Columbia University
Graduate School of Architecture, Planning and Preservation

Arch 4106 - Spring 2020

Michael Bell, Professor of Architecture GSAPP https://bit.ly/2nW6mCQ Amazon https://amzn.to/2tMjvEZ

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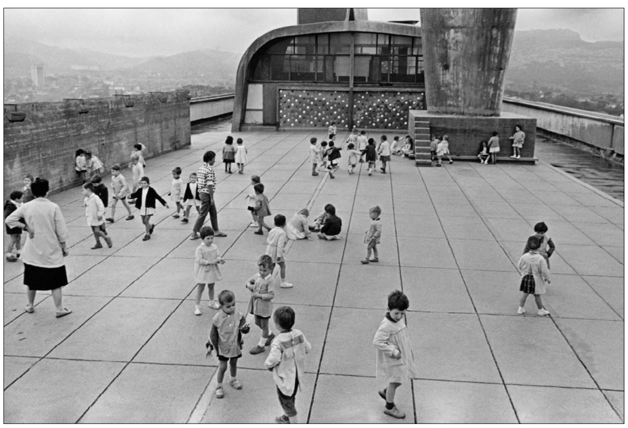
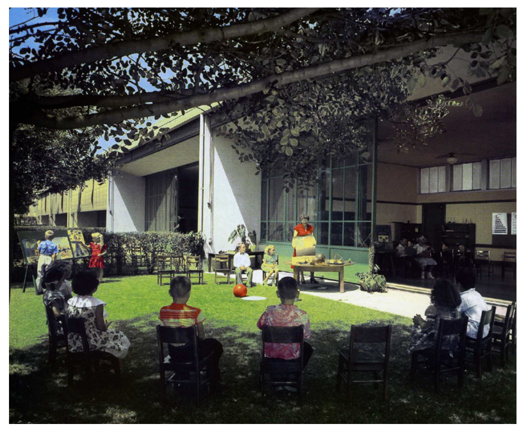
Everything must Scale (3) – Architecture and the Teacher-less School

Recent experiments in bringing automation to elementary school education have focused on software with little focus on the architecture. They have, in effect, asked us to close our eyes to architectural space, diminishing the role a building might play as a form of education itself. This studio will try to invert that equation.

1. Marfa, TX.	Chinati Foundation + Judd Foundation (March 8-9)
2. Taliesin West, AZ.	Workshop at Taliesin School of Architecture. (March 9-10)
3. Los Angeles, CA.	Richard Neutra VDL House; Schindler House; Eames House. (March 11-12)

Flight: NY - El Paso, Texas (drive to Marfa, Texas)
Flight: El Paso - Phoenix
Drive: Phoenix to Los Angeles





Le Corbusier's Unité d'Habitation, 1947
Richard Neutra, Corona Avenue School, Los Angeles, 1934-1935

Introduction: Teacher-Less School

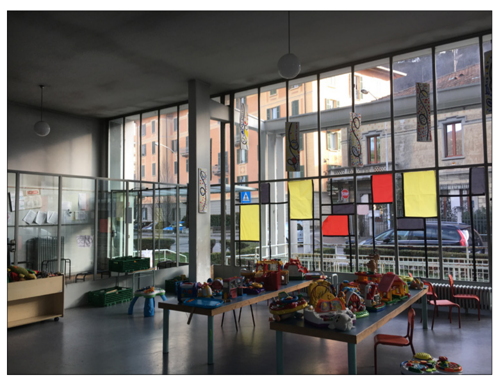
On the roof at Marseille. 1947. A kindergarten on the pinnacle of Le Corbusier's Unité d'Habitation. The horizon of nature demarcated by a strict line of parapet wall is distant, but palpable. Nature as earth and sky distant; competing with an architectural tour de force of plastic shape; all imbricated into a day of learning. The teacher stands in the foreground – surveying the children assuring safety. The one and only adult. A child close to the camera surveys the gridded pavers, for a moment – in thought and without a boss. Learning. The teacher is both educator and caretaker. A source of empathy and challenge. For now.

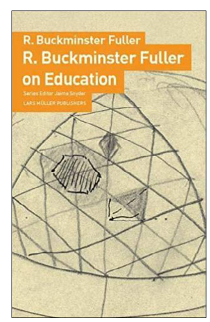
On the ground in Los Angeles, 1935. Thin extruded steel frame windows slide open. The full wall is a window. An elementary school classroom shifts its center of gravity. A centroid is formed perhaps 50 feet from the morning's lesson. The teacher has a table and stands on the concrete margin of the building. Children at a distance in the shade; the teacher is in the sun, framed by architecture, given a proscenium. The Southern California and Marseille climates help here: cold bridging, thermal conditions minor; cities and regions of the world shaped by the plastic qualities of sun light; and an ability for education to happen outdoors. But the teacher remains central even outdoors.

Architecture has a history of taking education seriously and making itself part of the lesson itself. From Columbia University to the University of Virginia it takes a Beaux Arts form. A mode of neoclassicism – the campus and its architecture – is an academic structure itself; the language, however, is received from prior histories and labor/thought. At Taliesin West the campus was built by the students/interns extracting stone and aggregate from the earth. The guidance of Frank Lloyd Wright, hovering over the entire physical process from design to labor to pedagogy. Nature is in the building. At Black Mountain College in the summer of 1948 Josef Albers (see below) invited Buckminster Fuller to join the faculty; Fuller joined John Cage (sound-time), Merce Cunningham (movement-time), Willem de

Kooning (light-shape-color-time) and also Wright's client (the patron), Edgar Kaufmann, Jr. as teachers. With Fuller, students designed, and prototyped a geodesic dome – engineering a light shell structure – fusing pedagogy, action, learning and place. In all these and many other cases the role of architecture and architectural thought in education is immense. First principles conveyed ideally by experiment into new works. Formidable teachers but ideally recede as the work emerges. But what happens to a school when the teachers exit the scene early or never arrive. What does such a school look like? Is architecture the only teacher – silently present.

Fuller imagined such a possibility in 1962 in his research and design. In his writing in an essay/book titled *Education Automation, Comprehensive Learning for Emergent Humanity* (Lars Müller Publishers edition, Series Editor, Jaime Snyder, 2010) Fuller discusses a wide range of changes he predicts will have to be incorporated into or that simply challenge education as it was known. He notices his grandchildren "latching onto" television – attention transfixed by a particular form of content, but also by the optical delivery (a pulsing screen's refresh rate). He notes political aspirations for all schools to architecturally emulate Harvard; or great scholars with *poor* speaking ability who might in the near future have someone else present their work for them. He imagines education not so much being automated as forced to deal with the widest range of technologies that allow autonomy of behavior and self-guided navigation; a process of discovering that will supersede a teacher and the regulatory apparatuses of schools. We will try to re-imagine what architecture brings to this scenario anew. Not to create a platform of today's newest technologies (though this is in part unavoidable) but to see where architecture itself is the lesson or it bears the scrutiny of young minds.





Josef Albers teaching at Black Mountain College, North Carolina, circa 1946
Taliesin West, Frank Lloyd Wright, May 2017. Photograph: MB
Giuseppe Terragni: Kindergarten Antonio Sant'Elia (1932); GSAPP tour March 2019. Photograph: MB

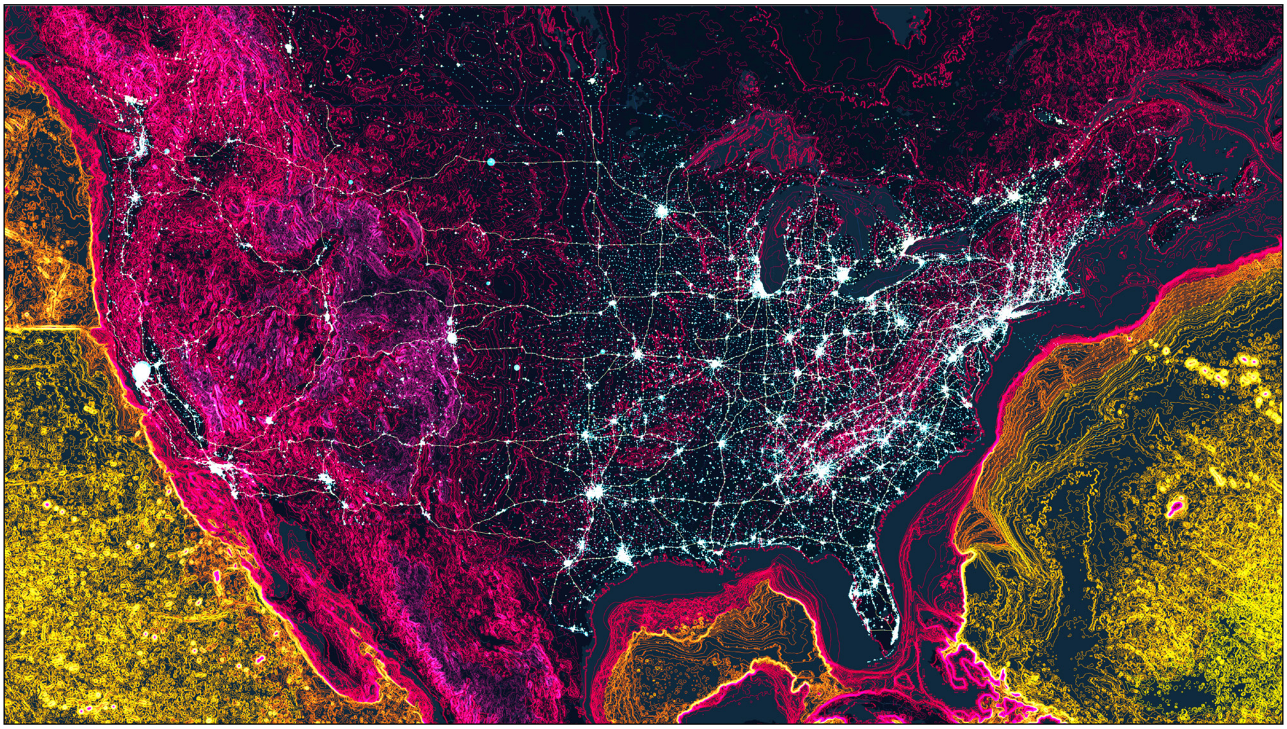
Note: The studio will explore a wide range of materials on education and architecture. In the context of Fuller one can begin with writing and research by Beatriz Colomina and Mark Wigley.

See: https://soa.princeton.edu/content/radical-pedagogies%3A-collaborative-research-project

Everything Must Scale 1, 2, + 3

This studio follows a series of studios that have looked at architectural building types increasingly being challenged if not made obsolete. Works of architecture that have evolved over time to become building types, and in particular building types that fuse program and form, form and governance, and form and economy – a school as both architecture and curriculum; social condenser and state apparatus or regulatory mechanism is an example.

Everything Must Scale (1) and **(2)** examined the future of fueling stations in the United States. We explored what occurs to the nation's 160,000 +/- gasoline fuel stations as vehicles become increasingly electric and automated; when charging occurs at home or work. The fueling station, a building type, emerged in a short period of 100 years, and is today becoming obsolete. **Everything Must Scale (3)** explores what will become of schools as education is increasingly automated, achieved without the same type or number of on-site teachers and in the realms of software and media as education becomes less place specific and can occur almost anywhere. The studio will open with lectures to address issues of architecture and scalar realms of economy, energy, and the forms of power or authority that shape the built world. This will include examinations of how the expanded presence of automation, renewable energy, new forms of mobility meet older forms of settlement, architecture, and place.



James Piacentini, GSAPP, Everything Must Scale (2) – Station Map (geo-locating fuel stations/ United States atop the continent's terrain)– Fall 2019.

Designing / Discovering a Prototype

The studio will focus on working at the scale of a prototype: this work will be done "pre-client" and with a view to what architecture might provide to education first. We will imagine this is a deployable small-scale structure – ideally a three units classroom structure that can serve a test case for school districts nationwide, but that might also be assembled in non-school locations. Our work could serve adjacent to workplaces or in areas where innovation and funding are scarce. Note: throughout the United States, school districts make use of modular pre-fabricated classroom structures. These are often selected to lower costs, but they also often reflect uncertainty about the future need for schools. In this case, a municipal district might hedge its investment with modular structures. Our work will imagine entering this zone of need; can we design a prototype that logically forms a step towards larger goals. The buildings should be designed to be quickly assembled; but also, eventually removed (a reverse tectonics). Their interim nature is part of the design goals.

The ages of the students will be flexible: from kindergarten to 8th grade. The schools are not to be literally teacher-less, but the teacher's role should be explored and brought up to date. From tele-medicine to new forms of education, it is likely there will be less leaders in classrooms; less doctors at clinics, less…

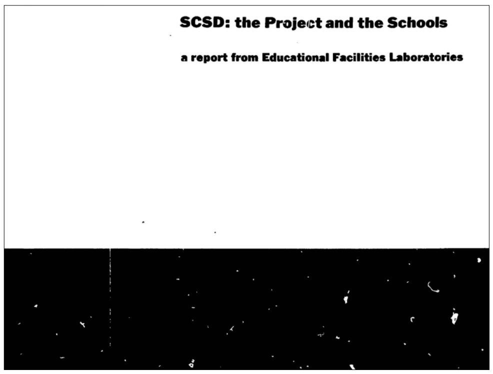
Our work prior to designing (and engineering) this prototype will cover four phases.

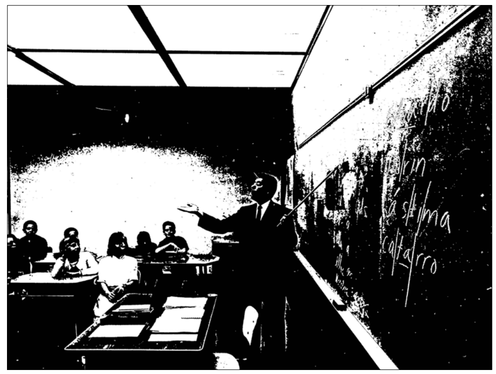
Phase I will explore historical conflations of architecture and education as well as new theories of education and where they meet Silicon Valley as software / automation models. **Phase II** will be divorced from education directly (for a several week period), and we will attempt to examine architectural innovations – in important works of architecture – that we might make new as learning lessons themselves. That is, where can a building itself be the shelter and teacher —The pedagogy. You might want to claim that this should not be the case; if so, how can a building recede, exiting the scene of education. **Phase III** will explore the state of innovation in schools design (in particular new "Micro Schools"); self-guided learning, learning as gaming etc. **Phase IV** will involve placing our prototype in a site and for a constituency. The scale of the work is small; we will build careful models.

Studio Sequence; Phase I, II, III, IV.

Phase I. Where have architecture and education met? A 1960's project focused on building efficiently. What about learning?

The issues of standardization if not automation were central to a 1967 program founded and directed by **The School Construction Systems Development** project (SCSD) based in New York. Their work was for **a group of California school districts that collectively organized to improve school design**. Our studio will take this report as a starting point. It established criteria for automating design, tectonics and construction, and architectural qualities of daylighting and program. We will ask what such a report would look like today and how would it measure the relation between architecture, and education.



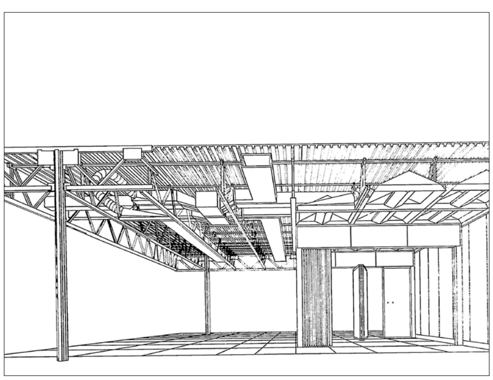


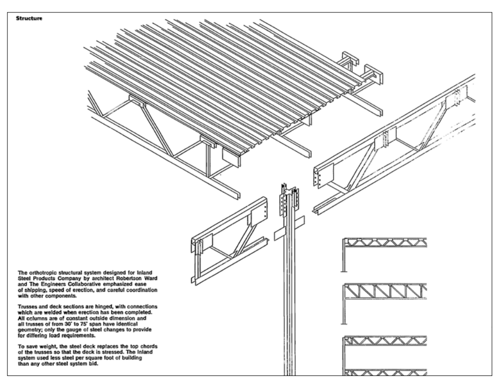
Excerpts from the SCSD report.

Produced with support from the **Ford Foundation** and the **U.S. Department of Health, Education and Welfare Office of Education.**

A focus on building systems: *SCSD, a structurally coordinated school building components system, is a highly automated method of building new schools that creatively meet the needs of the ever-changing educational environment through functional and flexible planning. Examples of why SCSD high schools are efficient, flexible, and spatially planned, are cited. Environmental requirements are given for – (1) heating/ventilation,(2) air conditioning, (3)lighting/ceiling,(4)storage and equipment, and (5)partitions. Photographs and diagrams demonstrate the interaction of the subsystem components. The evaluation concludes that society needs both higher quality and larger quantities of school buildings to meet the complex learning facility requirements of the present and future.(TG),*

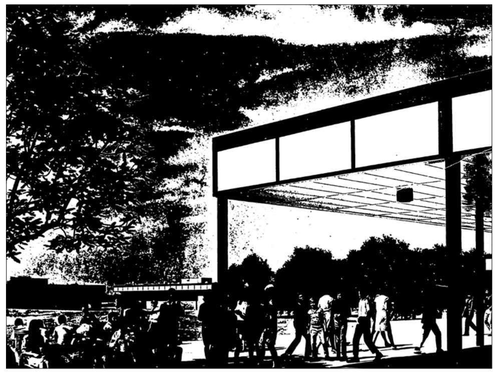
1967: A focus on rapid construction and economy: *The School Construction Systems Development project (SCSD) is a practical test of a method of building better schools more rapidly and economically. In the project a group of California school districts built six schools and had five others in construction at the end of 1966, with two other projects scheduled to go to bid in1967. Altogether the 11 schools built or under construction include about 1.4 million square feet of space and have an estimated cost of about $25 million.*





1967: Who were the key actors: a Fulbright Fellow, a philanthropic foundation.

Although SCSD was established late in 1961, its beginnings go back to 1954 when architect Ezra Ehrenkrantz went to England as a Fulbright Fellow to work at the Building Research Station in Hertfordshire County. There, a system of pre-fabricated building components had been developed by the Hertfordshire County Schools as early as 1946 and was in successful use to meet England's tremendous postwar need for new schools. While English conditions differ from those in the United States, Ehrenkrantz thought that the approach had great possibilities for United States schools, too. After his return to America, he communicated with the newly established Educational Facilities Laboratories, Inc., a nonprofit corporation established by the Ford Foundation, and wrote a report for EFL in 1958 about the British work. EFL was interested, but *judged that the time was not ripe to proceed to a trial. By 1961, however, widespread interest had developed in finding ways to cut the costs of the huge United States school construction program, which in California alone, at the annual rate of about 15,000 classrooms, cost nearly $300 million*



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Phase II. What is architectural knowledge? Can it become a school in itself?

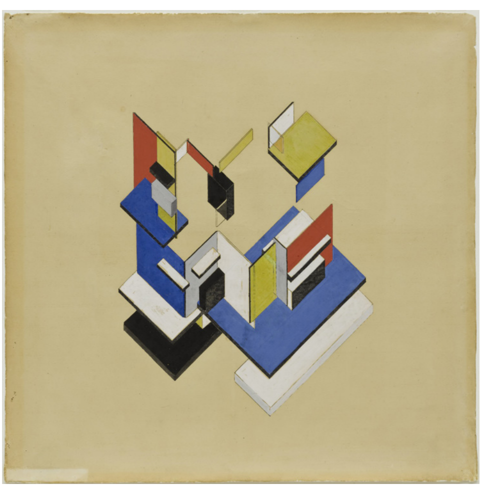
Analogical School. The building is the lesson in a School without Teachers.

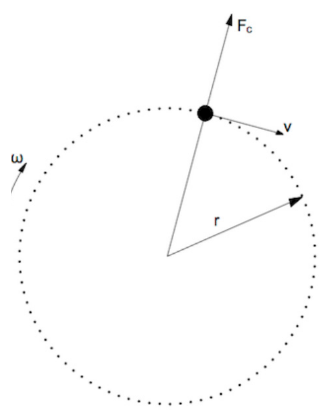
Architecture studios often seek and rely on outside expertise. Our studio will take an inverse approach. We want to produce architectural knowledge first and then share this with experts in education to see where our work can merge. This work is pre-client and instead is asking what can architectural space affect learning

Lessons from Architecture: Can the physics of buildings serve as analogical lessons for schools? Our studio will take case studies that are selected in conversation with faculty and students. We will carefully study a series of curated works, transcribing them, and seeing where we can undo or expand their principles into a new space for learning.

What is architectural Force and Mechanics? Applied to material and form, space and volume?

- Expansion of Space – the experience of an enclosure (Theo van Doesburg + / use of the term centrifugal: Van Doesburg referenced the term centrifugal but not its actual originating centripetal force. This partial physics lesson was intentional.

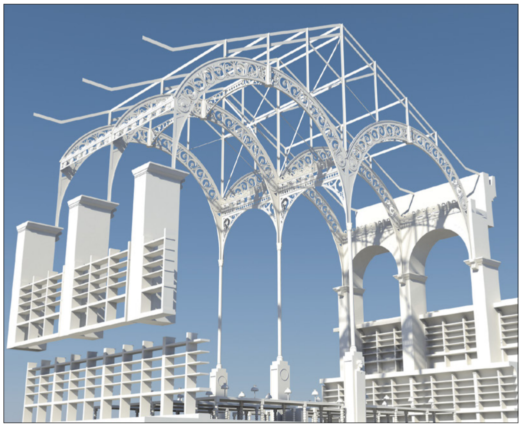


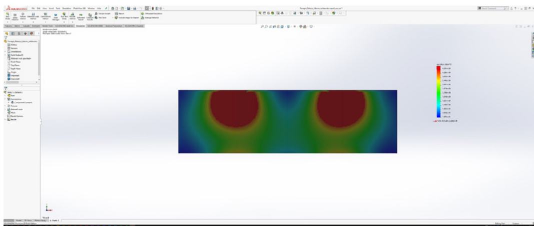


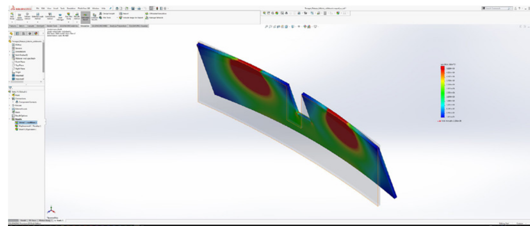
- Material conflation with Architectural Language / material and culture (see Henri Labrouste, or Giuseppe Terragni, below)

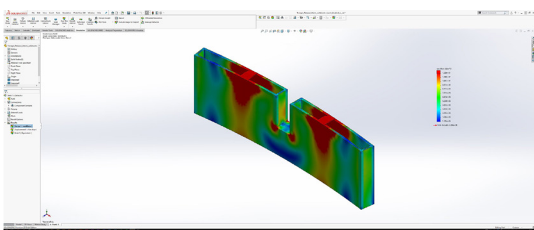
Next page: A sample: Henri Labrouste, Bibliothèque Sainte-Geneviève (1843 and 1850), Paris. Finite element analysis shows Labrouste's use of iron relies on ornamental design to circumvent (prevent) tension in form. The work is a lesson in material properties, historical language, and structural engineering. Source: Visible Weather / Bell-Seong Architecture.

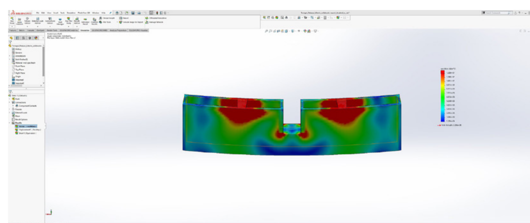
Next page: A sample: Giuseppe Terragni, Palazzo del Littorio in Rome - Projects A and B (1934), Rome. Finite element analysis shows Terragni composing and balancing force in a diaphragm structure to avoid buckling. The slight curvature of the structure is both theatre (for political spectacle) and structural form finding (it keeps the structure's centroid inside the composition).









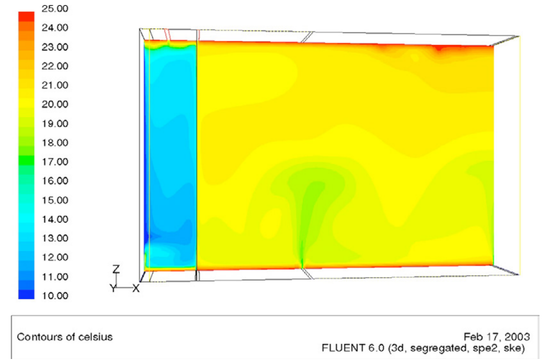


- Acceleration and differential form-finding: Frei Otto, Olympic Stadium; Werner Sobek +
- Gravity and bearing: (Louis Kahn, Exeter Library – stacking, concrete vs. brick structures)
- Internal force: (Louis Kahn, post-tensioning shell structure, Kimball Art Museum)

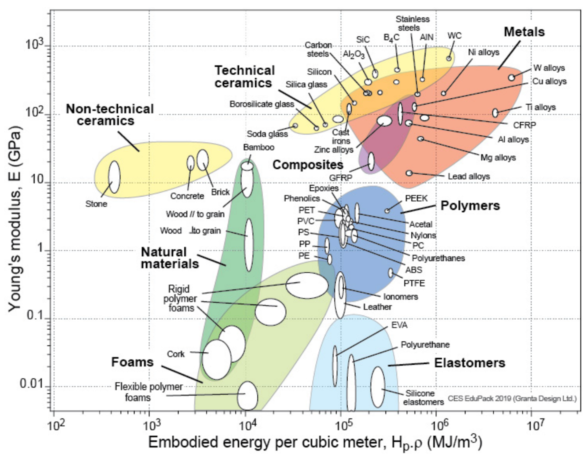
Richard Serra, a memory of a child witnessing a ship being launched: "One of my earlier recollections is that of driving with my father, as the sun was coming up, across the Golden Gate Bridge. We were going to Marine Shipyard, where my father worked as a pipe fitter, to watch the launching of a ship. It was on my birthday in the fall of 1943. I was four. When we arrived, the black, blue, and orange steel-plated tanker was in way, balanced up on a perch. It was disproportionately horizontal and to a four year old it was like a skyscraper on its side. I remember walking the arc of the hull with my father, looking at the huge brass propeller, peering through the stays. Then, in a sudden flurry of activity, the shoring props, beams, planks, poles, bars, keel blocks, all the dunnage, was removed, the cables released, shackles dismantled, the come-alongs unlocked. There was a total incongruity between the displacement of this enormous tonnage and the quickness and agility with which this task was carried out. As the scaffolding was torn apart, the ship moved down the shoot towards the sea; there were the accompanying sounds of celebration, screams, long horns, shouts, whistles.

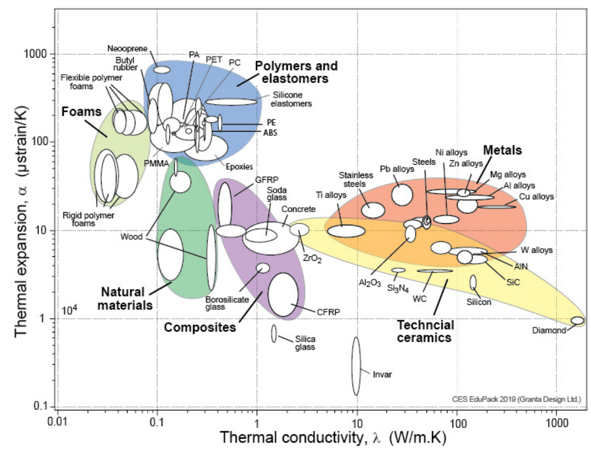
What are Materials and Material Behavior / Material and Energy

- Cold bridging in window details Mies Van Der Rohe: The Seagram Building window detail vs. SANAA, Toledo Museum of Art
- Never on Grid: Can architecture take the education of grid – can it never be attached to the grid?



- Materials: Buildings are a literal physics / chemistry lesson made real. An Ashby Chart shows two coefficients for materials, their thermal conductivity, and their expansion and contraction. Our studio will ask each student to use Ashby Charts in their work.
Source: https://grantadesign.com/education/students/charts/





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What are Measure and Scale in Architecture?

- Early education is often focused on measurement, mathematics, algebra, and eventually calculus. Where can this be present, discernible in a building?
- Scalar: what aspects of architecture are scalar (measurable, but not innate or consistent; affected by circumstances, such as temperature or thermal dimension)
- Vector: what aspects are vector based (i.e. consistent in every instance; such as gravity).
- What role does time play in measurement: can something have both consistent and variable dimension (the loading a brick in a Louis Kahn structure).

Building and building process: how long should a building last? What does costs mean or how long should a prototype last?

- What aspects of architecture are without costs: Mies van der Rohe once stated that proportion was “free” – what free qualities in architecture can bring architecture to more people.

- *Reverse Tectonics* or a *Post Mechanical (composites)* architecture: The technologies that are imbricated in the built world are changing – where do these means meet education and learning. Fuller’s students built a work of architecture with him; what might we imagine?

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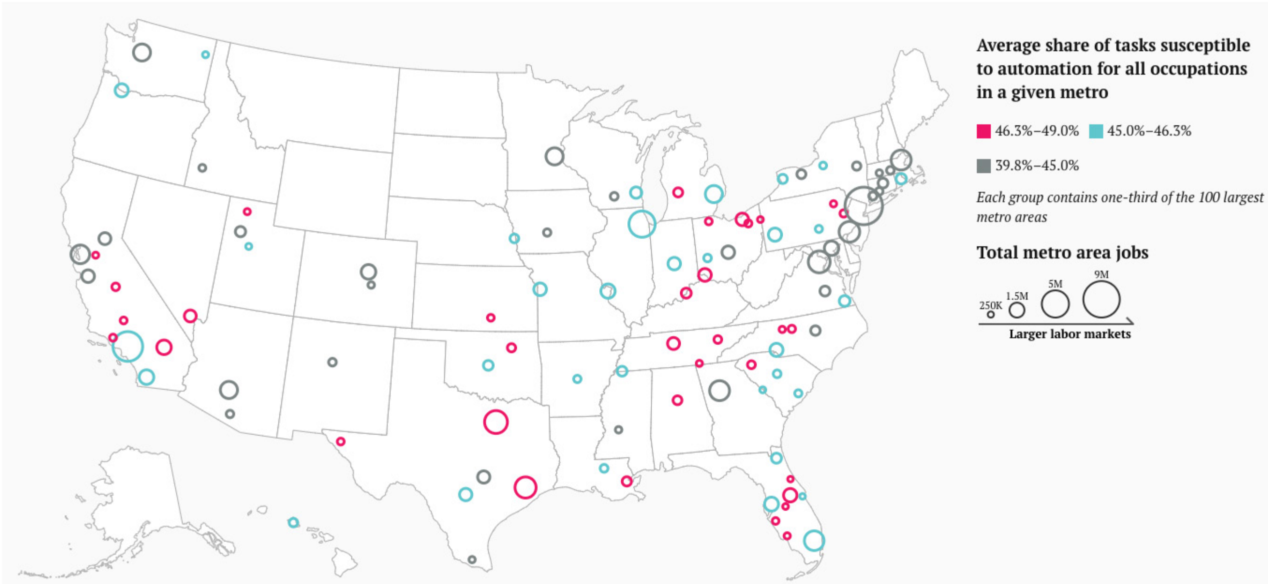
What is the (global) Economy of Architecture; What are the Local Costs?

- Post Capital: the post-capital era is emerging and has arrived in the current presidential election as a national discussion of universal income. Where in the history of architecture are their lessons for low-cost or even no-cost architecture. Automation is rapidly demanding changes in how we not only imagine work, but the loss of income that can occur as work is lost. Automation could allow more refined architecture, but whose jobs will pay for this?



Phase III. Creative – Learning with your Eyes Closed (backing away from the computer screen).

What are we doing when we are learning? Is comprehension a form of creativity?

In his book *Sound Unseen: Acousmatic Sound in Theory and Practice* Brian Kane, Professor, Music Department, Yale University, explores "the phenomenon of acousmatic sound." Kane asks a simple question: why do people tend to close their eyes when they listen to music.

Kane's term, "sound unseen" refers to the term, "acousmatic" – a term first introduced in the mid-1960s by avant-garde composer of musique concrète Pierre Schaeffer. The term describes the experience of hearing a sound without being able to see its cause.

"Kane investigates acousmatic sound from a number of methodological perspectives -- historical, cultural, philosophical and musical -- and provides a framework that makes sense of the many surprising and paradoxical ways that unseen sound has been understood." Kane, a speaker at GSAPP and friend/guest of earlier studios for Michael Bell, speaks to architecture and a breadth of cultural projects. His work refers to Pythagoras (and concepts of number being used to describe things words cannot) to contemporary recording studios that segregate all aspects of sounds from their constituent spaces (the room, architecture).

We will make use of Kane's writing to discuss a form of learning and creating that in part only occurs with eyes closed. We will study and learn by literally asking ourselves to close our eyes and imagine before we draw. Analyze without drawing. Simultaneously: what is an architecture that induces a student to close their eyes and think (create). Architecture seen; then unseen (becomes electro-chemically you.).These issues are not only from rarefied scholarship: see the samples below to explore this topic in everyday terms –

https://www.psychologytoday.com/us/blog/ulterior-motives/201110/why-do-you-close-your-eyes-remember
https://www.nature.com/articles/s41599-018-0138-0
https://www.sciencealert.com/closing-your-eyes-helps-you-remember-more-accurately

The physics of music: Kane's research also is a key to the analysis of music and architecture – it paints a portrait of a listener who may not be trained in music, but is capable of immensely sophisticated comprehension that relies on architecture. For example: we all intuitively understand the terms attack and decay in regard to musical instruments. A piano key, a violin bow, a drum beat, a guitar strum (pluck) each derive from force and impact. They are usually impossible to reverse (how to un-attack a piano key); people feel this, understand it, and with eyes closed embody the sounds and physics. But in a digital world they can be reversed. Kane explores how composers work with the limits of physics in composition and how listeners enter the otherwise seemingly impossibly complex world of sound. We will ask what are the architectural correlates to these theories. Can we transcribe and reverse actions in architecture; can we bring our audience with us and in effect, allow them to be the creators of the architecture?

A sample of writing by Brian Kane includes experiments in composition and the audience (listener) understanding of music. Kane reflects on the listener's ability to recognize if not analyze mistakes, flaws in a composition.
Sound files: Brian Kane – https://nonsite.org/article/music-image-schemata-and-the-hidden-art

If architecture seems bound to the eye, what can we make of a goal to close one eye? We will explore architecture that asks you to do so.

Phase IV. Prototype: A new Deployable Classroom in a Specific Place on Earth

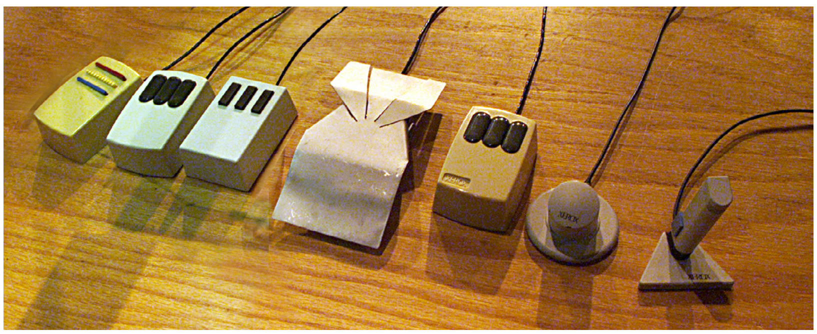
Place your work in a real context and try to gage how site affects the work; what would you do to alter the work based on site and context, or on a more specific user.

This work will involve realistic site drawings, models, and careful study of climate, light, and ultimately user. This is a temporary structure but must address specific sites. Site discussions will happen during our first week of class and with studio input. We will weigh factors such as need and how meaningful a work like this would be for a community. We are planning to develop a small three learning space structure - a micro school.

Coda: Educational Tools: Classroom to office?

There are thousands of entries on the web about the future of automated education. Columbia University is home to Teachers College. Many point to the past as prophesying the role of computers and the Internet; prophesies that have, in large part, begun to be realized.

Few point to architecture and its ability to alter the potential of learning.



Above: Douglas Englebart, Mouse prototypes: Xerox PARC

The following passage is from "**The Monsters of Education Technology**"by Audrey Watters (Creative Commons license). Watters is author and founder of a blog titled **Hack Education**, and a forthcoming book titled *Teaching Machines*.

In the excerpt that follows Watters speaks to the invention of the computer mouse – a devise central to everything we do at GSAPP – central to education. Our studio will seek to design and work with every aspect of a learning space; the table and chairs, the architecture, the finishes and light qualities, ...

Take the work of Douglas Englebart, for example. He passed away last year, an amazing but largely unsung visionary in computer science. Among other things, Englebart was the first to use an external device that rolled around on a flat surface and moved a pointer on a screen so as to highlight text and to select options – what we now call the mouse. Englebart unveiled the mouse in what technologists refer fondly to as "The Mother of All Demos," a demonstration in 1968 of the online System (more commonly known as NLS), a hardware and software package that had a number of incredible features demonstrated publicly for the first time. Again, remember, this was the era of the mainframe and the punch-card. In the demo: the mouse,windows, hypertext, graphics, version control, word processing, video conferencing, and a collaborative real-time editor. 1968. But many of the features in the Mother of All Demos weren't picked up by the tech industry – at least, not right away. The team that had worked with Englebart on the NLS soon dispersed from their Stanford University-based research program, many of them ending up at Xerox PARC (Xerox's Palo Alto Research Center). In turn Xerox PARC became the site where many more of the computing technologies we do now take for granted were developed, including the Ethernet, laser printing, and the personal computer."

The seeds of wide-scale computer aided automation created 50 years ago; today we must ask at what point they begin to deeply alter architecture and daily life – the built environment. **The School without Teachers** is intended as prototype and experiment in the future of this type of environment – architecture seems to have window to asset its value in ways it has not in decades. A McKinsey Global Institute study portrays a shift in expected skills needed by a future work force. The driving scenario is one in which automation causes a demand for higher cognitive skills, more social and emotional capacity to negotiate and evolve as work itself evolves. What is the architecture of a school that can prepare someone for this world?

Exhibit 1

We have defined a set of 25 skills.

Based on McKinsey Global Institute workforce skills model

Low — High

Category	**Hours worked in 2016,** % United States and Western Europe	Skills	Sample occupations
Physical and manual skills		General equipment operation and navigation	Drivers, assembly line workers
		General equipment repair and mechanical skills	Car and truck mechanics
		Craft and technician skills	Stonemasons, roofers, electricians
		Fine motor skills	Nurses, food preparation workers
		Gross motor skills and strength	Machine feeders, cleaners, packers
		Inspecting and monitoring skills	Security guards, quality control
Basic cognitive skills		Basic literacy, numeracy, and communication	Cashiers, customer service
		Basic data input and processing	Typists, data entry, accounting clerks
Higher cognitive skills		Advanced literacy and writing	Editors, paralegals, writers
		Quantitative and statistical skills	Financial analysts, accountants
		Critical thinking and decision making	Doctors, insurance underwriters
		Project management	Purchasing agents, front-line supervisors
		Complex information processing and interpretation	Market research analysts, lawyers
		Creativity	PR specialists, music composers
Social and emo-tional skills		Advanced communication and negotiation skills	Sales representatives, real estate agents
		Interpersonal skills and empathy	Counselors, social workers, therapists
		Leadership and managing others	Managers, executives
		Entrepreneurship and initiative-taking	Business development, strategists
		Adaptability and continuous learning	Emergency responders, programmers
		Teaching and training others	Teachers, instructors, trainers
Techno-logical skills		Basic digital skills	Administrative assistants, desktop publishers
		Advanced IT skills and programming	Software development, network administrators
		Advanced data analysis and mathematical skills	Statisticians, operations research analysts
		Technology design, engineering, and maintenance	Engineers, robotics experts, product designers
		Scientific research and development	Scientists

NOTE: Western Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom.

Source: https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce

The studio will explore recent start ups that focused on the future of elementary school education.

To gain a quick overview of some of these companies see: The 100 Worst Ed-Tech Debacles of the Decade by Audrey Watters, 12/31/19.
http://hackeducation.com/2019/12/31/what-a-shitshow

2020: Today, schools often expand and contract for changes in need and student population with low-cost pre-fabricated buildings. The way learning is imagined is also changing.

11. Altschool

AltSchool was founded in 2013 by Max Ventilla, a former Google executive (his Q&A company Aardvark was acquired by Google in 2010, but he'd worked at the tech giant previously too). When he departed Google, *Techcrunch* speculated that his next project would be education-related, based on a tweet from his wife — a photograph of a pile of education-related books. Embracing the Silicon Valley mantra of "fail fast and pivot," Ventilla took that reading list and jumped headfirst into education, hiring engineers and teachers (reportedly hiring one engineer for every teacher) and starting a new, for-profit school. Almost immediately, he was able to raise venture capital for his idea — $33 million in 2014 from the likes of Andreessen-Horowitz.

Silicon Valley loved the idea, of AltSchool, and the investment dollars kept rolling in — almost $180 million in total. In 2015, *Wired* gushed that Altschool could "save education" through its blend of personalized learning and surveillance technologies. But some parents began to push back, claiming that their children were being used as "guinea pigs" for the startup's untested software and unproven teaching methods. With an ambitious plan to scale, AltSchool found itself burning through money at an unsustainable pace — $40 million a year according to some reports, and it began shuttering schools instead of opening them.

In June of this year, AltSchool "called it quits," rebranding as Altitude Learning and planning to sell its software and professional development services to schools.

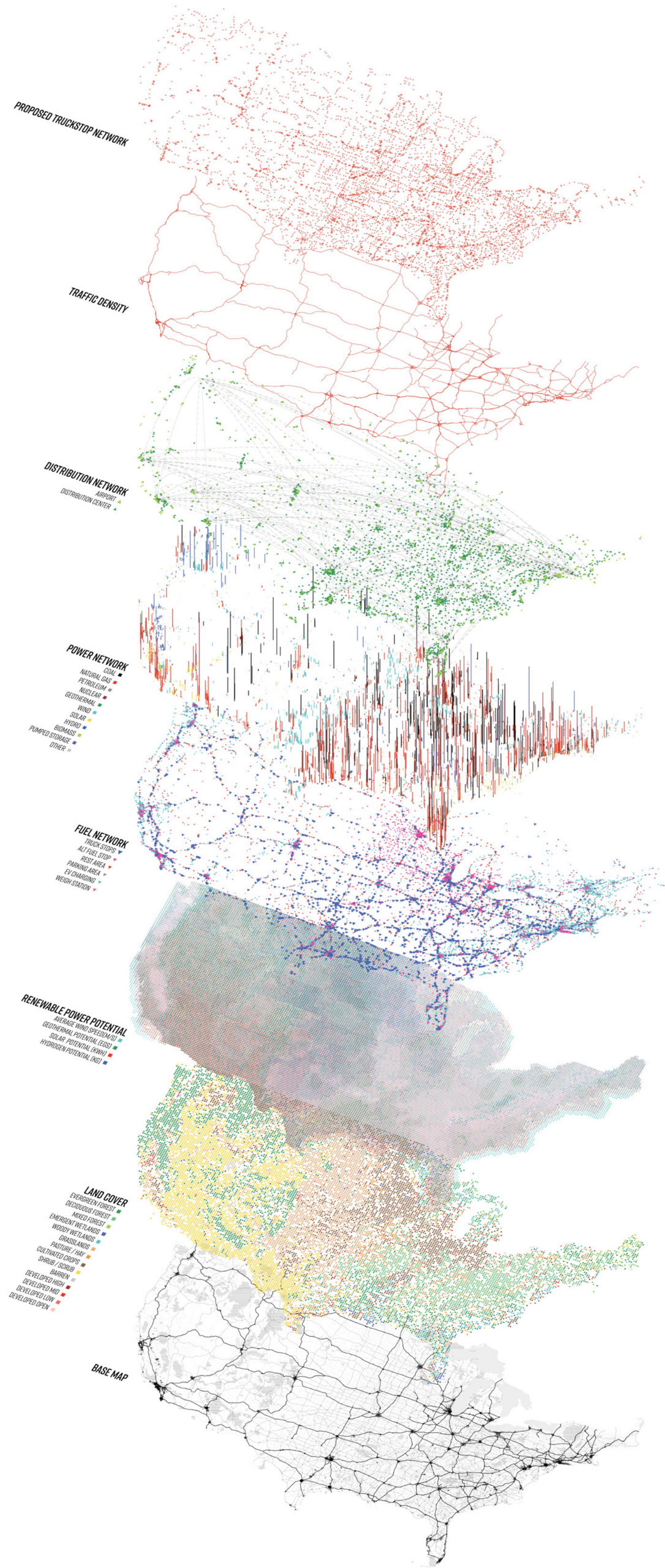
Zuckerberg-Backed AltSchool Gives Up on Schools and Focuses on Tech

Susan Adams Forbes Staff
Education
I'm a senior editor in charge of Forbes' education coverage.

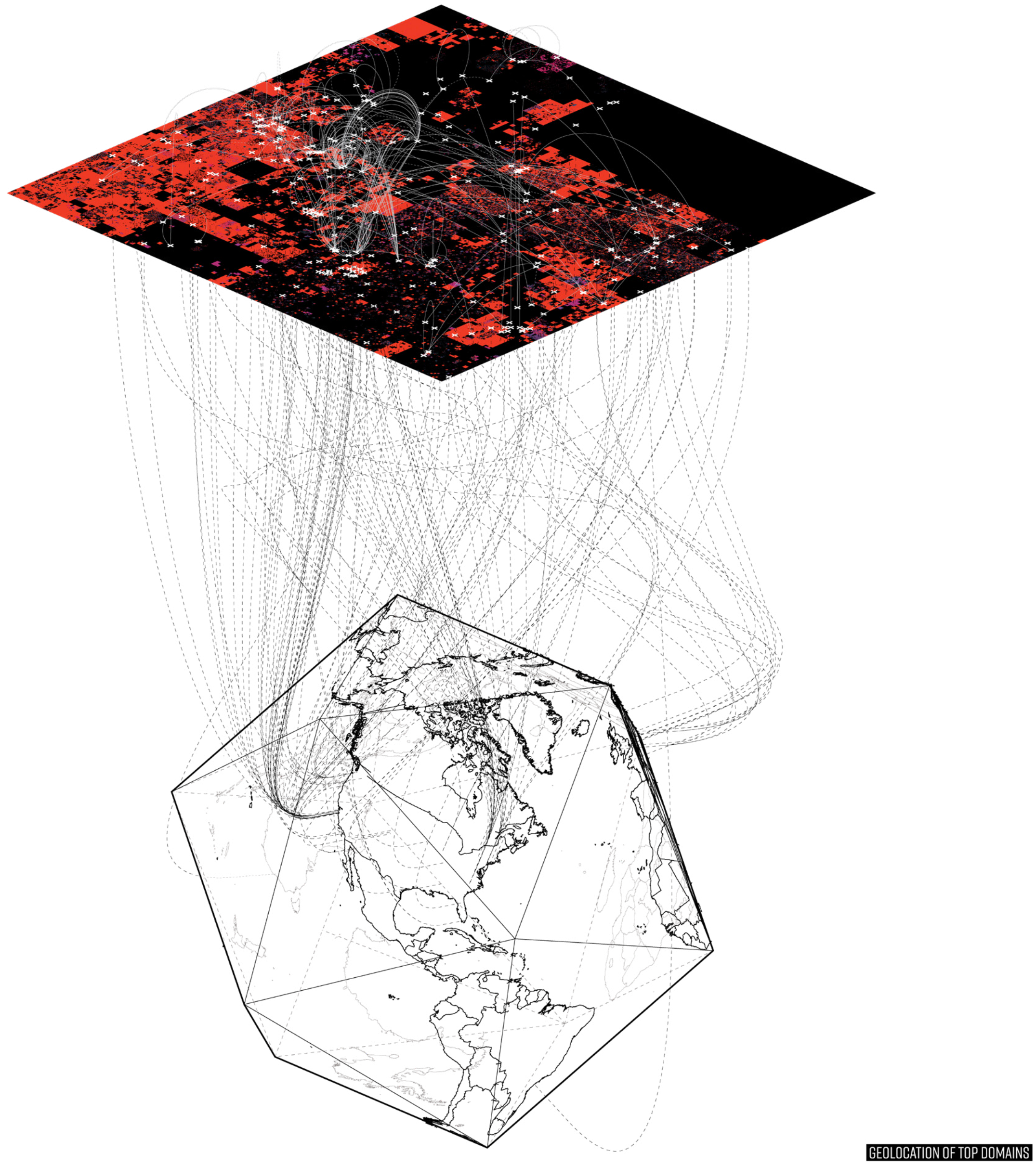
Max Ventilla, AltSchool's outgoing CEO. TIMOTHY ARCHIBALD

AltSchool, a six-year-old startup founded by ex-Googler Max Ventilla, has announced a major shakeup. Ventilla, 39, is stepping down as CEO and becoming chairman of the renamed Altitude Learning. That company will continue to sell AltSchool's edtech product, software that helps K-12 teachers make assignments and track student progress.

As of September, AltSchool will no longer run its four for-profit schools, two in San Francisco and two in New York City. It's turning them over to another startup, three-year-old angel-backed Higher Ground Education. Based in Lake Forest, California, Higher Ground provides services to Montessori schools. A total of 240 students, including 2 of Ventilla's children, attended AltSchool's campuses this year.



Michael Soderberg: Traffic, Distribution, Power, Fuel, Renewable Energy, Land Cover. **Everything Must Scale (1)**. From the small work of architecture to national infrastructure GSAPP explorations of immense and small-scale works.



Michael Soderberg: IP Address mapping: Digital communications via Internet and world wide web and model of earth. Soderberg tracked IP address and data exchange in **Everything Must Scale (2)**.

WHAT IS ARCHITECTURAL SPACE IN EDUCATION; WITH EYES WIDE OPEN; EYES SHUT (THINKING)