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ABSTRACT

An Ohio State University project studying quality educational environments brought together experts from several fields from various countries to discuss issues and tour facilities in Europe and the United States. In addition, a survey of university staff, students, and faculty found that there is a strong relationship between school environment and learning. Also, physical environment is important in student choice of university. In addition to architecture and building design, quality of maintenance and care of grounds reflect an institution's outlook on learning. Classroom design should be flexible and stimulating and create a positive learning environment. Many factors in addition to architecture influence the learning environment, including inside and outside space, corridors, and interior design. Several fundamental principles should be considered in designing learning spaces: (1) nearly all learning involves use of the built environment; (2) the built environment is a teaching element; and (3) new structures should not be built if existing ones cannot be maintained properly. This project identified several school-design goals: unity and diversity, adaptability, exterior spaces, discipline-specific learning space, unique structures, informal learning space, individual study and meditation space, and school and learning discipline heritage.  
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## Quality Learning Environments

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Although I am particularly concerned with the learning environment at the college and university, that is higher education, it is clear that many of the principles which we constantly review in our planning and design also have application to the primary and secondary school. We too are interested in quality space, safe building materials, energy efficiency and conservation, air quality and quality of the total built environment. What I present, is a United States university perspective on the learning environment.

In 1986, The Ohio State University began a series of symposia which were titled, Preserving A Quality Environment for Learning. To our surprise at the time, little had been done in the United States to bring together into one forum the various disciplines which relate to the physical space in which learning takes place. Consequently, we invited architects, space and facility planners, higher education administrators, landscape architects and behavioral scientists from various countries to discuss issues and visit various university facilities in Scandinavia, Belgium, Holland, Germany, England and the United States. I would like to briefly discuss with you some of the findings and conclusions from these various symposia.

As part of our review process for accreditation, a committee

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composed of faculty, staff and students at The Ohio State University recently surveyed other faculty and students regarding their perceptions of the physical campus environment. A large majority of those, the users, who were surveyed believed there was a strong relationship between the environment created by buildings and grounds and the teaching and learning experience. We also determined that as part of their aesthetic perceptions, the sensitivity to the physical surroundings was often at a subconscious level. That is, there was a "feeling" associated with the campus, the building, or the improved outdoor space. In one case it was described by a faculty member who noted that; 'When simply entering upon the campus I could tell that something of importance was taking place.'

In addition, it was noted that there was a definite association between the quality of the physical environment and the work quality and satisfaction of the individual. A good academic setting could, in fact, provide a "psychic perk" and that the absence of a good physical environment would be noticed more than a good environment.

"Initial encounters with the institution and its people can have profound effects on subsequent levels of involvement and aspirations for intellectual achievements," writes Ernest Pascarella in a recent study report. We know, in fact, that students make a university selection in part based on the physical environment - both buildings and grounds.

All of us know that a freshly painted wall is not often

seemingly noticed nor is a well maintained landscaped space. On the other hand, however, a marked up and poorly maintained painted wall or a landscaped space with weeds is noticed by seemingly everyone.

There is, we can safely say, a strong but subtle relationship between physical space and the quality of academic life regardless if that experience is in mandatory schools or higher education facilities. "Unequivocally...when students are actively engaged in their classrooms...mastery of content and cognitive development are highest," comments Pascarella.

Quality of maintenance, obvious care about the facility or grounds, demonstrates the importance we place on not only the facility but what takes place there. For example, if the grounds include a sculpture, modern or of historic significance, but the repair to the area surrounding it is of poor quality or of a temporary makeshift style, does it not say something about what we think about that sculpture? About what it represents? Does it not say something about what we value in that sculpture and how it might impact the observer?

Even a sidewalk or wall with geometric symbols, philosophical phrases, or historic dates included in the texture surface, which is used to enter the school, "teaches." Chipped and deteriorated concrete in such a walk might convey a message which we do not desire to convey.

In like manner, a classroom should not be so designed as to retard learning but rather to foster it. It should not be

sterile or inflexible but rather be designed and constructed in such a way as to enable a variety of teaching techniques, possibly stimulate the senses by colors and textures, or contain features which reflect history, heritage, or culture. If part of the very purpose of education is to perpetuate the culture should not the physical environment in which it takes place also serve that purpose?

The 1990 publication of the Program on Educational Building of OECD reporting on the conclusions of a seminar conducted in Sweden in 1988, reflect this thought in the statement on Hidden Curriculum, "But much is learnt outside the formal curriculum. This incidental learning derives from many sources--and the influence of the physical environment of schools is one."

What is of particular importance is the fact that the concern for the learning space involves many disciplines -- it is not simply the design of the building by the architect; it includes the outside space, the entrance ways, the corridors, the entire design and furnishing and the small, but yet important, things which are hung on walls, where seating is placed, the signs which give notice or direction, and similar features. Each, in some way, communicates an idea, a message, an influence which is part of the education process. Although such "messages" occur in our entire physical environment, we must be particularly cognizant of them in our schools for here young minds are most influenced. In 1991 Ernest Pascarella and Patrick Perenzini helped academic planning with their major research report, How

College Affected Students which includes such concerns.

You will note, that I am always referring to the learning space - not the teaching space, not the administration space, not the communication space. All space in a school setting must have as an objective, the compliment to learning.

We might consider that there are a few fundamental principles which we should always keep in mind:

- Almost nothing occurs in a school without the use of the built environment - facilities or landscaped.
- The built environment is itself a teaching element.
- Don't build more if you can't properly take care of what you already have.

The physical environment, both the natural and the built, contribute to student learning and development, according to psychology professor James Banning. The actual features of the physical environment can impact complex behaviors, including the encouragement and discouragement of learning and development, he comments.

Students, it seems, prefer smaller scale spaces - nooks and crannies; small private spaces, properly designed, can meet both security and comfort needs of the individual. Color is essential to a quality environment and water, as we might suppose while sitting on a warm and quiet ocean beach, is associated with stillness and tranquility. Space away from the hustle and bustle of our everyday existence is important. A place to think -- to ponder -- to seriously consider what is going on in our daily

lives.

The ambience of a place, the feeling we get, rests in some measure on order. The logical movement of the individual through the space helps to provide security and comfort as the individual meets new challenges and participates in new events.

We need to consider the transactional relationship among students and the physical environment. The physical, chemical, biological and social which impacts students sensory modalities. Behavior is, we know, a function of the interaction of the individual with their environment no matter where or what the activity. We behave differently in school, church, the subway, or on a beach. Not only because of some type of expectation, which might have developed as a result of the physical space over time, but also because of what exists at the specific time. If it is a quiet environment we tend to be quiet, if noisy - we are noisy; if dirty or messy we often contribute to the mess - if clean we keep it clean; if majestic we stand in awe! Why were the great cathedrals built as they were? Certainly to reflect the majesty of God but also to provide for a dignified space, a place to be in awe.

There is much in the physical space which also provides non-verbal communication. Buildings, signs, and traffic patterns all communicate non-verbal messages. They not only give cues for specific behavior, they also give cues to social and attitudinal factors. A sense of well being, feelings of belonging, identity with and sense of place, and the sense of being valued by the

institution are all important non-verbal signals which must be considered in designing and maintaining the built environment.

Banning has written, "The physical environment of the campus user includes a variety of physical structures. For example, the 'pedestrian' of the campus environment encounters numerous buildings, walkways, signs and symbols. The signs and symbols range from signs giving simple informational messages to graffiti that communicates complex social attitudes."

Rooms can either promote or hinder learning. Most every teacher has experienced a class with lively debate that continues after the class session while in another the students fall asleep. (Of course, the monotone of the instructor is also a factor.) It is difficult to specifically identify the qualities of a good "teaching and learning" room; one that enhances the process which we identify as learning. One in which there is a "sense of well-being, in which easy interaction most frequently occurs," according to professor of architecture Terry Vaughan.

How might we now condense these thoughts, ideas, and concepts into some meaningful guidelines to be used as we design, plan, and construct a quality learning environment. We have set these as **our** goals: (Although these refer to our general campus environment they have, in most respects, application on a different scale to a compulsory school facility as well.)

- **Establish a harmonious balance of unity and diversity.**
  - ✓ Design each component first as an integral part of the campus (whole) and second as an individual

entity.

✓ Provide, within an overall campus unity, an architectural identity for each academic and administrative unit.

● **Provide for change.**

✓ Favor the planning and design of smaller buildings and additions that can conveniently accommodate a variety of needs.

✓ Design all buildings to be "complete" in stages.

● **Provide a network of exterior places and paths.**

✓ Use each construction and renovation to create new outdoor places and paths.

✓ Preserve existing open green spaces.

✓ Locate and design new campus components to complement and enhance the use of open space.

● **Serve as a learning tool.**

✓ Design components to incorporate aspects of the represented disciplines in the architectural and landscaped details.

✓ Locate and design programmed galleries and exhibition spaces to assure the greatest potential for learning by all members of the community.

● **Celebrate learning.**

✓ Give each learning space a unique characteristic that sets it apart from other spaces.

✓ Provide, in each learning space, at least one

feature that celebrates the importance of learning through architecture, ornament or furnishings.

- **Encourage informal learning.**
  - ✓ Provide informal gathering and learning spaces that can be used without disturbing scheduled classes.
  - ✓ Design corridors and pathways to assure the maximum potential for interdisciplinary chance meetings in locations which support such gatherings and discussions.
  - ✓ Design corridors and pathways to permit, where appropriate, observation or participation of on-going learning activities.
- **Provide spaces for study and meditation.**
  - ✓ Provide, within the design of facilities, places for individual study and meditation.
  - ✓ Provide such space, both interior and exterior, whenever possible.
- **Reflect the heritage of the disciplines.**
  - ✓ Incorporate in the design features elements that commemorate the contributions which each discipline and its distinguished scholars have made to society.
  - ✓ Include items which recognize local historical or cultural references.
- **Reflect the heritage of the school.**
  - ✓ Incorporate reminders of the history of the school, the community and outstanding graduates or students.

An example of some of these ideas has been effectively incorporated into the Cathedral of Learning at the University of Pittsburg. (Just the name of this building tells you something about the University of Pittsburg - an important message. The national heritage rooms program is a collection of active classrooms designed as an interpretation of historic school environments from various ethnic groups and nationalities. As you know, America is the product of generations of peoples from other lands, from different cultures, from different times.

The nationality rooms program was conceived during the great surge of European immigration to that part of Pennsylvania in the 1920's as a way to share and represent the heritage of these new members of the greater university community. It is intended to be a physical statement about the diversity of cultural heritage and learning. Classrooms represent, in their design and furnishings, examples of Scottish, German, Swedish, Russian, Israeli, Armenian and Ukrainian cultures. Their original design and funding is a cooperative effort between the University and members of the various ethnic communities in the area.

One more brief list to consider. Michael Owu, from the Massachusetts Institute of Technology, has written in the Spring 1992 issue of Planning for Higher Education:

Classroom design should be grouped into four categories:

- Function - The classroom must be able to function effectively for the type of instruction carried out.
- Focus - The room should focus the students attention

to the desired place.

- Flexibility - Since classrooms have multiple use they should be designed for occupant numbers, method of instruction and future technology.
- Aesthetics - Students should be able to enjoy their classroom encounters. Attractive classrooms lend dignity to the learning process and announce silently that the cultivation of the mind is a beautiful and dramatic activity. Attention to form, line, color, texture and variety is essential.

Our concern then is a **quality environment for learning**. In every action; planning, design, construction, and maintenance our concern in supporting education must be in quality -- providing the best possible physical space.

"Distinctive architecture beckons us within. Functional design and aesthetic detail enriches the inhabitants, joining individuals into a sense of community."