achieve if the design meets specific requirements. As an example, one such credit is given for good sight lines. The objective of the credit is to ensure that the design provides "adequate sight lines from seating to presenters, to course content and demonstrations, and to other seats to enable participants to have appropriate visual access to facilitate their learning." To earn the points for this credit, the design is required to show that each participant in the classroom is able to view the presented content, each other, and physical and virtual presenters. In this case, there are numerous options to obtain this credit. The options are specified to enable the designer to earn this credit across different types of classrooms. Other such credits are available for the room proportion, lighting, acoustics, and so on. Other sections follow a similar pattern of establishing credits and different ways to achieve them for the key aspects of design.

How the Rating System is Being Developed

As with the development of green building rating systems, the success of our system will depend on an inclusive process, with the contributors widening in concentric circles over time and involving experts from a wide variety of disciplines and leveraging existing standards whenever possible. Indeed, this process has

already started in that the concept for the system was discussed at the 2010 ELI Annual Meeting and received broad interest and then our progress report session at the 2010 EDUCAUSE Annual Conference received positive feedback on the approach and categories described above. Of course, like all standards, this one will need continual refinement.

Our small core team from institutions in higher education, the commercial sector and EDUCAUSE has now produced a very rough initial draft – an "alpha" draft which defines the kernel of the system. We have arranged with a very small number of schools to test this alpha standard, by touring a subset of their classrooms and seeing how the design of those existing rooms fare with the standard. The team will use the feedback from this effort to inform the next round of revisions. Once that next revision is complete, we plan to conduct a second round of testing. We envision this iterative process to continue, serving not only to refine the standard over time but also to expand its scope to encompass the wide variety of learning spaces at a college or university campus.

Once this initial testing is complete and we have a "beta" draft described, we envision widening the circle of contributors and evaluators; for example, perhaps by convening a series of working groups on each section or coordinating a structured testing of the "beta" version across a range institutions by scale, type, and geography. This diversity of expertise and participation reflects the complexity of the learning space, where just some of the issues include technology selection and its support (both in the sense of maintenance as well as supporting faculty and students), furnishings, architectural design, acoustic and video standards, and others.

How the Rating System Could Work

In this process, our initial thinking about how the rating system could work has been influenced by the successful precedent of green building rating systems and our approach to measuring the potential performance of a learning space, as described above. For the standard to deliver on its full potential, there will need to be a governing body in place, one that (1) has responsibility for the continual revisions and updating of the standards as well as marketing, outreach, and education, and (2) certifies the individual designs against the standard.

We envision a rating or certification process in which a school or its hired designers submits an application for certification. Their application will contain documentation to prove whether or not the performance requirements have been met – and to what degree. An expert, likely within or consulting with the governing body, will evaluate the design, deciding which criteria it meets. Credits will be weighted according to their relative importance or impact. This will generate an overall score, in points, that will place the design at a level or grade, such as excellent, good, standard/sufficient, or perhaps in homage to the academic context, offer grades such as "A" "B" "C" and so on. Spaces would then get re-certified over time to reflect changes in technology and patterns of use. As the system is used and refined over time, this rating process of a third-party review of documentation could be augmented to include post-occupancy analysis, to be linked to accreditation, or even include the application for additional credits based on updates to a space or its support services.

Learning spaces are mission-critical for colleges and universities and represent a significant investment in space, technology, furniture, and time. A way to evaluate and improve space performance is urgently needed. The proposed rating system will answer this call by proving a commonly accepted set of standards for learning spaces, a way to measure space performance through a third-party certification, and a substantive way to compare their spaces to peer and aspirant institutions. Once this initial concept is off the ground, it will be an opportunity for the community of learning space professionals to come together to further develop, use, promote, and refine the system over time – improving not only our spaces but our community of practice.

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