



By Wallace L. Harris, Ed.D.

Y MATTERS

The Perception of Academic Deans Regarding the Role of Facilities in Higher Education

This qualitative study explored the relationship of the facility-built environment to learning in higher education from the perspective of academic deans. The study sought to expand upon the 60 years of education research conducted in K-12 and higher education that linked characteristics of the facility-built environment to learning. Key issues identified by this study included the quantity and type of deferred maintenance, reduced budgets, and distance learning.

The findings of this study supported elements of constructivist learning theory, including inferences that learning and the facility-built environment were perceived to be interconnected and that this connection created meaning for the environment's occupants; that the facility-built environment shaped the learned experience for its occupants; and that synergistic transactions occur between the facility-built environment and the learner in higher education.

A literature review revealed more than 60 years of research on the facility-built environment and its impact on learning. Table 1 lists key researchers that have added to this body of research.

Table 1: Listing of K-12/Higher Education Variables and Researchers

Mediating Variable (Facility Environment)	Dependent Variable	Researcher
Thermal comfort	Teacher/student retention and satisfaction; occupant health; absenteeism; dropout rate; test scores	de Dear and Brager, 2002; Earthman, 2002; Uline and Tschannen-Moran, 2008; Veltri et al., 2006
Indoor air quality (IAQ)	Occupant health; absenteeism; dropout rate; test scores	Bosch, 2003; Buckley, Schneider and Shang, 2004; Schneider, 1995, 2002; Uline and Tschannen-Moran, 2008
Noise/acoustics	Teacher/Student retention and satisfaction	Bosch, 2003; Buckley et al., 2004; Earthman and Lemasters, 1998; Lyons, 1999; Schneider, 2002, 2003; Veltri et al., 2006
Lighting	Teacher/Student retention and satisfaction	Bosch, 2003; Duyar, 2010; Hill and Epps, 2009; Jago and Turner, 1999; Schneider, 2002; Veltri et al., 2006
Size	Test scores	Bosch, 2003; Duyar, 2010; Earthman, 2002; Earthman and Lemasters, 1998, 2011; Schneider, 2002; Veltri et al., 2006
Maintenance quality	Teacher/student retention and satisfaction	Earthman et al, 1995; Earthman and Lemasters, 2008, 2011
Facility age/ quality	Teacher/student retention and satisfaction; occupant health; absenteeism; dropout rate; test scores	Duran-Narucki, 2011; Earthman and Lemasters, 2011; Hill and Epps, 2009; Uline and Tschannen-Moran, 2008
Aesthetics	Teacher/student retention and satisfaction	Cash and Twiford, 2009; Duran-Narucki, 2011; Hill and Epps, 2009
Technology	Student satisfaction	Hill and Epps, 2009; Veltri et al., 2006

No hypothesis was put forth in this study. Instead, a qualitative (Q) statement/question was crafted in order to capture all of the “communication surrounding this research topic.” The Q statement for this study is displayed below:

What characteristics of the facility built environment do academic deans perceive as having the greatest impact on student learning in higher education?

The instrument for this study (Q sample) was a 32-item sample. The sample was sent out to 305 academic deans in Florida. Of the 305 potential participants, 43 participants completed the sample, which resulted in a 14 percent completion rate. A common method of factor rotation (Varimax) was used to manipulate the factors. Although methodologies share analytical tools commonly utilized in quantitative research studies to manipulate raw data, once data has been factored, the analysis and discussion in Q methodology is qualitative in nature and by design.

Accordingly, McKeown and Thomas (1988) argue that the findings put forth in a Q methodology study on matters of meaning and significance “are fundamentally self-referential, and with public data others are free to examine the factor arrays and arrive at their own independent conclusions, not over the quality of the data but over the significance and implications of the meanings.” A three-factor solution was selected due to statistical and practical reasons, yielding three distinct perspectives: Traditionalist, Modernist, and Abstractionist.

FINDINGS

Key findings identified by this study are:

- 1) participants within this study identified both abstract and concrete characteristic of the facility-built environment that were perceived to impact learning in higher education;
- 2) from the rankings, it appeared that this study’s participants failed to connect learning to sustainability;
- 3) the participants exhibited little desire to control environmental systems within learning space;
- 4) participants indicated that technology was considered a necessity for “digital natives” (students) to learn and considered it

essential to support current pedagogical trends;

5) participants indicated that size does matter in higher education learning space, in that it supports collaborative learning and allows for added flexibility;

6) participants appeared to express security in both abstract and concrete terms;

7) basic characteristics, prevalent in previous research, were found to be valued by all three perspectives; and

8) abstract characteristics of the facility-built environment that create individual meaning and convey purpose were also identified as key characteristics of the facility-built environment perceived to impact learning.

This study adds to a narrative found in the field of education stating that as pedagogies change, so do the space requirements in which learning occurs. There now seems to be a requirement for both educators and facilities administrators to recognize that learning space is complex, conveys meaning, requires flexibility, and requires digital enhancement to support current learning styles and emerging pedagogies. Simply put, learning space can no longer just be a structure with a roof and walls. Instead it has to compete with the digital learner's living room, the local coffee shop's décor, and the tranquility of a nature trail, for in this digital age, all now compete with the conventional brick-and-mortar learning space.

The data suggests that learning space transcends mere functionality. The three viewpoints expressed by the study's participants suggest that they share a genuine belief that the quality of space does matter in higher education. As Lackney asserts, "Many educators who work in school settings on a daily basis accept almost axiomatically that the physical setting of the school has an effect on the teaching and learning which takes place within a school." The study's findings also lend credence to a common theme identified in both K-12 and higher education literature recognizing that the environment created by facilities does impact learning ability.

A number of statements used in this study's instrument were designed to elicit perceptions of the facility-built environment that are not easily identifiable. As a result, the participants delved into more abstract and deeper meanings of the facility-built environment. Noticeably, these statements formed the focus upon which the Abstractionist perspective of the facility-built environment was identified and detailed. to be both a tool for

learning and as a common marketing strategy to entice students, faculty, and staff to higher education campuses.

Not so surprisingly, both the Traditionalist and Modernist saw that perception as having a benign impact on learning, and in some cases as negatively affecting learning by serving as a distraction.

Some participants within this study articulated or accepted abstract characteristics of the facility-built environment in higher education that were not emergent in K-12 research. In this study, characteristics did emerge that focused on amenities, occupant comfort or attributes, and security that conveyed concrete as well as abstract meaning and concepts. Notably, security as a characteristic of space emerged within this study in two distinct forms. One participant group, Traditionalist, articulated security as a physical status and another, Abstractionist, articulated the concept to be self-reflective as a perceived status or feeling of security.

Other participants saw space complexity in the form of specificity. Learning spaces such as labs and science buildings were spaces identified by participants as requiring unique systems and infrastructure to support specific learning activities.



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DISCUSSION

The significance of these findings and their implication for higher education stakeholders was that a positive perspective and other abstract characteristics of the facility-built environment cannot be totally dismissed as needed characteristics of space during the planning, design, and building of new facilities and learning spaces on higher education campuses. Likewise, the Abstractionist perspective appeared to be a minority opinion among study participants, and thus could be easily drowned out during the clamor and



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conversation that routinely takes place among stakeholders when planning new space. As a counterpoint, all stakeholders need to recognize that the Abstractionist position is important, but appears to be a minority opinion and therefore should not countermand proven, common-sense characteristics of the facility-built environment that were more strongly supported by the Traditionalist and Modernist perspectives in this study.

COMMON INFERENCES AMONG FACTORS

All three perspectives identified basic inferences that would call on the facility-built environment to meet basic expectations of its users. The basic expectations that were either inferred or directly identified by participants included cleanliness, occupant comfort, lack of clutter, safety and security, noise control, well-maintained building systems, and adequate space. The significance of these findings and their implication for higher education stakeholders is that the concrete characteristics of the facility-built environment are essential for learning in higher education. The basic necessities identified above were readily accepted by Traditionalist, Modernist, and Abstractionist participants as important to learning, but even more so, they recognized that these attributes formed the reason for the facility-built environment to exist in higher education.

NEED FOR FLEXIBILITY AND SIZE

Another key finding of this study was an understanding that learning space in higher education needs to be more dynamic and flexible in order to support emerging pedagogies. Pedagogical trends and preferences articulated by study participants appeared to reject fixed classroom seating and lecture halls because of the appearance of “sage-on-the-stage” instruction.

Instead, they showed a preference for collaborative learning spaces requiring comfortable and mobile furnishings, learning spaces with larger physical dimensions, and spaces supportive of interactive technologies.

The key implication of the findings above was the acknowledgment that the flexibility desired by study participants may be cost prohibitive. Accordingly, compromise among stakeholders may be required to address what appears to be a consensus among all three perspectives: namely, that there is a cost implication to build and renovate learning space that requires a greater space footprint. Yet dwindling budgets in higher education (GAO 12-179, 2012) continue to affect administrators’ ability to address deferred maintenance needs within existing space and respond to changes in education pedagogies. Therefore, there is an implicit requirement for stakeholders to balance wants and needs when planning to add space or to renovate existing space.

TECHNOLOGY AS A COMPONENT OF LEARNING

Another key finding in this study was the acceptance and requirement of technology enhancements within the facility-built environment. Specifically, technology as a component of learning appeared to have moved from a “want” to a “basic need” in higher education learning space. Finally, a study participant referred to students in higher education as “digital natives.”

This pronouncement was significant in that it identified a subject matter not found in the research literature and provided insight as to why technology was viewed by the participants as impacting learning in higher education. Explicitly, technology has become to higher education what water is to a fish. It is not a want—it is an absolute need. The study participants clearly saw technology as an important characteristic believed to impact learning. With this notion, it is evident that stakeholders in higher education need to look at technology under a new lens, a lens that requires collaboration at the onset of space planning to identify and determine technology needs; technology master planning at the institutional level to support planned growth; and the identification of a stable source of revenue to maintain technology systems.

IMPLICATIONS FOR STAKEHOLDERS

As this study reveals, there appears to be a large divergence between what deans profess as important goals and how those goals are viewed when compared to other initiatives within their academic institutions. The most striking instance identified by this study was the low ranking of sustainability as an important characteristic for learning by all three of this study’s perspectives. Furthermore, this study appears to indicate that no one design or building style or type will suffice to accommodate all

learning styles or offer enough flexibility to continually address changing pedagogies.


The implication previously listed was even more troubling for two specific reasons: the consistent decline in funding for higher education institutions since the 2008 economic downturn (Hurley et al., 2010) and the continued growth of deferred maintenance for higher education institutions.

CONCLUSION

This study used Q methodology to identify the subjective beliefs and opinions held by academic deans on the characteristics of the facility-built environment and their perceived impact on learning in higher education. Conceptually, this study showed that learning spaces within the facility-built environment were complex yet had basic requirements that were expanding in scope, function, amenities, and the required internal infrastructure to support continued changes.

This study added to the research on the impact of the facility-built environment on learning in higher education from the perspective of academic deans. Their individual and collective perspectives indicated that facets of the facility-built environment were important to learning—important not because variable x or y could be quantified, but more because the individual perspectives

of the academic dean were qualitatively expressed and evaluated.

Five key perspectives emerged from the evaluation that appeared to differ in context from similar variables or characteristics found in K-12 research: 1) technology in learning space and the learning environment was articulated as a basic requirement for learning; 2) safety was conveyed as both a physical presence and a self-awareness; 3) “size does matter” in the learning environment in the context of flexibility, storage, and individual personal space; 4) sustainability (“green”) was not considered a characteristic of the facility-built environment to positively impact learning; and 5) the maintenance and upkeep of the facility-built environment in higher education transcends the mere brick-and-mortar purpose of the facility to house learning activities, and was seen by many study participants as defining the value that an institution places on learning. 

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