

Built Pedagogies & Technology Practices: Designing for Participatory Learning

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ABSTRACT

This proposal describes ongoing research on educational spaces designed for flexible and participatory uses. I analyze the concept of *flexibility* within the field of educational facility planning and propose criteria for designing educational spaces in conjunction with information technology. Given the premise that built environments enable and constrain certain modes of social action and interaction, educational structures embody curricula and values by design. I call these embodiments *built pedagogies*. My ongoing research probes user (student/teacher) appropriation of built technological pedagogies and the degree to which flexible spaces can be structured for participation.

Keywords

architecture, learning rhythms, schools, technology

Body

I. Flexible Properties

The concept of flexibility finds widespread use in architecture literature because it embodies the plasticity that it seeks to describe – one can readily adapt it to one's own purposes. This malleability makes the term valuable in communicating properties of space with multiple audiences (everyone has some conception of its meaning) yet simultaneously obscures the complexity of its signification. In order to assess what other analytic boundaries are being blurred (and to what effect) by the varied use of this term, I further subdivide flexibility into five properties of space: *fluidity*, *versatility*, *convertibility*, *scaleability*, and *modifiability*.

Fluidity represents the design of space for flows of individuals, sight, sound, and air. Open spaces lend themselves to fluidity, yet large open spaces can hinder fluidity if they seem oppressive in their expansiveness.

In these instances, well-placed screens in classrooms, for example, can increase a sense of intimacy while triggering curiosity for the space that flows around the screen. Such a space becomes more engaging and less overwhelming. Well-placed windows can also increase a sense of flow and connection between spaces.

Versatility indicates the property of space that allows for multiple uses. Cafeterias, auditoriums, and “multi-purpose rooms” signal one mode of versatility, but versatile spaces such as these run the risk of homogeneity. Since spaces contain valences for certain activities and flows, generic spaces without any overt indicators for specific use require extra effort, pedagogical or otherwise, to achieve the tone or rhythm of specific uses. Individuals must invest more energy to work within these spaces, because the spaces do little work on their own. For example, performing a play in a generic auditorium requires the investment of added decoration and props in addition to individual suspension of disbelief in order for that production to succeed.

Convertibility designates the ease of adapting educational space for new uses. Educators must often convert spaces to accommodate for changes in enrollment, curriculum, or pedagogy. Modern office buildings are commonly proffered as models of this type of convertible space. They possess a core with HVAC (heating, ventilating, and air-conditioning), electrical, and communication systems that is surrounded by a shell containing easily re-deployable flexible space for varied activity programs. Space designed for convertibility requires an imagination for future eventualities; it should possess a degree of modularity and open-endedness at a structural level – a design open to re-design by others.

Scaleability describes a property of space for expansion or contraction. For expansion, schools may require annexes and additions to meet the needs of increased enrollment or curricular alterations. Tightly coupled spaces (rooms, corridors, etc.) may utilize space efficiently in the short run but present costly obstacles for later growth. For contraction, as space needs decrease, schools should be able to temporarily convert buildings and rooms to other

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community or business purposes. For example, surplus school space can be leased out from year to year so that when space needs rise again, schools can re-convert buildings for educational programs.

The final flexible properties of space is modifiability. By modifiability in this context, I mean a spatial property of fluid convertibility: spaces that *invite* convertibility. Spaces that lend themselves to quick reconfiguration are comprised of mobile components such as walls, partitions, furniture, and equipment. Highly modifiable spaces invite imaginative experimentation to coordinate space and subject matter with the specific learning needs of different student populations. The design of such spaces requires much forethought, however. These spaces must take into account many structural dependencies such as ceiling configuration for lighting and air circulation, floor materials for ease of partition movement, and so on.

II. Findings: Learning Rhythms

Preliminary research findings indicate that as flexibility is translated into material/virtual hybrid spaces, the learning rhythms of these spaces change in ways that shift power in classrooms. The space-time compression property of information technology alters perceived and practiced time in unplanned ways. The first rhythm change is that of *legato*: traditional lecture format classes unadapted to network-based instruction drag, thereby pulling students into the escape of on-line games and communications. The second variation is *staccato*: students jump quickly from task to task, doing web-based homework, research, gaming, and communication while inside and outside physical classrooms. The third pulse is that of *syncopation*: students perform in multiple learning environments at once, participating “virtually” in one class while simultaneously engaging “physically” in another. This third rhythm of syncopated learning that shows the greatest promise for structuring hybrid-space flexibility around student engagement rather than escape.

Rhythm changes within emerging hybrid flexible spaces occur because of the space-time compression that information technology makes possible. In

research on the insertion of laptop computers into wired classrooms, the combination of permeable classroom boundaries with built pedagogical status hierarchies (lecture hall format classes, for example) led to the destabilization of power relations – students escaped through their laptops. In smaller classrooms with decentralized built pedagogies, unpredicted improvisations with laptops brought about student conversations with other class sections in different rooms. These syncopated rhythmical developments assisted collaborative learning around course topics. The construction of flexible hybrid spaces can take advantage of built pedagogical affordances for focused collaboration. To do so, the design of learning spaces must take into account how the space-time compression engendered by information technology affects learning rhythms. In other words, built pedagogies are never static. Instead they emerge relationally through rhythmical practices that occur within these spaces.

Conclusion

My current research applies these categories of flexibility to educational spaces utilizing information technologies. Since all technologies (virtual or otherwise) are embodied in some sense, I find it productive to extend these flexible categories of material properties and practices into virtual learning spaces. Material/virtual hybrid educational spaces must be read for their built pedagogical material structures and designed pedagogical virtual structures. Evaluating educational spaces on the flexible criteria of fluidity, versatility, convertibility, scaleability, and modifiability requires that one take into account how individuals interact with the material and technological environment to create meaning. The proposed learning rhythms of *legato*, *staccato*, and *syncopation* present a framework for analyzing such practices within hybrid spaces. Translating flexibility into built designs that encourage focused collaboration becomes a politically responsible act. It acknowledges the ways that built pedagogies constrain some learning practices and enable others, and then works to create spaces that catalyze empowerment through participation.