Designing Learning Spaces in Management Education

Abstract

This paper focuses on recent conceptualizations of learning space design in management education. The external architecture of new buildings appears to garner much of the public attention. However, the real impact of new B-schools, in our opinion, is the centrality of internal learning space design.   Learning space literature and research argues that changed spaces affect behavior by interacting with learners. In essence, the spirit of learning and teaching are embodied in the thoughtful design of learning spaces. We examine learning space theory and research in relation to our own efforts for interior design in our new building.

Learning spaces embody the way in which colleges and universities conceptualize learning and teaching. We know that space itself can be a change agent: modifying spaces changes behavior particularly learning (JISC, 2006; Oblinger, 2006). The concept of learning spaces is not just semantic, a fancy way of saying "classroom" (Blackmore, Bateman, O'Mara, & Loughlin, 2011; Brown, 2006). Learning space design uses learning principles, environmental and social psychology, technology, etc. for the specific purpose of enhancing learning. Research suggests that built space can facilitate or inhibit student achievement (Blackmore et al., 2011). Learning space design recognizes both physical space and virtual space as essential components (Blackmore et al., 2011). College teaching has evolved to include more active learning strategies and use of instructional technology (Bonwell & Eison, 1991; Meyers & Jones, 1993; Prince, 2004; Stewart, Houghton, & Rogers, 2012; Sutherland & Bonwell, 1996) (see Table 1). Research also suggests that the physical design of learning spaces along with the entire building that contains those learning spaces can facilitate more effective student learning (Folkins, Friberg, & Cesarini, 2015; Lei, 2010; NCEF, 2015; Park & Choi, 2014).

Traditional classrooms were largely based on formal lectures that were used in medieval universities and preceded by the fine-tuning of preaching methods for centuries (Folkins et al., 2015; Haskins, 1923). Today, many college and university faculty members are using active learning strategies that facilitate the interaction between students and instructors (Meyers & Jones, 1993; Raelin & Coghlan, 2006; Sutherland & Bonwell, 1996). There is an emphasis on discovering and creating knowledge that flows from active participation in learning. This represents a more active approach to learning that is a central aspect of learning space design. We will consider how we used design principles to create learning spaces based on student and faculty needs, how we built flexible spaces into the plan, how we integrate information technology, and the connection of our building to reflect a connection to outdoor space.

Paradigm shift: Selected literature review

Literature and research on best practices in learning space design, teaching methods, instructional technology, and business school building design, provide many informative findings. A book by Ken Bain, founding director of the Center for Teaching Excellence at New York University, titled *What the Best College Teachers Do* examined excellent teaching of 63 college faculty members at two dozen institutions of higher education (Alstete, 2005; Bain, 2004). Bain found that outstanding teachers make high demands on students yet offer many ways to review and work during the term by learning from their mistakes. In addition, Bain reported that the best teachers create a natural, critical learning environment. They embed skills and information through assignments and authentic tasks that arouse

3

student curiosity, challenge students to rethink their assumptions, and examine their mental modes of reality.

Subsequent to his book on best teaching practices, Bain (who also founded and directed other major teaching and learning centers in addition to New York University at Northwestern University, Vanderbilt University, and Montclair State University) wrote another book titled *What the Best College Teachers Do* (Alstete, 2013; Bain, 2012). His findings reveal that deep learning goes beyond what is minimally expected for passing the course or getting a good grade. Effective faculty members should allow multiple opportunities to engage in higher order activities and encourage student collaboration. We believe that learning space design is a critical component of this.

University Business magazine published an article titled *Inside Look: Business Schools* that examined recent trends in facility upgrades (Williams & Ezarik, 2015). "The article states that business school buildings are "often a campus within a campus" and tend to be the envy of educators in other departments" (p. 24). A main point of the article is that a business school is more than just a collection of classroom and offices. It should be a venue for collaboration, study, group discussions, guest speakers, and developing a sense of community among students and faculty. Excellent examples are shown at Arizona State University's W. P. Carey School of Business, which has functional gathering space for students to collaborate, Denver's Daniels College of Business with a variety of learning spaces and student services, North Carolina's Wake Forest business school building that is livable and sizable, and Robert Morris at University of Pennsylvania that is dedicated to student

instruction and hands-on learning. These are superb examples of best practices in business school interior design to support, encourage, and enable effective teaching and learning models that are germane to our learning space design.

Another highly relevant article was published in AACSB's BizEd magazine titled *The B-School's New Home* states that "with their striking exteriors and state-of-the-art technology, today's new business school buildings may impress stakeholders. But students and faculty love them because they feel like home" (p. 30) (Shinn, 2005). This means that non-classroom casual, lounge space plays and important role as well. Our design of the building and the learning spaces within it should seek to create this type of environment, with a "living room of the School", manifested in flexible learning spaces, modern instructional technology, and a structure that conveys our present vision but that also keeps the future in mind.

Learning Space Design

Kolb and Kolb conceptualized learning spaces as the interaction of the individual and the environment expressed in Kurt Lewin's famous equation B=f(p,e), where B=behavior, p=person, and e=environment (Kolb & Kolb, 2005). They also discussed learning spaces in relation to learning styles but that goes beyond the scope of this discussion. Classroom design, in contrast to learning space design, was based on the environment with little regard for the learner. This model is based on how many seats can fit in a classroom, structured in a grid, that is a fixed space for lecturing passive students. This is consistent with the traditional teaching paradigm that emphasized memorization and recall (Table 1). Learning space design,

however, focuses on the person (the learner) and the environment.   The interaction of the learner and the learning environment was the driving force behind our design concepts. To that end, we examined learning theory, best practices in higher education, and the environmental and social psychological aspects of design to help inform our recommendations for redesigning our traditional classroom model. Learning should be the essential focus of learning space design (Oblinger, 2005) as opposed to other aspects of the environment. Following Oblinger we define learning spaces as "regularly scheduled, physical locations designed for face-to-face meetings of instructors and students…" (p. 15). The learning space should reflect learning and teaching goals, fit with the school's mission, integrate technology and library resources, and be flexible enough for non-class purposes. This paper shows how we used learning space design concepts to move from a [1]traditional classroom model to one that uses more flexible spaces to enhance active and social learning modes (Long & Holeton, 2009). We will show how we used benchmarking, assessed of our current use of space, and some of the things that we have learned in this process.

Benchmarking

External benchmarking. For this research, it is understand that our entire physical building needs to be entirely re-engineered and we needed outside information about best practices. Wheaton College learned how to integrate benchmarking with TQM and BPR efforts, and help bring about significant improvements, build staff skills, and begin a revolution in the way staff approach their work (Kempner, 1993). Wheaton sought to use TQM for customer focus and

staff involvement, BPR for rapid results, and benchmarking to ensure that both TQM and BPR address areas of greatest potential and to avoid repeating past mistakes. Edwin J. Merck, the vice president for finance and operations adds: "Benchmarking really gives more power to our TQM and BPR efforts. Continuous improvement could be pursued within our own environment exclusively, but benchmarking has helped us dovetail with other improvement processes at other places. It introduces ideas we might never thought of, and it keeps us more competitive" (p. 30) (Kempner, 1993).

Benchmarking is widely used in higher education (e.g., Alstete, 1996) and is especially appropriate because the findings are based on existing cases of best practices. Most colleges and universities seek guidance from external consultants, higher education faculty and students, and academic and business leaders to identify new perspectives that capitalize on emerging trends. The cross–functional approach, in this case the study of teaching methods, instructional technology, and interior building design (e.g., learning spaces), would be ideal to benchmark best practices of our direct competitors, as well as world-class universities (aspirants), and other organizations such as highly-successful corporate training facilities. In short, this information would help to inform our overall building and learning spaces within.

The design team identified five universities who had made design changes to be our primary benchmarking partners for analysis: Rutgers University, SUNY Old Westbury, Ross School at the University of Michigan, Siena College, and Sacred Heart University. The measures selected to be key performance indicators were: modern,

flexible learning spaces; student lounges; collaboration areas; small group breakout rooms; faculty office location; appealing interior design; dining area; trading floor; and classroom technology integration.   Our data collection was based on established and recognized guidelines from the Benchmarking Workbook (Karlof, 1995). Space limitations prohibit reviewing the large number of findings but, overall, we saw many areas appealing: flexible space designs, small meeting areas, seamless technology integration, trading floor placement, and building architecture.

An examination of the interior design of our comparison group shows that these business school buildings have more modern classroom designs, convenient student lounges for collaboration, up-to-date instructional technology, and generally are more appealing buildings and learning spaces than in older, "standardized" classroom designs.

Internal Benchmarking. Two surveys of student and faculty perceptions were constructed based on benchmarked surveys used at other business schools. The student surveys were administered by Benchmarking Committee members directly to students enrolled their current Fall 2015 on-campus courses. The faculty survey was conducted using an electronic online web-based system. Questions included areas such as the importance of classroom technology, the current experiences with technology in classrooms, and assessments of features for the new building (i.e., open space areas, seating options, classroom layout arrangements, and faculty office space).

From the student data, findings indicate that among the technology perceived to be of the most importance was presentation software and a podium

computer. A majority of the student participants indicated that they expect to have some element of technology in their classrooms. In addition, the majority of student participants indicated that they would like to see open space areas, as well as faculty offices, in the new building. Finally, the students most preferred the 2-seater table desks and curved semi-circle row style classroom layouts.

From the faculty perspective, of highest importance was presentation software, a podium computer, wireless integration as well as the availability of technological assistance when needed. The faculty felt that computers installed in the classroom, projection and a line of sight to the front of the room, windows, and video were among the most important classroom features. Like the student data, the faculty participants strongly preferred to have open space available for students, as well as faculty offices within the new building. In terms of classroom layouts, they preferred model was the single-level movable seat arrangements.

Finally, a faculty member wrote positive comments about "group seating style" (mainly the trapezoid group tables), as it seems to be very professional, collaborative, and include a social focus. The smart chairs seem good too, but it may be their novelty that is driving the perception results seen across a lot of studies. Using other colleges' case studies and surveys seems very beneficial. In sum, it does not appear to be that one particular method is the best, but rather that several are conducive for student learning. This may eventually spur discussion and future research about the ways that faculty members choose and get assigned classroom. Instead of being blindly given classrooms, faculty members should be able request certain ones. Regardless, it appeared that we could ask faculty their preferences

about this on the survey as well, and ideally even conduct a quick focus group with some students (and/or faculty), as other researchers have done. Another thing to address here is this college's increased use of videoconference courses, and how that might also affect design that other papers do not. Furthermore, having some type of lounge/study area beyond a trading floor room is crucial (as the BizEd 2005 piece shows). Obviously budget will play a huge factor here, since we cannot mimic large institutions such as Wake Forest that has vast meeting space areas, as identified in the "Flipped Classroom" (Kim, Kim, Khera, & Getman, 2014). This research is comprehensive and summarizes a lot of the ideas that are seen in the other papers. Therefore it is strongly believed that these matters should be highlighted in our discussions.

In summary, the research process used in this interior building and learning space design plan helped committee members to envision how our school could improve significantly by incorporating new teaching methods, instructional technology, and in planning new classroom and building designs. This endeavor would facilitate learning space design improvements relating to individual teaching activities and overall student learning. Also, by using this process, organizations can gain or maintain competitive advantages, which can lead to important paradigm shifts (Camp, 1992, 1995; Watson, 1992, 1993).

Current Use of Space

Our current use of space is quite traditional with minimum flexibility. All but two2 of the classrooms contain approximately 30 seats with a mix of individual desks and rooms with tables that seat three3 students each.[2] Group activities can

be accommodated in both types of rooms although this is somewhat clumsy in the rooms with tables. Groups in rooms with tables are formed based on propinquity that limits the range of social interactions since the tables are a structural barrier.

All classrooms contain a podium with a computer connected to a projection system (with a drop down screen) for presentations, videos, and web access. Business professors use most of the classrooms. Faculty members from other departments are assigned to our school as well. This does not appear to be an issue for business faculty.   All of the classrooms currently have chalkboards. We also have two computer labs and a trading floor. The trading floor has numerous workstations for student and faculty use. Wireless access is available throughout our facility for laptops, tables, smart phones, and other devices requiring internet access. The Wifi has recently been upgraded to increase easy access and speed. Two classrooms are equipped with videoconference technology.

Our school is 'cramped' with a minimum of informal spaces for students and faculty to gather, socialize, collaborate, etc. Food is available in vending machines but the selection is limited. We do have an integrated student services area to assist undergraduate and graduate business students. Administrative offices are also squeezed into a less than optimal space although the space functions fairly well.

What Have We Learned?

The importance of engaging in this process with students, faculty, administrators, our design team, our benchmarking partners, and our architects was instrumental in crystalizing our vision for our building and our learning spaces

within. It is fair to say that the design team drove the process making sure that we included all stakeholders and examined as much research as possible to inform our design choices. This was a demanding and, at times, frustrating endeavor. We tried to bring in as much evidence as possible to inform our design.

We selected universities for benchmarking purposes because of their commitment to creating more modern, state-of-the-art facilities. Table 3 shows the gaps that we identified based on our external benchmarking data. Our present building was designed in a different era, and, for a different purpose. At that time, maximizing classroom space was a major objective, not learning spaces, as defined in this paper. Other needs in our existing building were addressed on an *ad hoc* basis, such as adding technology and a trading floor. As such, these results are not surprising, yet we believe that, working with our design team and our architects, our new physical space will be a vast improvement (see Table 2). We have learned what others are doing, which is quite useful, but we realize that each institution has implemented designs that met their requirements at a particular point in time, objectives that cannot simply be mimicked in our building. Our design must meet our unique needs and requirements.

We are fully cognizant of the complexities in creating effective learning spaces that transcend the built environment. We have tried to incorporate as many of the suggestions from our students and faculty as possible. We have reviewed the relevant literature on effective learning space design. We have incorporated Oblinger (2006) recommendations: designing learning spaces around people; supporting multiple types of learning activities; enabling connections, inside and

out; accommodating information technology; considering comfort, safety and functionality; and incorporating institutional values.

At the same time we realize that our space, in itself, is a change agent. The built environment creates opportunities and constraints. From environmental psychology we know that environmental conditions can affect student learning. Conditions such as noise, temperature, air quality, ventilation, and lighting must be considered. These basic factors, while basic, are assumed to be present but our current facility falls quite short of the optimum. Environmental conditions are a necessary but insufficient factor that affects student learning.

Our space, however, will be brought to life by student-faculty interactions, by our learning objectives, by our culture and mission, by the spirit of our school and institution. We have our plan in place (see Figure 1) but at this point it is aspirational. It is architectural renderings. The full realization of our efforts will await completion of our design. Once we have our built space the real work of learning and teaching will commence.

Implementation and Assessment

The gap between design, implementation, and fully functional learning spaces is not well understood at this time (Blackmore et al., 2011). There is much more evidence for design of learning spaces than for implementation and function. We have rendered our best ideas to craft effective learning spaces based on examples, data, tours, research findings, etc. The implementation stage will need at least as much attention as the design stage: how will the implementation look and feel; were our space projections accurate; how does the space engage students and

faculty; is the technology integrated as seamlessly as planned; are the spaces as flexible and pliable as anticipated; how are the acoustics and soundproofing; and, will the HVAC be conducive to learning and teaching.

Blackmore et al. (2011) have argued: "Much of the design phase literature is aspirational: that is, it assumes or anticipates changes in teaching and learning will occur as a result of learning space design" (p. 10). We agree, however, we believe that aspiration in the design phase is a good thing. This has generated interest and excitement among all stakeholder groups. It will only be purely aspirational if we do not assess how the new learning spaces influence pedagogy and student learning. Our plan is to assess the impact of our new space over time. We anticipate an initial 'bump' that typically occurs because of the excitement and novelty of the new environment (Blackmore et al., 2011; Brown, 2006). The bigger question is acceptance of this new space by students and faculty beyond this initial period. Are changes in teaching and learning sustainable? We will do our best to assess this since there is very little research on implementation of new leaning spaces in collegiate level B-schools.

There is some evidence evaluating new learning spaces. A study at Bond University in Australia implemented a pod classroom design (the Pod Room) using learning space design principles (Wilson & Randall, 2012). The name 'Pod Room' refers to the fact that there were five student pods, a single Master pod, an informal breakout area, and whiteboards. Each 'pod' had computer technology as well. There are several interesting things to note from this study. It was informed by the university's emphasis on small group and individual learning using flexible spaces

with technology (i.e., mission). The study included professors and students from a number of disciplines including marketing (i.e., implications for B-schools).   The research was approved by the IRB (i.e., ethics in human subjects research). It is one of the very few studies actually assessing professor and student feedback on the impact of the Pod Room (i.e., new learning spaces).

The results of the Pod Room experiment were complex. The authors caution that this was a pilot study so it is hard to firm conclusions (Wilson & Randall, 2012). Nevertheless, we applaud this exciting effort to document the impact of a new learning space. Surveys and interviews were used to do the assessments. Student and professor feedback was generally good. Whether positive responses were associated with more learning could not be determined.   The study does include assessment questions and responses from students and faculty.   This study helps to inform our approach to assessing our new space.

Conclusion[3]

The design of learning spaces in our new building has been a major undertaking. We have the input of many stakeholders but particularly students and faculty. We have reviewed the learning space literature and completed in-person benchmarking studies with site visits.   Our findings have been reviewed and embraced by our architectural team. Now it is time to build the building and the new learning spaces. We understand that the work is just beginning despite the significant efforts already undertaken. Evaluation of our learning space effectiveness is our next challenge.

Institutions of higher education are discovering that they can no longer attempt to follow Ezra Cornell's vision to "found an institution where any person can find instruction in any study" (Veysey, 1965). Increasing competition, changing workforce needs, volatile economic conditions, the information technology revolution, and rapidly changing student needs require business schools to be unique, to innovate, and to provide state of the art learning spaces that meet faculty needs to engage in effective teaching and student needs for a place to learn, collaborate, and grow.

Our benchmarking findings suggest that faculty and students are seeking more self-sufficiency in the business school environment. For example, having the interior design be purposely structured as a self-contained, appealing learning spaces is essential. Also, providing a communal atmosphere with a food café, comfortable modern lounge seating, small group study areas, breakout rooms for course activities, media recording rooms, and, of course, strong information technology support. The new School of Business should be designed to optimally serve our students and faculty by providing the needed physical elements in an appealing comfortable modern community atmosphere that will attract and retain students. After all, a business school today is more than just a collection of classrooms, lounges, computer labs, and faculty offices; it is a home for a community of students and faculty dedicated business learning, research, service, and fulfillment.

Table 1. Differences in the Teaching and Learning Paradigms	
Traditional Paradigm "Teaching"	**Constructivist Paradigm "Learning"**
Memorization	Understanding
Recall	Discovery
One size fits all	Tailored; option rich
Talent via weeding out	Talent cultivated and sought out
Repetition	Transfer and construction
Acquisition of facts	Facts + conceptual framework
Isolated facts	Organized conceptual schemas
Transmission	Construction
Teacher = master and commander	Teacher = expert and mentor
Fixed roles	Mobile roles
Fixed classrooms	Mobile, convertible classrooms
Single location	Plurality of locations and space types
Summative assessment	Summative and formative assessment

(Wulsin Jr., 2013)

Table 2. Transition to New Business Building: Existing vs. Planned

	Existing	Planned
Learning type	Passive Memorization	Active Understanding
Classrooms	Fixed	Flexible
Informal space	Limited	Extensive
Technology	Added on	Seamless Integration
Large Spaces	Absent	At Least 2
Design Input	Architect	All Stakeholders
Security	Minimal	State of the Art
Acoustics	Noisy	Soundproof

Table 3. External benchmarking of B-schools (anonymized data)

Benchmarking Measure	Business School Comparator					
	Iona Business School					
Modern Smart Classrooms (not retro-fitted old rooms)	Old rooms, poor HVAC, added-on instructional technology, inadequate power	Up-to-date technology, student power stations, modern classroom	All smart classroom, three-year old building,	Modern state-of-the-art classrooms	Modern state-of-the-art classrooms	Modern state-of-the-art classrooms
Varied classroom types	No, except one	Yes	Two types, both flat classrooms, only difference is seats or tables	Yes	Yes	Yes
Student Lounge Collaboration Area	Archaic, old furniture,	Yes, very appealing	Yes, lounges on all three floors	Yes, very appealing	Yes	Yes
Small group breakout rooms	No	Yes	No	Yes	Yes	Yes
Faculty Offices in the Business Building	Some, but swing offices	Yes	Yes	Yes	Both	Yes
Appealing Interior Design	No	Yes	Yes	Yes	Yes	Yes
Dining/Food Service	Three vending machines	Café on 1st floor	Dunkin Donuts on first floor	Starbucks and Siegal Café 1st floor	No	Einstein Bros Bagels
Trading Floor	Yes	Yes, large and modern	No	Yes	Yes	Yes
Classroom computer labs	Three	Several	Several	Several	Yes	Yes

Figure 1. New building offers flexible learning spaces

New business building to offer flexible learning spaces

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Computer renderings of the new business school were displayed during the presentation by head architect, Mark Thaler.

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By Abigail Rapillo
News Editor

Iona revealed the early plans for the new business school on Monday.

The presentation displayed a "snapshot" of the building. The plans are about two-thirds completed, and the visuals displayed the projected floor plan for the new building.

The goal of the new space is to integrate the old Hagan Building into the new one that will be built up around it, and to open up the space and allow more natural light to come in, according to chief architect, Mark Thaler.

Thaler described his vision for the building as "transparent from the inside out" and wanted to create a versatile space within each classroom.

"We are creating a learning environment which is flexible, involves the latest tech and team based learning," Thaler said.

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