

PARALLEL PLAY

Designing A Dual-Language Primary School in Dorchester

Stephen Cassell and Adam Yarinsky with Kim Yao

Teaching Assistant: Yewon Ji

MIT Option Studio 4.154 Spring 2025

“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.

When designing for the child, architects must attempt to put themselves in the mind of their younger selves with invention, imagination, investigation and exploration serving as primary drivers. The classroom becomes an experiential space where children are encouraged to discover and understand their relationship to the world around them. The focus of this intensive studio is the design of educational spaces for children culminating in a public K-2 dual-language primary school in Dorchester.

Students will delve deep into the pedagogy and process of dual-language learning through architectural form, daylight, and environment. 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 create architecture that bridges the relationship between the child and their community?

The program will be a dual-language primary school, of approximately 30,000 square feet, located in Dorchester, MA. The school will serve students from kindergarten through second grade as well as 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. We will engage directly with teachers, who specialize in dual-language learning, to better understand the nuances and complexities of teaching multiple languages to young learners.

Beyond the classroom, this school model supports families within diverse immigrant communities. The public school has historically situated itself as an institution primarily for education that also serves the community. In instances where funding and support are present, the public school and the community center essentially become synonymous. Essential services like childcare, meal accommodations, adult education and town hall meetings, find space in the public school. Governor Healey, in August of 2023, declared a State of Emergency with the rising number of migrant families and the severe lack of housing and services available. The Boston Public Schools system has been overburdened with lack of resources and space to accommodate new students with specific needs. As more communities welcome populations of refugees, asylees and immigrants, there are specific needs and resources that the institution of the school is positioned well to accommodate. In an increasingly hostile and uncertain environment, schools must remain a place of safety for children and their families. This studio will engage with a local community organization to understand the specificity of issues being prioritized locally. Students will be asked to thoughtfully posit how their designs might support these groups, already embedded in these communities, to provide essential services.

The studio's methodology will synthesize several areas of exploration sequentially: Within the classroom unit, how can the specific pedagogy of project-based dual-language learning lead to innovative design? How can daylight integrate with the performative and programmatic design of the classroom and the entire building? How can the larger organizational strategy for the building support teachers, students, and their families? How might the school provide space for its community?

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 Adam Yarinsky. Their partner, Kim Yao, will attend key pin-ups and reviews.

The work of the studio will be supported by Yewon Ji with a series of 'Climate Studio Refreshers.' These workshops are to support students in the use of Climate Studio software relative to their designs. We expect all students to attend these sessions to advance their designs.

program: Designing any architectural project means becoming an expert in its program and the particularities, values, absurdities, tensions, and impossibilities of that specific family, organization, institution, or municipality. In order to do this well, one must become an anthropologist of worlds that 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 create a design that not only strengthens but also transforms (and at times subverts) the user's expectations.

In addition to interrogating the relationships between typical early childhood educational spaces, 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 – the literal need to double all words visibly 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 connections to nature and physical things. Therefore, spaces like learning centers, hallways, garden spaces and storage are also essential to our design process.

travel: The studio will travel to NYC City to visit relevant projects and Architecture Research Office (ARO) over Spring Break from March 27th to March 29th.

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 TU 2/04 Lottery (MIT)
FR 2/07 **Studio Kickoff / Exercise 1 Intro / Talk with Naomi Mulvihill + Jessie Auger @ 4PM**
- 2 TU 2/11 Desk Crits + Group Discussion (MIT)
FR 2/14 Desk Crits (Virtual)
- 3 TU 2/18 NO CLASS
FR 2/21 Desk Crits (MIT)
- 4 TU 2/25 Desk Crits (MIT)
FR 2/28 Desk Crits (Virtual)
- 5 TU 3/04 **EXERCISE 1 PIN-UP / Site + Final Project Intro (HYBRID)**
FR 3/07 Desk Crits (Virtual)
- 6 TU 3/11 Desk Crits + Group Discussion Site Analysis (MIT)
FR 3/14 Desk Crits (Virtual)
- 7 TU 3/18 Desk Crits (Virtual)
FR 3/21 **MIDREVIEW (MIT)**
- 8 March 24-28 **Spring Recess / Trip to NYC March 27th to March 29th**
- 9 TU 4/01 Desk Crits (Virtual)
FR 4/04 Desk Crits + Group Community Discussion (MIT)
- 10 TU 4/08 Desk Crits (MIT)
FR 4/11 Desk Crits (Virtual)
- 11 TU 4/15 **PINUP + Classroom Round 2 (MIT)**
FR 4/18 Desk Crits (Virtual)
- 12 TU 4/22 Desk Crits (MIT)
FR 4/25 Desk Crits (Virtual)
- 13 TU 4/29 Desk Crits (Virtual)
FR 5/02 Desk Crits (MIT)
- 14 TU 5/06 Pre-Review Pin-Up (MIT)
FR 5/09 Desk Crits (Virtual)
- 15 MO 5/12 **FINAL REVIEW (MIT)**

BIBLIOGRAPHY:

The following works are an abbreviated list for reference on relevant topics surrounding the studio.

Pedagogy: Dual-Language Learning and other Educational Philosophies

Alanís, I., M.G. Arreguín, & I. Salinas-González. *The Essentials: Supporting Dual Language Learners*. NAEYC, 2021.

Auger, Jessie. "The Author Has the Last Word: Buddy Editing in a First-Grade Classroom." *Harvard Educational Review*, Vol. 84, No.3, 2014, pp.367-384.

Ceppi, Giulio and Michele Zini. *Children, Spaces, Relations: Metaproject for an Environment for Young Children*. Reggio Children Domus Academy Research Center, Italy, 1998.

Cheng, Irene, Charles L. Davis, and Mabel O. Wilson, eds. *Race and Modern Architecture: A Critical History from the Enlightenment to the Present*. University of Pittsburgh Press, 2020.

Day, Christopher. *Environment and Children*. Routledge Press, 2007.

Dewey, John. *The School and Society and the Child and the Curriculum*. Centennial Publications of the University of Chicago Press, 1990.

Duckworth, Eleanor. *"The Having of Wonderful Ideas" and Other Essays on Teaching and Learning*. Teachers College Press, Columbia University, 2006.

Giraldeau, Francois-Luc. *Where We Learn: Reimagining Educational Spaces*. Frame Publishers B.V. , 2022.

Gyure, Dale Allen. *The Schoolroom: A Social History of Teaching and Learning (History of Human Spaces)*. Greenwood Press, 2018.

Hampel, Bob and Ben Justice. "History of Education Nuggets." *Annual Meeting of the History of Education Society*, November, 2022.

Hooks, Bell. "Language: Teaching New Worlds/New Words" *Teaching to Transgress: Education as the Practice of Freedom*. New York, Routledge, 1994, pp. 167-175.

Lange, Alexandra. *The Design of Childhood: How the Material World Shapes Independent Kids*. New York, Bloomsbury Publishing, 2020.

Mulvihill, Naomi. "How Do You Say Twos in Spanish, If Two is Dos? Language as Means and Object in a Bilingual Kindergarten Classroom." *Harvard Educational Review*, Vol. 84, No.3, 2014, pp.385-402.

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Piaget, Jean. *The equilibration of cognitive structures: The central problem of intellectual development*. Chicago: University of Chicago Press, 1985.

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.

Olgay, Aladar, and Victor Olgay. *Solar Control and Shading Devices*. Princeton University Press, 1977.

Form

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

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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

Hannes Meyer / Peters Schule / 1926

Jan Duiker / Open-air School / Amsterdam / 1927

Richard Neutra / Corona Avenue School / Los Angeles / 1935

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

Arne Jacobsen / Munkegaard School / Denmark / 1957

Anne Tyng / Elementary School in Bucks County / Bucks County, USA / 1951-1953

Aldo van Eyck / Nagele Primary School / 1955-1956

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

Herman Hertzberger / Delft Montessori School / Delft Netherlands / 1960

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

Paul Rudolph / John W. Chorley Elementary School / 1969

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

Paulo Mendes da Rocha with M.H. De Moraes Barros Flynn / Jardim Calux Kindergarten / Brazil / 1972

Herman Hertzberger / Apollo School / Amsterdam, Netherlands / 1983

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

Tezuka Architects / Fuji Kindergarten / Tokyo, Japan / 2007

GM + AD Architects / Hazelwood School / Glasgow, UK / 2007

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

Tatiana Bilbao / Ecole Maternelle / Jalisco, Mexico / 2010

Rosan Bosch / Vittra Telefonplan School / Stockholm / 2011

Vo Trong Nghia Architects / Farming Kindergarten / Vietnam / 2013

Alejandro Aravena / Ayelen School / Chile / 2015

H Arquitectes / Refurbishment of 906 School / Sabadell / 2015
Robert Hull, University of Washington / Gohar Khatoon Girls' School / Mazari Sharif, Afghanistan / 2015
Studio Weave / Woodland Classrooms Belvue School / UK / 2017
Selldorf Architects / Mwabwinda School / Zambia / 2019
Andres Jaque OPI / Reggio School / Madrid Spain / 2022

daylight

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

play spaces

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