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School without Classrooms

Micro-weather Futures of Education Technology
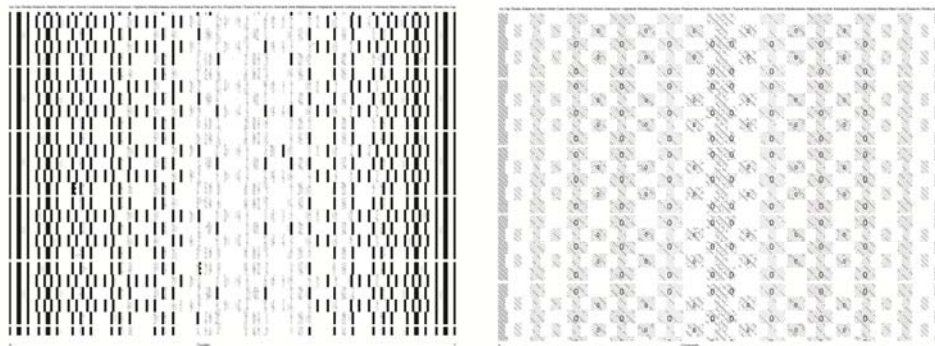
Weather in Climate- Corridors and Courtyards, MODU

"We have civilized and cultivated ourselves through the use of atmospheric modifications thanks to modern air-conditioning, but, on the other, employed atmospheric terrorism… But we have to take into account that the deepest ambition of the 20th century is the 'victory over the sun'"

- Peter Sloterdijk

Objective:

The studio will investigate two extreme scales of the environment, the local and immediate scale of weather and the global, or long term, scale of climate. While it is true that the basic difference between weather and climate is time-based—weather occurs over a one-week period at most, while climate is years, decades, or even millennia long— they have increasingly become differentiated in the granularity of their scale, or resolution. The emergence of micro-weather forecasting with mobile technologies has made it possible to know upcoming weather with more immediacy and at a higher resolution than previously possible. Using a micro-weather enabled smart phone, it could soon be possible to share information that it has started to rain in one neighborhood and when that rain cloud will pass to the next neighborhood. Micro-weather remaps the city as variable and differentiated urban atmospheres—each with its own temperature, humidity, pressure and wind levels.

The studio will explore the potentials of micro-weather and its potential to radically change how we experience weather in our cities and even within the interior environments of buildings, blurring the boundary between them. Paired with emerging technologies from Apple and Google that map indoor spaces (Indoor Survey and The Cartographer, respectively),

micro-weather technologies could provide weather information for indoor spaces. It would be possible to know the temperature and humidity of all the interior spaces of a city, from offices to restaurants to subway cars. The resulting "indoor city" recorded by millions of mobile weather stations has fascinating potentials for architects, planners, and engineers to re-conceptualize the relationship between the city, architecture and the environment.

Project Description:
The studio projects will experiment with the idea that architecture and weather can react to each other in atmospheric exchanges between hybridized active environments and meteorological conditions, made possible by high-resolution micro-weather networks that treat outdoor and indoor weathers as two sides of the same coin. Building organizations that are both physically and meteorologically differentiated, mediated, and adaptive will be investigated. These strategies will generate proposals for a "school without classrooms," in which technologies may enable a new model of education; more flexible, active, and adaptive than the traditional system—alternatively, the technology may also result in unintended consequences. This new school model will eliminate the traditional boundaries between classrooms as well as between outdoor play and indoor learning. Whether the result of the new school models are productive or negative, it is accepted that the static schedules and spaces of traditional primary schools are not sufficient to prepare students for a future that requires understanding multiple information sources, dynamic exchanges of opinion and independent "design thinking."

While it is suggested that students work in groups, individual work is also allowed in the studio. In both the studio as well as the students' design proposals, learning is no longer a passive act but a dynamic process based on interactivity, adaptability and technology.

Program:
The studio will design an EdTech, or Education Technology, primary (K-6) school. The "school without classrooms "will be organized around large, singular "studio" environments in which students interact freely while also participating in developing their own daily schedule. The schools will also include open, exterior spaces for outdoor learning, in which exchanges between indoor weather zones and outdoor weather conditions will be designed. The intersection of an interactive and adaptable EdTech school with a similarly differentiated and varied micro-weather environment will manifest into new architectural organizations.

The program of an EdTech "school without classrooms" will require students to think radically about form, organization, schedules and building infrastructure for the new school type. The studio will address the program through rethinking two spaces of traditional primary schools— the corridor and the courtyard. These typically bounded spaces, one interior and the other exterior, will be transformed to generate adaptive weather environments and interactive learning spaces.

Site:
The site for the studio will be in the Brooklyn Navy Yard of Brooklyn. The former navy yard is now home to numerous businesses in technology, fabrication and creative industries. This physical site will also offer three temporal sites of future climate scenarios. Students will choose one of three scenarios, which represent different future carbon emission pathways. These pathways, which are dependent on global efforts to reduce carbon emissions, will offer drastically different site conditions. The different site conditions will vary in their relationship to the waterfront as well as future weather. In other words, the students' selection of the temporal sites will inter-relate weather and climate in the design of a future "school without classrooms."

Schedule:

Project 01: Micro-weather and EdTech Research
(Review on February 8th; 2 weeks)
Research of micro-weather technologies and EdTech schools will occur simultaneously. The studio and "live research" will occur in the site's neighborhood. Using low-tech research methods as well as mobile technologies, the research will establish an argument towards the project site and its surroundings. This research must be iteratively explored for its potential in formulating a concept argument towards the "school without classrooms."

Project 02: Mid-review
(Mid-review on March 3rd, 3 weeks)
Each student will present at the mid-review the micro-weather and EdTech school research and the design proposal for a "school without classrooms." The proposals will be based on innovative strategies that reinvent the corridor and the courtyard. The proposals should clearly and precisely define the project's argument relative to both site and program.

Spring Break
(March 14th – 18th, 1 week)

Project 03A
(Pre-final review on April 18th, 5 weeks)

Project 03B
(Final review on April 27th, 1 week)

Studio References:

1. Abalos, Inaki and Herreros, Juan. "The Mechanically Regulated Environment and Its Structural Implications" in *Tower and Office: From Modernist Theory to Contemporary Practice*, 2005.
2. Edwards, Paul. *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*, 2010.
3. Cullen, Heidi. *The Weather of the Future*, 2011.
4. Khan, Salman. *The One World Schoolhouse: Education Reimagined*, 2013.
5. Najafi, Sina (ed). "Fluid Assets," "Utopia on Ice," "The Logistical Figure" in *Cabinet*, Issue 47.
6. Sloterdijk, Peter. *Terror from the Air* (Los Angeles: Semiotext(e), 2009).