RESIDUAL PRIMARY SCHOOL SPACES

INSTRUCTOR
HO, Jimmy
jimmyho@cuhk.edu.hk

ISSUE

This course addresses three emergent issues related to the architectural processes in the local public-school typology: 1) the misalignment between pedagogy and physical spaces in standardised school buildings; 2) a vast number of school building exists and urges for proper redesign; 3) a lack of systematic framework examining the redesign potential of residual spaces in schools. Students will a) conduct research on how precedent school spaces were designed in relation to the sociological and educational context; b) carry out typological study on local public schools; c) derive a diagrammatic redesign scheme focusing on the residual spaces as a sustainable approach.

DESCRIPTION

"It is said that the demon Procluses had an iron bed. Only people whose body height is as long as the bed can sleep. Otherwise, those who are longer than the bed will have their legs and feet cut off, and those who are shorter will be forcibly pulled to be as long as the bed. This bed is similar to the standards of the modern school system" (Yongxin Zhu [朱永新], 2019).

UNDERLYING ISSUES
Acquisition of 21st-century skills has been widely discussed in recent educational movements as education "being regulated to fulfil the needs of the workforce in the industry and economy-oriented occupational fields". As opposed to the conveyor-belt model of schooling in the era of industrialisation, paradigm shifts have been observed in 21st-century learning, including from passive to active learning, from convergent to divergent thinking, and from rectification to promotion of well-being. Active learning involves the change from instruction-based teaching to inquiry-based learning, from individual to collaborative assignments, and from summative to formative assessment. Divergent thinking consists of discussing multiple intelligences, interdisciplinary innovation and entrepreneurship. The promotion of well-being involves the application of positive psychology in education for effective learning. Nonetheless, most public schools, as a standardized mass product of industrialization, lacks the capability to support the dramatic changes above.

RELATED HISTORY
There are several key ideas or architectural approaches for designing educational spaces after the modernist movement in the 19th century that are still relevant today. Waldorf education from Germany promotes "anthroposophy" and emphasises the importance of art and nature throughout the curriculum and physical space. Montessori education from Italy proposes child-centred learning in a "prepared environment" and encourages independence. Reggio Emilia's education, also from Italy, focuses on creativity and a sense of community and regards the environment as "the third teacher". Although user involvement is common to the three approaches, there is still a lack of systematic framework for investigating and redesigning public schools.

BODY OF RESEARCH
While designing schools for the 21st century and how learning environments are associated with learning behaviours have been widely and constantly discussed (refer to pioneering works by Pamela Woolner), redesigning learning environments is still a growing field of research in the recent five years, often with the elements of participatory design (Hall, 2017; Woolner, 2018; Mäkelä and Leinonen, 2021). Most studies on redesigning learning spaces refer to curriculum and pedagogical designs instead of physical, architectural spaces. In the UK, Leiringer and Cardellino (2011) started the redesign discussion by looking at the Building Schools for the Future (BSF) Programme, which aimed to refurbish or rebuild up to 3,500 deteriorating English secondary schools and half of the 17,000 primary schools. In 2016, the Royal Institute of Architects published a design report on what a "good design" of schools should be, using the most extensive collection of post-occupancy evaluations

on UK schools (Plotka, 2016). In 2019, Taiwan Design Research Institute (TDRI) organized the Design Movement on Campus to initiate "campus aesthetic reform". Meanwhile in Shenzhen, a campaign namely Nanshan-ing - 100 Campus Renewal Plan in Shenzhen was initiated in 2022 to improve 100 school spaces. Both schemes demonstrated a highly collaborative effort between educational practitioners, architects and the government.

CONTEXT OF WORK

In Hong Kong, discussions on redesigning better learning environments are rare in academia and industry. Back in 2001, the Department of Architecture published a design guidebook to discuss "innovative design parameters" for schools in the 21st century. In 2006, the Hong Kong Institute of Architects (HKIA) Journal exclusively reviewed the development of public school design over the past 50 years. In 2015, the Architectural Services Department (ArchSD) studied how to design public schools better to address the systemic change brought by the "site-specific and sponsor-oriented design approach". While the design-research investigations were made around the compartmentalised spaces, the concept of "break-out spaces" – the connections of functional rooms and outdoor spaces for "enhancing students' interaction, improving circulation and spatial quality" – was first introduced as the official design parameter. It is argued that such "break-out spaces", or equivalently the in-between spaces, could also be created in old school buildings with proper redesign strategies – which comes to the formulation of this elective course – the investigation of residual, underused spaces in public primary school buildings.

IMPACT AND SUSTAINABILITY

The typological study of six school types will cover most of the 1000 existing schools in Hong Kong and provide design insight for educators and design practitioners. The findings and proposals will be consolidated and disseminated to the public and the government officials for stimulating policy changes in improving existing school environments. The findings will also facilitate knowledge exchange and regional research collaborations with external institutes in Taiwan and Shenzhen, where large-scale interventions have been conducted in the recent 5 years.

This course addresses the design potential of the residual spaces of existing school environments as redesigning, including "retrofitting" and "adaptive reusing", is a sustainable architectural strategy being practiced by global practices that produces less carbon emission than building new structures.

COURSE SYLLABUS

TOPIC 1: ARCHITECTURE AND EDUCATIONAL PHILOSOPHY

Canonical architectural precedents related to distinctive educational philosophy will be introduced, including Waldorf, Montessori, Reggio Emilia and the 21st century education.

TOPIC 2: EMERGENT CROSS-STRAIT REDESIGN MOVEMENT

Large-scale school redesign initiatives in the real-world context will be introduced, including the HKJC well-being project in Hong Kong, Nanshan-ing 100 campus renewal plan in Shenzhen and the Design Movement on Campus in Taiwan.

TOPIC 3: FUNCTION OF SCHOOL AND NATURE OF LEARNING

Ideas of schooling and learning from various philosophers and sociologists will be introduced, including Foucaldian notion of discipline, Merleau-Pontian learning as experience and the Lefebvrian production of space.

TOPIC 4: MASS PRODUCTION OF STANDARDISED SCHOOLS IN HONG KONG

The development of standardised school types in Hong Kong due to urban development and policy change will be introduced.

METHODS

This elective course investigates the emergent redesign movement of primary school spaces. Using the standardised local primary schools as the typology, we will examine how residual spaces could be better utilised to enhance well-being in teaching and learning. Based on user feedback, a systematic redesign proposal that addresses the socio-spatial needs among typical school buildings will be formulated for future uses.

The assignments in this course are intended to be extensive and specific rather than intensive and generic. Students are encouraged to produce efficient diagrams for illustration instead of depictive, over-sophisticated architectural drawings. This elective course emphasises the process of building a comprehensive understanding of typological studies, which will derive the redesign proposals as the final outcome.

Students will first look at precedents in the historical context in groups, and later produce a set of typological studies with architectural plans and axonometric drawings, and a set of redesign proposal with diagrams using the typological studies individually.

WORKSHOPS
In-class tutorials in a desk-crit format will be arranged to discuss how analytical drawings and redesign proposals should be derived.

FIELD TRIPS
A field trip to Nanshan, Shenzhen will be organized on 7 September 2024 (Saturday) to investigate the latest contemporary redesign movement in China.

GUEST LECTURES
Students are required to attend the mini-conference on 6 September 2024 (Friday) as part of the course activity. Policy makers and practitioners from Shenzhen and Taiwan will deliver keynote sessions on the emergent redesign campaigns.

EXHIBITION
All three assignments will be exhibited in standard format to other school members and the public in the end of term as the research output, and documented into booklets for future dissemination.

DELIVERABLES

01_ Baseline Study (Group 20%) Assignment / Presentation
In this assignment, students will grasp the idea of how spaces associate with pedagogical ideas in the historical context. For each group, choose ONE of the following topics and conduct chronological-spatial analyses using graphical apparatus (diagrams, timelines, photographs, etc). For each topic,

select FOUR to SIX canonical cases to demonstrate how architectural spaces were designed parallel to the educational philosophy, pedagogy, sociological background and/or government policies behind them.

- Western school buildings (ancient to post-war)
- Western school buildings (post-modern to contemporary)
- Chinese school buildings (ancient to post-war)
- Chinese school buildings (post-modern to contemporary)
- Public school buildings in Hong Kong

Deliverables (for each group): 8 - 10 nos. of A3 panels

02_ Typological Study (Individual 40%) Assignment / Presentation
In this assignment, students will investigate the architectural design of the following types: estate school and elite school in the 1950s, second school building programme in the 1960s, interlocking schools in the 1970s, purpose-made school and flexi-school in the 1980s, Y2K design in the 1990s and the standard and non-standard designs after 2000.

For each student, choose ONE type (school case) and conduct a set of analyses using basic architectural drawings (plans, sections, and/or axonometric drawings) covering the following socio-spatial aspects:

- Demographics (site plan, site area, gross floor area, plot ratio, no. of occupants, year of completion, etc.)
- Building overview
- Circulation and transitional spaces
- Semi-outdoor spaces (covered playground, tuck shop, etc.)
- Outdoor spaces (playground, paved areas, etc.)
- Green areas (lawn and planters)

Each student will adopt the same format and methods including archival study, close reading of architectural drawings, site visits, measured drawings (if necessary) and interviews. Existing problems, usage and potential should be identified by interviewing the school stakeholders. Findings should include all significant spatial changes since its establishment. Effective architectural representations using abstracted diagrams and simple axonometric drawings are expected.

Deliverables (for each student): 4 - 6 nos. of A1 panels

03_ Redesign Proposal (Individual 20%)
Based on the typological studies, students will propose a diagramatic redesign scheme for the selected architectural type. The redesign scheme should include a conceptual theme, spatial strategy/principle, and evidence-based design elements that address the needs of the target school and the redesign potential identified in the previous study.

Deliverables (for each student): 2 – 4 nos. of A1 panels

04_Final Report (Individual 20%)

Students will consolidate their findings into a final report (standardised A3 format).

Note: Exact format of panels will be discussed in class

LEARNING OUTCOMES

1. Students will develop the ability to create spatial redesign schemes for existing schools that satisfy both aesthetic and technical requirements
2. Students will acquire adequate knowledge of the historical precedents of school designs and be informed by the related arts, technologies and human sciences including the philosophical and sociological theories of learning.
3. Students will develop understanding of the relationship between student users and school spaces, and between school building and the surroundings through identifying indoor and outdoor residual spaces.
4. Students will experience the profession of architecture in designing and redesigning campus environment with processes of community engagement, and practice the role of the architect in co-creating redesign briefs with school stakeholders.
5. Students will learn and implement various architectural and social-scientific methods of investigation on existing school spaces.
6. Students will learn the structural design of school buildings by conducting the typological studies.
7. Students will develop school redesign schemes and raise awareness in carbon reduction through strategizing retrofitting and adaptive reuses.

ASSESSMENT SCHEME

SPECIFIC ASSESSMENT

01_Assignment 1 (20%) 17 Sep 2024
02_Assignment 2 (40%) 29 Oct2024
03_Assignment 3 (20%) 19 Nov 2024
04_Final Report (20%) 13 Dec2024

Total: 100%

COURSE FORMAT

1_Teaching Days

1. Students must attend for F2F teaching during these teaching hours.
   Teaching Day: 10:30-1:15 pm, Tuesday
2. Teaching Venue: School of Architecture (TBC)
3. Field trips, lectures, and other learning activities may be scheduled outside of teaching days.

2_Student Study Effort_3 credit course (Total: 140 hrs)

1. Class Contact: 40 hrs (Lecture –12hrs, Tutorial – 9hrs, Critique – 9hrs, Field Trip –10 hrs)
2. Other Student Study Effort: 100 hrs (Studio / Self Study)

Field Trip

A field trip to Nanshan, Shenzhen will be arranged on 7 September 2024 as part of a conference programme. Site visits to individual schools will be arranged by students with the support of the instructor.

REQUIRED READINGS

Blackmore, J., Bateman, D., Loughlin, J., O'Mara, J., & Aranda, G. (2011). *Research into the connection between built learning spaces and student outcomes*.
Hong Kong Institute of Architects. (2006). *HKIA Journal No. 47 – The Development of School Design in Hong Kong*. https://www.hkia.net/uploads/en/publication/journal/HKIA_Journal_47.pdf

OTHER REFERENCES

Mäkelä, T., Helfenstein, S., Lerkkanen, M.-K., & Poikkeus, A.-M. (2018). *Student participation in learning environment improvement: Analysis of a co-design project in a Finnish upper secondary school*. http://link.springer.com/10.1007/s10984-017-9242-0
Nair, P. (2014). *Blueprint for Tomorrow: Redesigning Schools for Student-Centered Learning*. Harvard Education Press.
Plotka, E. (2016). *Better Spaces for Learning*. https://www.architecture.com/-/media/gathercontent/better-spaces-for-learning/additional-documents/ribabetterspacesforlearningpdf.pdf
Ball, S. J. (2012). *Foucault, Power, and Education*. Routledge.
Dovey, K., & Fisher, K. (2014). Designing for adaptation: The school as socio-spatial assemblage. *The Journal of Architecture*, *19*(1), 43–63. https://doi.org/10/gg4tnc
Fontana-Giusti, G. (2013). *Foucault for Architects*. Routledge, Taylor & Francis Group. https://doi.org/10.4324/9780203743867
Hale, J. (2016). *Merleau-Ponty for Architects* (1st ed.). Routledge. https://doi.org/10.4324/9781315645438
Hung, R. (2008). Educating For and Through Nature: A Merleau-Pontian Approach. *Studies in Philosophy and Education*, *27*(5), 355–367. https://doi.org/10/fn3w94
Jill Blackmore, Debra Bateman, Joanne O'Mara, & Jill Loughlin. (n.d.). *The connections between learning spaces and learning outcomes: People and learning places?* (p. 148). Centre for Research in Educational Futures and Innovation, Faculty of Arts and Education, Deakin University.
Leask, I. (2012). Beyond Subjection: Notes on the later Foucault and education. *Educational Philosophy and Theory*, *44*(s1), 57–73. https://doi.org/10/bw8xtq
Mayoral-Campa, E., & Pozo-Bernal, M. (2017). From the classroom to the city. Urban archetypes in Herman Hertzberger's primary schools. *Revista Proyecto, Progreso, Arquitectura*, *17*, 100–115. Scopus. https://doi.org/10/gf8jqb
Woolner, P. (2018). Collaborative Re-design: Working with School Communities to Understand and Improve Their Learning Environments. In R. A. Ellis & P. Goodyear (Eds.), *Spaces of Teaching and Learning: Integrating Perspectives on Research and Practice* (pp. 153–172). Springer. https://doi.org/10.1007/978-981-10-7155-3_9
朱永新 [Yongxin Zhu]：《未來學校：重新定義教育》（香港：中信出版社 2019年）

IMPORTANT NOTE TO STUDENTS

Expectations for Professional Conduct
The motto of The Chinese University of Hong Kong (CUHK) is "Through learning and temperance to virtue". This motto places equal emphasis on the intellectual and moral education of students. In addition to pursuing academic excellence, students of CUHK are expected to maintain and uphold the highest standard of integrity and honesty in their academic and personal lives, respect the rights of others and abide by the law. More information on Postgraduate studies can be found in the PG Student Handbook. https://www.gs.cuhk.edu.hk/

Attendance
Class attendance is required in all courses. For an excused absence, the instructor must be notified and presented with documentation of illness or personal matter. Please note: **Three (3)** or more unexcused absences may result in a failing grade for the course.

Academic Honesty
The Chinese University of Hong Kong places very high importance on honesty in academic work submitted by students and adopts a policy of zero tolerance on academic dishonesty

Attention is drawn to University policy and regulations on honesty in academic work, and to the disciplinary guidelines and procedures applicable to breaches of such policy and regulations. Details may be found at: http://www.cuhk.edu.hk/policy/academichonesty/.

With each assignment, students may be required to submit a statement that they are aware of these policies, regulations, guidelines and procedures.

Third-Party Assistance
All intellectual work essential to the design project must be completed by the student and cannot, under any circumstance, be outsourced to a third party (including, but not limited to a company, consultant, alumni, and/or friend).

In the design studio context, students may utilize external resources, such as printing services for presentation materials, and/or laser cutting and 3D printing services for prototyping purposes. Use of such third-party services constitutes non-intellectual work done by others. It is only permitted with prior written consent from the studio tutor and acknowledgment of such work done by the third party.

Assistance from other students or friends for aspects of project production also constitutes non-intellectual work done by others; this is allowed only if declared and acknowledged in a written statement attached to any such work that has received assistance.

Under all circumstances, students must declare all work done by others by completing the school's designated form before assessment. This form must include a detailed explanation of the third party's identity (name and relationship to the student), when and how they were utilized, and the specific tasks they performed in the project. The completed form, signed by the student, must be endorsed by the tutor and presented during the final review. The school will collect and retain this form for record-keeping purposes.

Failure to follow this code of conduct may be considered a case of academic dishonesty, to be reviewed by a disciplinary board, and possible failure of the course.

Artificial Intelligence

Unless approved by the Programme or School Director, any use of AI tools such as ChatGPT or image generation tools (Midjourney) etc. is strictly prohibited and may result in disciplinary action in accordance with university policy on academic honesty. Students may refer to the CUHK 'Use of Artificial Intelligence tools in Teaching, Learning and Assessments' – A Guide for Students.

Student Work
Submission of studio documentation must be complete and correctly formatted. Missing or incomplete submission of the documentation folder will result in the grade for the course being withheld. This will prevent registration for the following term or delay graduation. In addition, a grade deduction of *one letter grade* will be made.

Term 1: 2 September 2024 (Monday) – 30 November 2024 (Saturday)

WEEK 01		
03.09	**INTRODUCTION**	Emergent Movement of School Redesign / Issue assignment 1
WEEK 02		
06.09	**CONFERENCE LECTURES**	Rethinking primary school spaces for teaching, learning and well-being: An emergent cross-strait redesign movement in Hong Kong, Shenzhen and Taiwan
07.09	**FIELD TRIP**	Nanshan-ing: 100 Campus Renewal Plan in Shenzhen (*VISA required)
WEEK 03		
17.09	**PRESENTATION**	**Assignment 1 Presentations** / Issue assignment 2
WEEK 04		
23.09	**REVIEW 01**	Year 2
24.09	**Site Visits / Tutorial**	Assignment 2 – Site Visits / Tutorial
26.09	**REVIEW 01**	Year 3
WEEK 05		
30.09	**REVIEW 01**	Year 4
01.10	**NATIONAL DAY**	No class
WEEK 06		
08.10	**LECTURE**	Educational philosophy and school design: Waldorf, Montessori and Reggio Emilia / Assignment 2 Tutorial
WEEK 07		
15.10	**SITE VISITS / TUTORIAL**	Assignment 2 - Site Visits / Tutorial
17.10	**REVIEW 02**	Year 2
WEEK 08		
21.10	**REVIEW 02**	Year 3
22.10	**SITE VISITS / TUTORIAL**	Assignment 2 – Site visits / tutorial
24.10	**REVIEW 02**	Year 4
WEEK 09		
29.10	**PRESENTATION**	**Assignment 2 Presentations** / Issue assignment 3
WEEK 10		
05.11	**LECTURE**	What are learning and learning spaces? Theoretical perspectives from Maurice Merleau-Ponty, Michel Foucault and Henri Lefebvre

WEEK 11		
12.11	**TUTORIAL**	Assignment 3 – Tutorial
WEEK 12		
19.11	**PRESENTATION**	**Assignment 3 Presentations**
WEEK 13		
25.11	**FINAL REVIEW**	Year 2
27.11	**FINAL REVIEW**	Year 3
29.11	**FINAL REVIEW**	Year 4
WEEK 15		
13.12	**SUBMISSION**	Final report due (at noon)

Grade	Descriptor	Criteria	Points
A	Excellent	Comprehensively excellent performance on all aspects of the design intention, development, technical resolution and presentation. Achieving all learning outcomes with distinction.	4
A-	Very Good	Generally outstanding performance on the design intention, development, technical resolution and presentation. Achieving all learning outcomes with merit.	3.7
B+	Good	Substantial performance on the design intention, development, technical resolution and presentation. Achieving all learning outcomes satisfactorily.	3.3
B			3
B-			2.7
C+	Fair	Fair performance on the design intention, development, technical resolution and presentation. Achieving all learning outcomes at a passing standard.	2.3
C			2
C-			1.7
D+	Pass	Barely satisfactory performance on the design intention, development, technical resolution and presentation. Achieving all learning outcomes at a barely satisfactory standard.	1.3
D			1
F	Failure	Unsatisfactory performance on the design intention, development, technical resolution and presentation. Not achieving all learning outcomes.	0