

HEALTHY BUILDINGS FOR THE FUTURE: HOW CAN WE ENSURE THAT DESIGNS OR ADAPTATIONS DELIVER SUSTAINABILITY PRINCIPLES AND CAN BE INTEGRATED INTO STUDIO BASED TEACHING?

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STUDIO BASED TEACHING

In current Architectural Education a Project Centre Design approach is followed in which sustainability, is only one of the many considerations taken into account in order to find a solution to the architectural problem

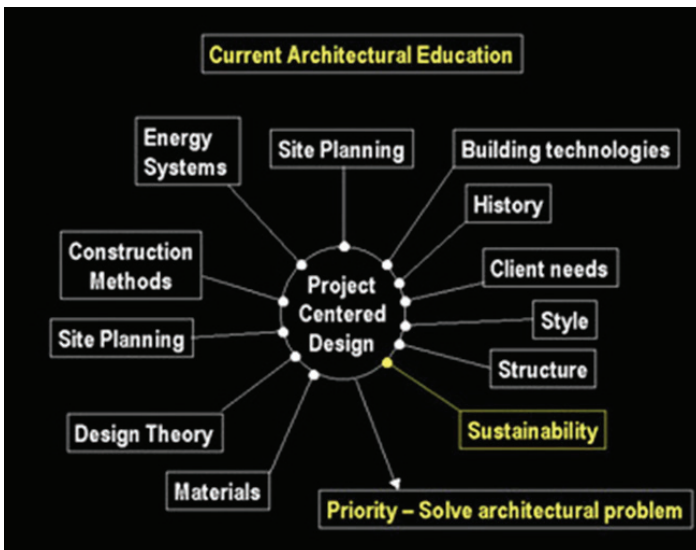


Figure 1. Current Architectural Education

A successful sustainable architecture studio based course will have to be a well balanced blend of established scientific theories and design principles in relation to the healthy buildings and environments; It should aim to raise the awareness and mould the practicing ethos of future design professionals.

The integrated studio teaching should allow students to consider the sustainable architecture design theories and principles and at

the same time raise their awareness of potential issues of human health in buildings.



Figure 2. The Sustainable Architecture Studio

Students should be given the opportunity to critically analyse current sustainable architecture and low energy design principles and technologies used in practice. They will be expected to become familiar with government legislation, codes (CoSH, SAP, SBEM) and voluntary standards (Passivhaus, BREEAM, LEED, Green Star, Perl) for sustainable design and use them to a set degree in their project work.

Their studies should not be solely centered on the design and technological approaches to enhance Building Performance but also Human Comfort, Occupant Health, Wellbeing and Satisfaction. In other words they will be asked to adopt a people centered design approach.

Studio based teaching should encourage students, to build knowledge, skills, understand, building occupant needs, and consider

the environmental impact of their design decisions. It should also teach them, how to undertake holistic sustainable design and construction analysis integrated within the building design process (for example following the RIBA plan of work stages) using Building Information Modeling and Building Simulation Tools.

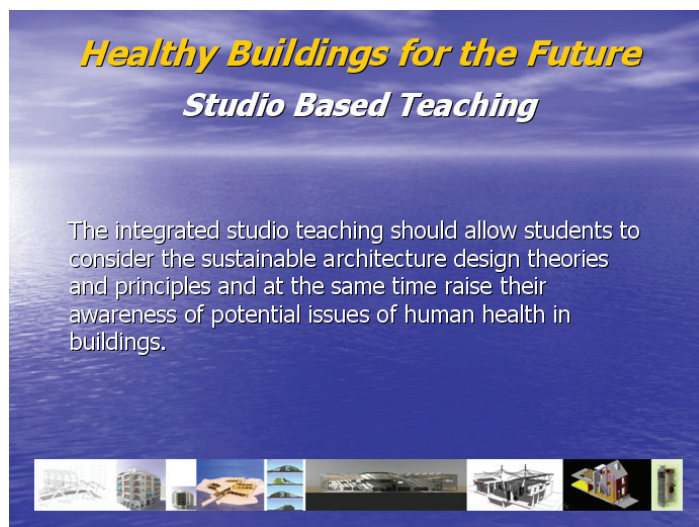


Figure 3. The aim of integrated studio teaching

Studio class students practice skills and techniques and learn new concepts while working in an environment that encourages: learning by doing, working together and seeking advice or assistance from mentors and tutors. The studio is often an environment similar to that which students will experience in the workplace. The traditional lecture theatre, tutorial room and laboratory environment is replaced by a model based around the development of collaborative learning, integrated curriculum and problem-based learning.

A studio classroom is where students work in groups and are responsible for their own learning. Studio classrooms are not all the same, but all share common elements. They involve longer, fewer, class sessions with focused, intense, student activity. Any disconnect between workshop or lab and lecture time is absent because lecture and workshop or lab are combined.

In fact, lectures are often de-emphasised and in some cases eliminated altogether. Instead, students work together to solve in-depth problems and answer questions, sometimes moving from one student or student group to another.

Studio Tutors serve as guides or mentors. The interactive classroom promotes holistic skills, including thinking, inquiry, creativity and reflection by students, frequently involving peer review and critiquing.

STUDIO HABITS OF MIND

In addition to two basic arenas of learning: teaching the art and science of architecture and teaching about the architectural world beyond the classroom there are eight other important kinds of general cognitive and attitudinal dispositions can be developed in an studio based sustainable architecture class.

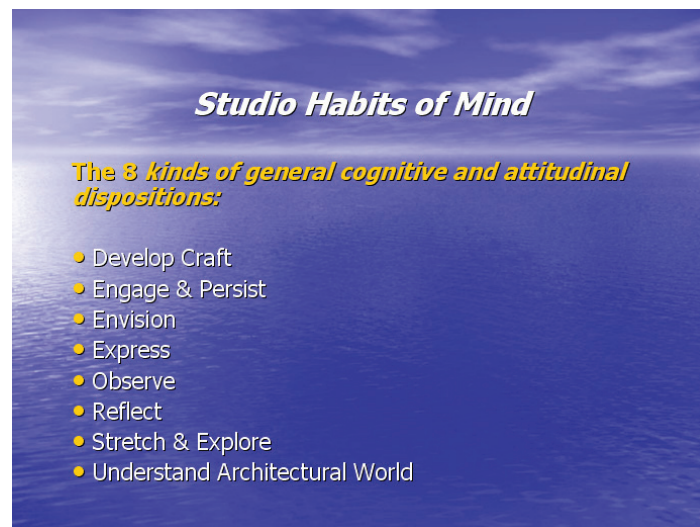


Figure 4. The 8 kinds of general cognitive and attitudinal dispositions (Develop Craft, Engage & Persist, Envision, Express, Observe, Reflect, Stretch & Explore and Understand Architectural World).

- Develop Craft: Learning to use tools, materials, architectural conventions and to care for tools, materials, and space.
- Engage & Persist: Learning to embrace problems of relevance within the architectural world and/or of personal importance, to develop focus and other mental states conducive to working and persevering at architectural tasks.
- Envision: Learning to picture mentally what cannot be directly observed and imagine possible next steps in progressing a project.
- Express: Learning to create works that convey an idea, a concept, a feeling, or a personal meaning.
- Observe: Learning to attend to architectural contexts more closely than ordinary “looking” requires, and thereby to see things that otherwise might not be seen.
- Reflect: Question and Explain: Learning to think and talk with others about an aspect of one’s work or working process.
- Evaluate: Learning to judge one’s own work and working process, and the works of others in relation to the standards of the field.
- Stretch & Explore: Learning to reach beyond one’s capacities, to explore playfully without a preconceived plan, and to embrace the opportunity to learn from mistakes and accidents.
- Understand Architectural World Domain: Learning about art history and current practice. Communities: Learning to interact as

an designer with other designers (i.e., in classrooms, in local architectural organizations, and across the architectural field) and within the broader society

STUDIO SOCIAL CLIMATE

Studio Tutors should design informal and sometimes more formal ways that students interact with them and one another to create a social climate that nurtures learning. As students progress with their projects, Studio Tutors observe and intervene. Such observation and responsive teaching is critical to student learning. Studio Tutors are also aware and thoughtful of students' needs for privacy at times to develop a relationship with materials, tools, and their own work.

By stepping back, Studio Tutors set an atmosphere of unobserved independence for the students, while remaining close enough to see what is going on and being ready to intervene with questions, suggestions, or demonstrations as the need and opportunity arise.

Studio Tutors also need to ensure that students feel safe and respected by each other. They need to create a climate where students are engaged with each other, collaborating and learning to participate in a community of design & building professionals.



Figure 5. The Three Studio Structures

STUDIO TEACHING FORMATS

Studio Tutors should organise space, time, and interactions in their classes by using variations on just three studio structures:

- Demonstration-Lectures
- Students-at-Work
- Critiques

These structures foster an apprentice-master-craftsman relationship between student and teacher creating an atmosphere in which students work as design professionals together with other design professionals (Studio Tutors and peers).

Studio Tutors vary and sequence these structures in a host of ways, depending on their goals and projects.

The most common way begins with a Demonstration-Lecture, followed by a Students-at-Work segment, and concludes with a Critique. Many times, however, these structures are ordered differently, last for varying lengths of time, and may repeat with a single class.

Demonstration-Lectures convey information, so they forecast whatever the assignment is meant to teach.

Students-at-Work structure emphasises the growth and development of individual students, because it keeps the making of architecture at the center of the learning experience and allows Studio Tutors to shift attention flexibly from student to student and to carefully observe students and evidence of their learning as they work.

Critiques support a dynamic flow of thinking among Studio Tutors and students that connects the intended learning in particular assignments with the ongoing enacted learning of individual students.

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