

PARALLEL PLAY | PEDAGOGY, FORM, AND DAYLIGHT

Designing A Dual-Language Lab School in Roxbury

Stephen Cassell and Kim Yao with Adam Yarinsky

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MIT Option Studio 4.154 Spring 2023

“Perhaps our largest challenge [as teachers] is to overcome the fear of disequilibrium – our own and that of our students – and trust that those instances in which the bedrock of our assumptions and understanding begins to waver mark the edge of new understanding” Naomi Mulvihill. How Do You Say Twos in Spanish, If Two is Dos? Language as Means and Object in a Bilingual Kindergarten Classroom.

This is an intensive studio with an emphasis on experimentation and production. There is no pre-determined or expected solution to the problem; students will delve deep into the intersection of pedagogy of dual-language learning, architectural form, and daylight, and take calibrated risks to produce new and extraordinary outcomes. As practicing architects, we synthesize detailed information and multiple ideas in the design of buildings. The studio will promote programmatic and formal invention through an iterative design process that is grounded in deep engagement with how people use and experience architecture. How do we gain new understanding of the relationship between the child and the community through design?

The program will be a dual-language lab school, of approximately 22,000 square feet, located in Roxbury, MA. The school will serve students from kindergarten through second grade and provide spaces for the broader community. Dual-language schools are grounded in an approach to teaching young children their home language as well as English, in parallel. Beyond the classroom, this school model supports families within diverse immigrant and indigenous communities. We will engage directly with teachers from the community who specialize in dual-language learning, to better understand the nuances of the neighborhood and complexities of teaching multiple languages to young learners.

The studio’s methodology will synthesize four areas of exploration sequentially: Within the classroom unit, how will engaging the specific pedagogy of dual-language learning lead to innovative design? How is the rigorous study of daylight integrated with the performative and programmatic design of the classroom and the entire building? How does the aggregation of classrooms create a larger organizational strategy for the building that supports the community of teachers and students? How does the identity of the building relate to the larger community of the neighborhood and city?

Daylight conditions will be modeled using both Climate Studio software and physical models. The small size of the project will enable each student to study multiple design alternatives and variations for the program, site, massing, and envelope, using feedback gained from both analog and digital tools.

The studio will meet twice weekly, Tuesdays and Fridays (50% virtual, 50% in person). The studio will be taught primarily by Stephen Cassell and Kim Yao. Their partner, Adam Yarinsky, will attend key pin-ups and reviews. There will be a studio trip to New York City to visit relevant projects and Architecture Research Office (ARO).

program: Any architectural project means becoming expert in its program and the particularities, values, absurdities, tensions, and impossibilities of that particular family, organization, institution, or municipality. In order to do this well, an architect must become an anthropologist to worlds that, prior to the start of each project, you never knew existed even though they often coincide in space and time with your own. The best works of architecture are born out of this expertise and leverage deep research to generate a project that not only strengthens but also transforms (and at time subverts) the user's expectations.

In addition to interrogating the interrelationships between educational spaces typically seen in early childhood education, the studio expects students to further investigate the specific requirements of an environment for dual-language learning. This will include having a keen understanding of the nature of dual language – that being the literal need to double all visual words in spaces – through word walls, murals, artwork, objects, and learning stations. Teaching in a dual-language environment requires spaces that enable young learners to feel that they have the agency to take risks, explore, play and exchange ideas. When working with language, the real opportunity is not through repetition, but through lived experiences, hands-on activities, and direct relationships with nature and physical things. Therefore, spaces like learning centers, hallways, garden spaces and storage become essential to our design process.

travel: The studio will travel to NYC over Spring Break (exact dates to be determined)

grading: Your grade for this studio will be based on participation, quality of thought and work, attendance, and completion of deliverables. Participation will be evaluated based on contribution to group discussion and pin-ups, and studio culture. Attendance is expected for all dates outlined in the schedule below unless otherwise agreed upon in advance between instructors and student. Students are expected to attend the entirety of studio sessions, pin-ups, reviews, discussions with outside experts, and site visits. Greater than two unexcused absences will impact your overall performance in the studio and may lead to a failing grade. Grades will be assigned according to MIT departmental criteria.

studio culture: We value the studio space as a high energy, iterative environment for exchange, collaboration, and risk taking! We aim to create a space for the respectful and productive exchange of ideas for all persons within the studio. To support ongoing project development and collaboration, students will be expected to post work-in-progress for each class in individual Miro boards for reference.

accessibility: Students who need disability accommodations are encouraged to speak with the faculty member/department administrator early in the semester so that accommodations can be implemented in a timely fashion.

STUDIO DATES

- 1 M 2/06 Lottery (MIT)
TU 2/07 **Studio Kickoff / Exercise 1 Intro (MIT)**
FR 2/10 Talk with Naomi Mulvihill + Jessie Auger (Virtual)
- 2 TU 2/14 Desk Crits (MIT)
FR 2/17 Desk Crits (Virtual)
- 3 TU 2/21 **EXERCISE 1 PIN-UP / Exercise 2 Intro (Virtual)**
FR 2/24 Desk Crits (MIT)
- 4 TU 2/28 Site & Program Intro + Site Visit (MIT)
FR 3/03 Desk Crits (Virtual)
- 5 TU 3/07 **EXERCISE 2 PIN-UP / Exercise 3 Intro (Virtual)**
FR 3/10 Desk Crits (MIT)
- 6 TU 3/14 Desk Crits (MIT)
FR 3/17 Desk Crits (Virtual)
- 7 TU 3/21 **MIDREVIEW (MIT)**
FR 3/24 Talk with Naomi Mulvihill + Jessie Auger (Virtual)
- 8 March 27-31 **Spring Recess**
- 9 TU 4/04 Classroom + Daylight Part II (MIT)
FR 4/07 Desk Crits (Virtual)
- 10 TU 4/11 Desk Crits (Virtual)
FR 4/14 Desk Crits (MIT)
- 11 TU 4/18 Desk Crits (MIT)
FR 4/21 Desk Crits (Virtual)
- 12 TU 4/25 **PINUP (Virtual)**
FR 4/28 Desk Crits (MIT)
- 13 TU 5/02 Desk Crits (MIT)
FR 5/05 Desk Crits (Virtual)
- 14 TU 5/09 Desk Crits (Virtual)
FR 5/12 Desk Crits (MIT)
- 15 MO 5/15 **FINAL REVIEW (MIT)**

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Pedagogy: Dual-Language Learning and other Educational Philosophies

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- García, Ofelia, Skutnabb-Kangas, Tove and Torres-Guzmán, María. "Chapter 1. Weaving Spaces and (De)constructing Ways for Multilingual Schools: The Actual and the Imagined". *Imagining Multilingual Schools: Languages in Education and Glocalization*, edited by Ofelia García, Tove Skutnabb-Kangas and María E. Torres-Guzmán, Bristol, Blue Ridge Summit: Multilingual Matters, 2006, pp. 3-48.
<https://doi.org/10.21832/9781853598968-002>
- Hooks, Bell. "Language: Teaching New Worlds/New Words" *Teaching to Transgress: Education as the Practice of Freedom*. New York, Routledge, 1994, pp. 167-175.
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Daylight and Thermal Comfort

- Caudill, William. *Toward Better School Design*. F.W. Dodge Corporation, 1954.
- Plummer, Henry. *The Architecture of Natural Light*. New York, Monacelli Press, 2009.
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Form

Allen, Stan. "From Object to Field." *AD Architecture after Geometry*, Profile No. 127, John Wiley & Sons Ltd, London, 1997, pp.24-31.

Atelier Bow Wow. "Graphic Anatomy - Atelier Bow-Wow." Toto, 2007.

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Maki, Fumihiko. *Investigations in Collective Form*. St. Louis, Washington University School of Architecture, 1964.

Moneo, Rafael. "On Typology." *Oppositions 13*, Spring 1978, p23-45.

PRECEDENTS:

schools

Aldo van Eyck / Amsterdam Orphanage / Amsterdam, Netherlands / 1960

Aldo van Eyck / Nagele Primary School / 1955-1956

Herman Hertzberger / Delft Montessori School / Delft Netherlands / 1960

Herman Hertzberger / Apollo School / Amsterdam, Netherlands / 1983

Anne Jacobsen / Munkegaard School / Denmark / 1957

Patkau Architects / Strawberry Vale School / Victoria, Canada / 1995

Jacques Kalisz / Nanterre Architecture School / Paris, France / 1971

Hannes Meyer / Peters Schule / 1926

Jan Duiker / Open-air School / Amsterdam / 1927

Alejandro de la Sota / Gimnasio Maravillas / Madrid, Spain / 1962

Paul Rudolph / John W. Chorley Elementary School / 1969

Anne Tyng / Elementary School in Bucks County / Bucks County PA / 1951-1953

Perkins and Will / Crow Island School / Illinois USA / 1940

Richard Neutra / Corona Avenue School / Los Angeles / 1935

Andres Jaque OPI / Reggio School / Madrid Spain / 2022

Tezuka Architects / Fuji Kindergarten / Tokyo, Japan / 2007

Junya Ishigami / Cloud Garden Nursery

MOS / Petit Ecole School No.3/ Denmark / 2021

H Arquitectes / Refurbishment of 906 School / Sabadell / 2015

H Arquitectes / School Gym 704 / Catalonia, Spain / 2008

AUBE CONCEPTION / Foshan Meisha Bilingual School / Foshan, China / 2020

Studio Weave / Woodland Classrooms Belvue School / UK / 2017

Selldorf Architects / Mwabwindo School / Zambia / 2019
Rosan Bosch / Vittra Telefonplan School / Stockholm / 2011
Vo Trong Nghia Architects / Farming Kindergarten / Vietnam / 2013
Cobe / Frederiksvej Kindergarten / Denmark / 2015

play spaces

Isamu Noguchi / Piedmont Playground / Atlanta, Georgia / 1976
Isamu Noguchi / Contoured Playground / 1941
Aldo Van Eyck / Amsterdam playgrounds

daylight

Johannes Vermeer / Woman Holding a Balance / 1663
Albrecht Durer / A Draughtsman Drawing a Portrait Engraving / 1532
Nancy Holt / Sun Tunnels / Great Basin Desert, Utah / 1976
Marina Tabassum / Bait Ur Rouf Mosque / Dhaka, Bangladesh / 2016
Jai Prakash / Jaipur Observatory / New Delhi, India / 1724 – 1727
Anna Heringer / METI Handmade School / Rudrapur, Bangladesh / 2004
Alvar Alto / Paimio Sanatorium / Finland / 1932
Tadao Ando / Water Temple / Japan / 1991
Louis Kahn / Kimbell Art Museum / Fort Worth, Texas / 1972
Renzo Piano / Menil Collection / Houston, Texas / 1981
Le Corbusier / Palace of the Assembly / Chandigarh, India / 1963
Le Corbusier / Mill Owners' Association / Ahmedabad, India / 1954
Eero Saarinen / MIT Chapel / Cambridge, MA / 1955
ARO / Restoration of Rothko Chapel / Houston, Texas / 2020
ARO / Riverdale Country School / Riverdale, NY / 2016
Paulo Mendes da Rocha / Pinacoteca / Sao Paulo, Brazil / 1998
Lacatan Vassal / Social Housing / Bordeaux, France / 2016
Will Bruder / Phoenix Central Library / Phoenix, Arizona / 1995
OMA / Dutch Embassy / Germany / 2004
Jean Nouvel / Institut du Monde Arabe / France / 1987