

# UNBIND

# the SCHOOL

RENOVATION GOALS FOR SCHOOL BUILDINGS  
BUILT IN 1970-1990 IN SOVIET DISTRICTS OF VILNIUS

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MASTER THESIS - THEORY PART

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# ABSTRACT

"If we teach today as we taught yesterday we rob our children of tomorrow" - John Dewey, American philosopher, psychologist and educational reformer (1859-1952) points out that education ideas should be changing constantly and co-evolving with society. The changes in a learning space are unavoidable and necessary too, but unfortunately they are often overlooked. With my project I want to show the relevance of the idea that if we keep teaching and learning in the same spaces built for yesterday's education methods and values we also rob our children of tomorrow. First of all because school is one of the environments which shape children's attitude towards the world and society. Secondly, school spaces could become impulses to try new ways of teaching. They a lot of potential to be a catalyst for renewing education, the same way as it is sometimes an obstacle for changes or an excuse to continue working the same way: it is difficult to see possibilities for changes when all environment states the same old "truths".

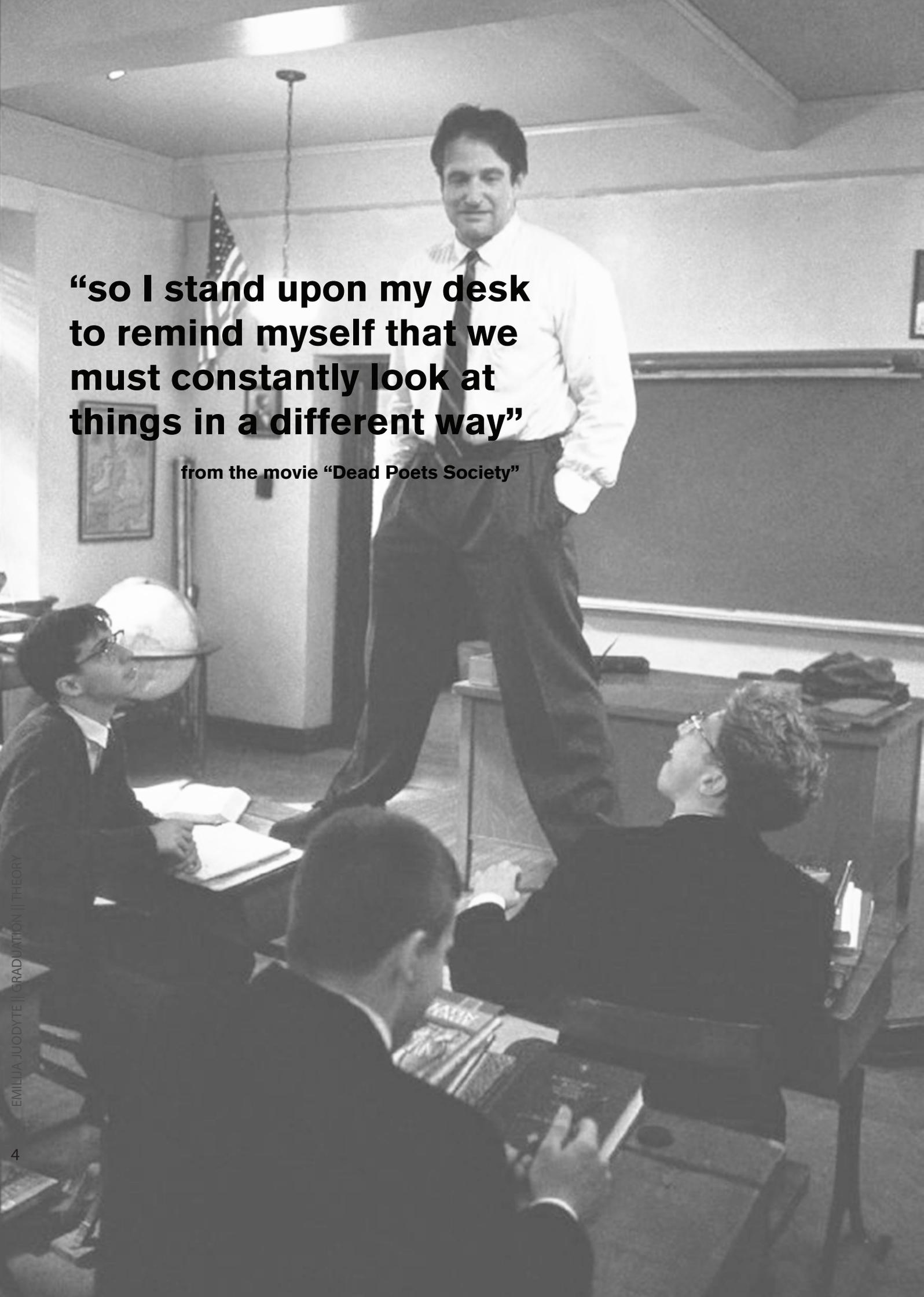
A major part of Vilnius population lives in so called concrete jungles, one of the most visual and strong reminder of a not so distant Lithuanian past. Since Lithuania got independent from the Soviet Union in 1990 there have been a lot of social, economic and political reforms, though Soviet rayons built in 1960-1990 have not changed much. They create a monotonous and mono-functional environment. Housing blocks are arranged in the way that schools and kindergartens are at the walking distance even without crossing big roads, which enhances potential for educational buildings to play a role in the neighborhood life. However, schools built during the same time in Vilnius microrayons haven't changed much neither.

In my thesis I define what are the most important values for the future education system and which spatial properties they require. I develop a framework which allows me to analyse Vilnius' schools and conclude what has to be changed and which parts of the school buildings have the most potential to transform into a fruitful learning environment.



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**“so I stand upon my desk  
to remind myself that we  
must constantly look at  
things in a different way”**

from the movie “Dead Poets Society”

# INTRODUCTION

## WHY VILNIUS' SCHOOLS NEED A CHANGE

“If we teach today as we taught yesterday we rob our children of tomorrow” - John Dewey, American philosopher, psychologist and educational reformer points out that education ideas should be changing constantly (*Dewey, J 1916*).

In the course of time the views on educational systems have been changing constantly, and have always been open for intense debates. On an abstract level these debates dealt with views on a desirable society, desirable ways of living, and on a more practical level - with specific learning methods and training of future teachers. An important aspect, which often is overlooked, is the need to reflect on the learning environment, the spatial context in which education takes place.

Following from John Dewey's statement, it can be added that if we keep teaching and learning in the same spaces built for yesterday's education methods and values we are also robbing our children of tomorrow. First of all because schools are the environments which shape children's attitude towards the world and society. Secondly, school spaces could become impulses to try new ways of teaching: they have a lot of potential to be a catalyst for education's evolution, the same way as it sometimes is an obstacle for changes or an

excuse to continue working the same way. It is difficult to see possibilities for changes when all environment states the same old 'truths'.

In the case of Vilnius, a major part of its population live in so called concrete jungles, one of the most visual and strong reminder of not so far Lithuanian past. Since Lithuania got independent in 1990 there have been a lot of social, economic and political reforms, though Soviet rayons built in 1960-1990 have not changed much (a detailed description of Soviet rayons can be found in chapter 3).

Within this context, housing renovation is a popular topic in Lithuania. While some minor renovations as insulation and colouring are executed, the architecture community is talking how to actually make the neighbourhood more liveable. Architects are pointing out that housing renovation projects are adapted to old people: head architect of Vilnius municipal enterprise “Vilniaus planas” M. Pakalnis told during the interview with a local newspaper that one of the current issues in Vilnius is that young people, especially young families, are leaving these rayons and moving outside the city. Thus, he suggests that we should think better how to attract young people to these areas (*U. Karaliūnaitė, 2013*).

One of the reasons that pushes young families to move out is that they don't see a proper environment for their kids to grow up. Here attention must be paid to the importance of schools, because they are in the middle of each micro-rayon and could actually play a role in building a more lively and inviting environment.

Moreover, while we are still learning how to fix harmful soviet leftovers and open up to the world, our young generation is still attending the same old schools. Schools, similarly like housing blocks, are being renovated by changing windows, improving insulation, fixing roofs and sometimes painting some walls. The structure and organisation of spaces, which are obviously the most significant elements of the buildings, are left untouched in most renovation plans. Students are still learning in the monotonous classroom environments inherited from Soviet times, strolling in the long corridors without having a proper place to enjoy the breaks.

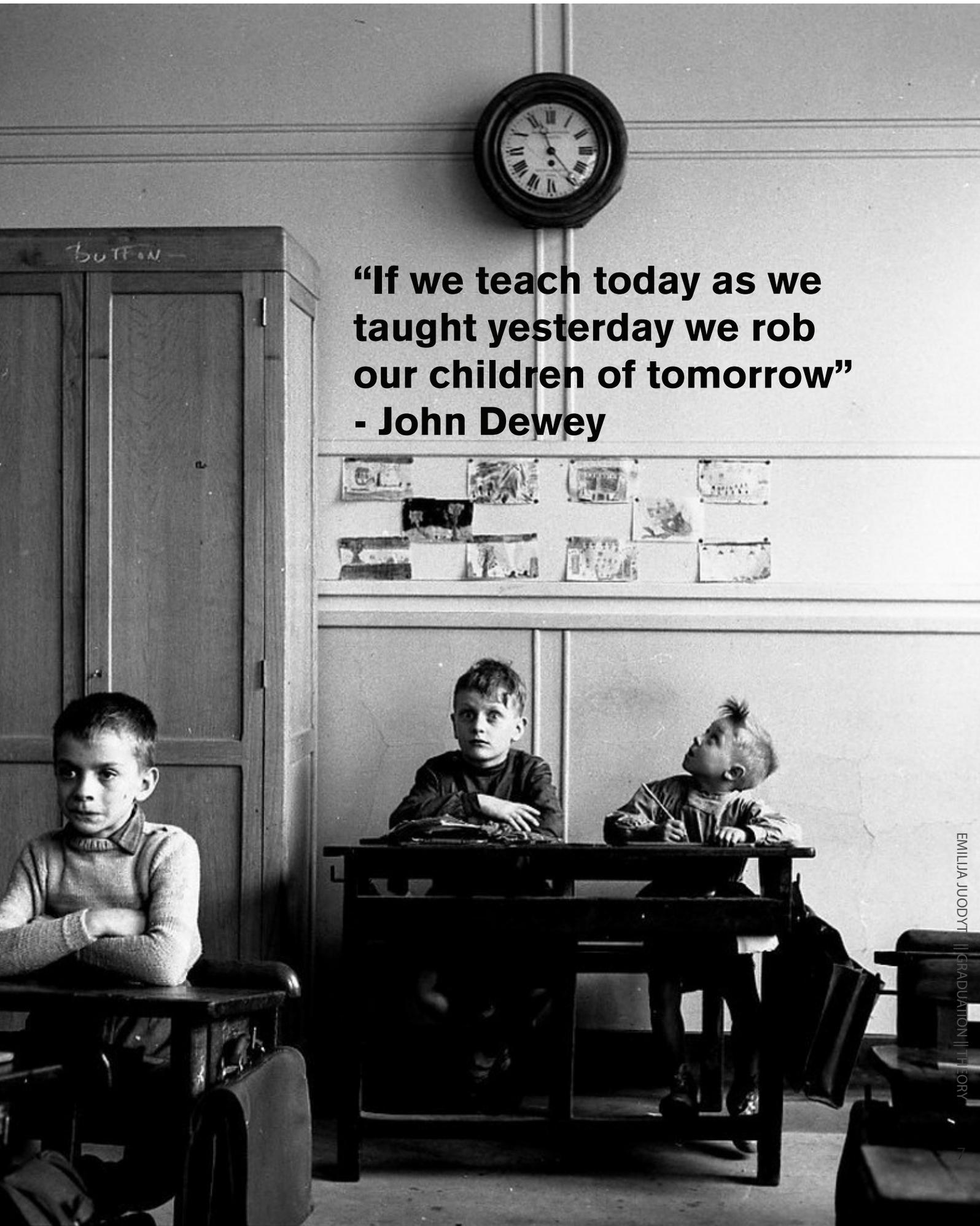
Alexandra Lange, architecture and design critic, has dealt with this topic in her article 'How can you learn about the world in spaces without character?' (*A. Lange, 2014*) According to her, children should be respected as "sensitive consumers of space", therefore we should avoid generic designs for our schools. Rena Upitis (Professor of Education and designer) writes that rich and complex environments "support relationships between people and ideas" (R. Upitis 2004), as they can nurture different activities, trigger curiosity, and give opportunities to communicate or concentrate. Despite the fact that there have been several education reforms after 1990 in Lithuania, as well as many recent discussions about the need of changes in the education system – like the TEDxKids recently organised in Vilnius - there haven't been enough discussions about learning environment itself.

At this point, few important questions, which triggered this research, can be formulated regarding the influence of space within learning process: What are the core values of the current debate about education and its role in a society? How can these rigid school structures be changed in order to nurture the values which lead to a better education system? How to create the environment which facilitates the development of pupils regarding those values?

In order to find out how these issues can be solved or mitigated, my research is divided in four main parts. Chapter 1 elaborates on the evolution of educational values in the history of education, values that are linked to changing views on society and changing ideas on the role education plays within society. It allows me to formulate the key values of contemporary and emerging education systems, which become a lens through which I analyse spatial characteristics of school buildings. After analysing case studies in chapter 2, spatial characteristics that support specific education values, or act as a catalyst for learning processes, become evident. In chapter 3 Soviet school buildings, the ideology and the context that defined their architectural characteristics are described. In chapter 4 existing school buildings in Vilnius are analysed, as these will be the contexts for which I formulate a design brief.

Finally, in the concluding chapter of my thesis, I compare the Vilnius schools to current educational values and the spatial characteristics of fruitful learning contexts. Joining the knowledge of what defines a better learning environment and what is the current state of Vilnius schools, I will be able to point out the most problematic spaces or potential areas for improvement in the design of new generation of Vilnius' schools.





**“If we teach today as we  
taught yesterday we rob  
our children of tomorrow”  
- John Dewey**

## CHAPTER 1

# EVOLUTION OF THE ROLE AND VALUES OF EDUCATION

*In the Strand Magazine of 1893 Arthur Conan Doyle has the detective Sherlock Holmes looking across London's landscape and observing to Dr Watson:*

*'Look at those big, isolated clumps of buildings rising up above the slates, like brick islands in a lead-coloured sea.'*

*'The Board schools.'*

*'Lighthouses, my boy! Beacons of the future! Capsules with hundreds of bright little seeds in each, out of which will spring the wiser, better England, of the future ...'*

School and education play an undeniably important role in any society. As societies change, the role and values of education have been always changing, as well as the architecture of the learning space, given the tight relationship between buildings, the political and socio-economical context, and educational systems and values.

In this chapter the evolution of education ideas through a history and society's attitude

towards them will be explored. To do so I am going to take a broad view on values which shaped evolution of education systems till today, taking special focus on contemporary education concepts. It will lead to the conclusions of the chapter - defining the crucial education values which should be taken into account while designing or renovating schools for tomorrow.



Robert Doisneau "Le cadran scolaire" 1956

## EDUCATION HISTORY

For most part of human history, children educated themselves through self-directed play and exploration. With the rise of agriculture and the growing need of labour work, kids were forced to focus on learning skills which would be useful for agriculture. The most inhuman stages of the industrial revolution were followed by child labour issue, when most children would be forced to learn certain skills and to work performing hard duties, in a similar way as in agriculture based societies. However, the need for child labour declined in some parts of the world, as society took consciousness of the dangers behind stealing childhood in such a way. This process didn't happen homogeneously in all the world, and the proof of it is that nowadays, especially in poorer countries, it is still a common practice

to force children to work. The idea of childhood as a time for playing and discovering has been expanding gradually till nowadays.

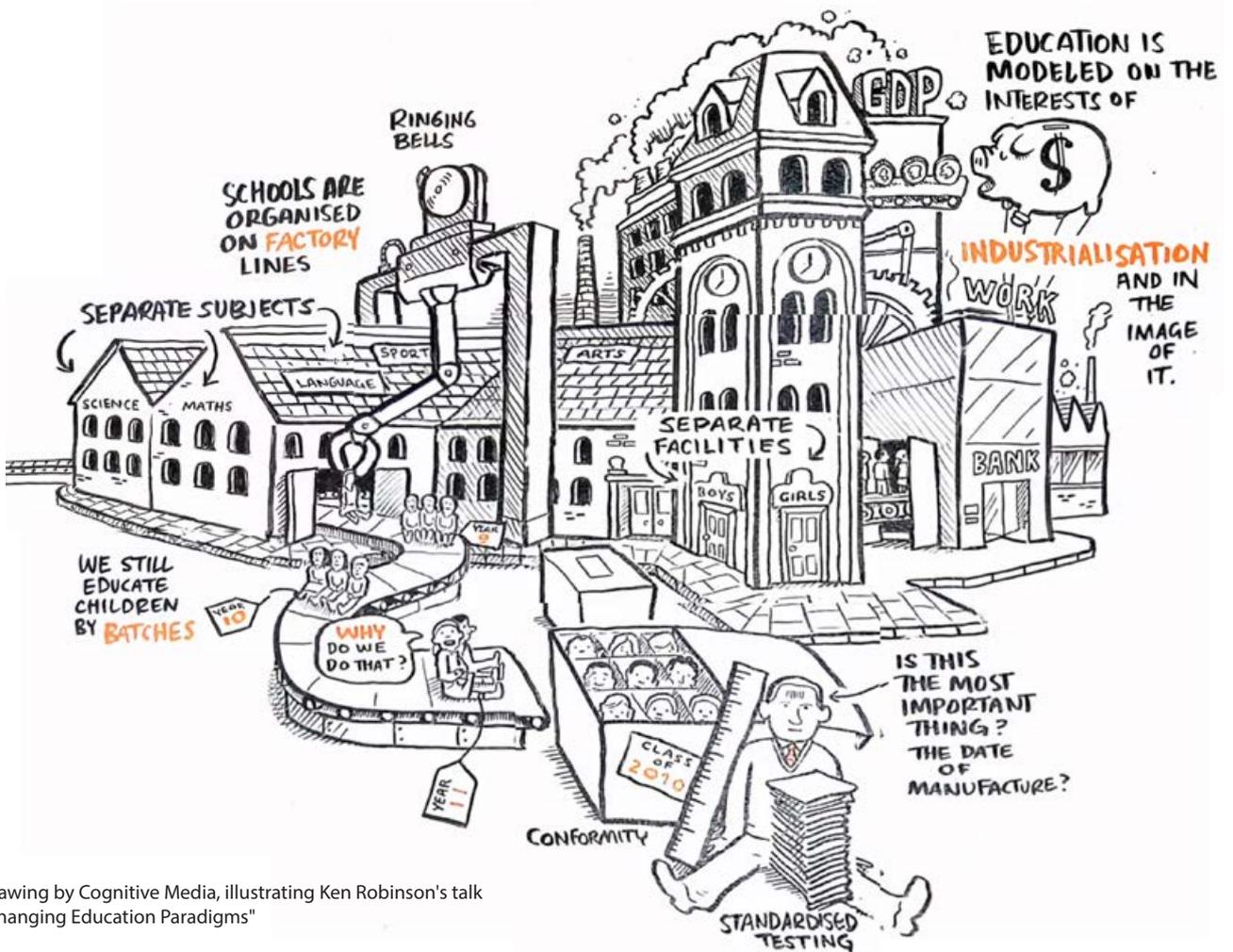
From the early 16th century until the 19th century, the idea of universal compulsory public education was developed in Europe. Obligatory school attendance became common in parts of Europe during the 18th century (P.Gray, 2008). However, till the beginning of the 19th century schooling happened almost anywhere, mostly in one room where all the activities often happened simultaneously. The atmosphere of such classroom is well depicted in Jan Steen painting, village school, from 1670. It seems a good example of learning by doing and learning by collaboration concepts.



Jan Steen "Village School", 1670



Lewis W. Hine "Callie Campbell, 11 years old, picks 75 to 125 pounds of cotton a day", 1916



Drawing by Cognitive Media, illustrating Ken Robinson's talk "Changing Education Paradigms"

During the industrial revolution (18-19th century) employers in industry saw schooling as a way to create better workers. To them, the most crucial lessons were punctuality, following directions, tolerance for long hours of tedious work, and a minimal ability to read and write.

In the 19th and 20th centuries, public schooling gradually evolved towards what we all recognize today as conventional schooling. The methods of discipline became more humane, the lessons became more secular, the curriculum expanded, as knowledge expanded. Besides, the amount of time children spent in schools increased as well, so school buildings became bigger, with separated classrooms and well organised schedules.

Post war era brought new needs and ideas. "The major concern in the post-war world was how education might be renewed as a force to secure democracy" (*I.Grosvenor; C.Burke, 2008*). In many Western democracies it was believed that school is the environment where equality and challenges to past hierarchical structures could enhance the involvement of communities in reconstruction and planning for peace.

At the same time others started criticising the hierarchical education model as it did not

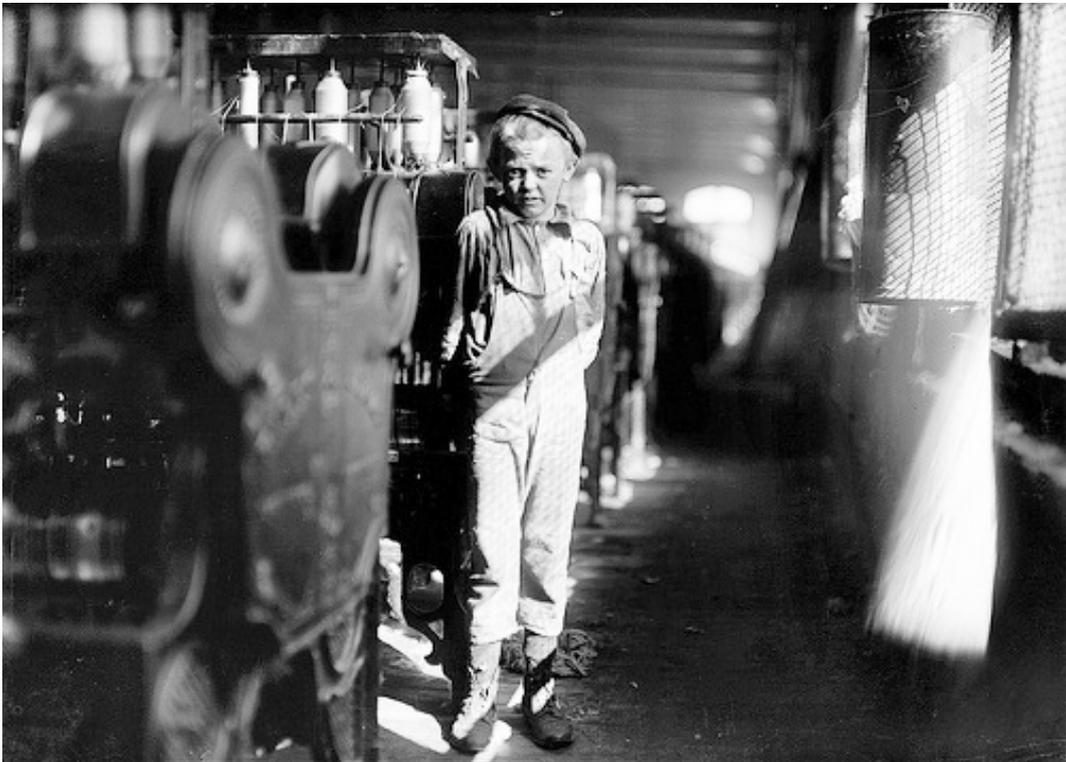
enable children to achieve their potential: "The materiality of school world, it was suggested, play a crucial role in enabling new forms of pedagogy to flourish, shifting the centre of gravity from teacher to child" (*I.Grosvenor; C.Burke, 2008*). On the other hand high demand of new schools and housing generated fast building processes which ended up with lack of attention to learning spaces and school environment.

Nowadays we face new challenges because of rapidly changing technology which also influences the learning spaces as well as the skills and knowledge we require.

Clearly, it is a big challenge to build a contemporary learning space when ideas on education and technology are changing fast. That is why it is important to keep ourselves up to date and design so that the environment could not only fit for today's pupils' and enhance their learning but also would be able to adapt for new education methods in the future. This line of thought leads to the following inevitable questions: how do space and learning relate to each other? How can space act as a catalyst for future learning processes? These are the questions that I try to answer in this part of the research.



Lewis W. Hine "Spinners in a cotton mill", 1911



Lewis W. Hine "Child Labor", 1911

# TIMELINE

Making a timeline of the school buildings and ideas which shaped school design from the XVIII century onwards, helps to understand better how the attitude towards the learning environment and school architecture has been changing since the industrial revolution era and understand what the future needs are.

LITHUANIA AND INFLUENCES



1819 PARISH SCHOOL IN LITHUANIA

LACK OF SCHOOLS



ILLEGAL LITHUANIAN LANGUAGE SCHOOLS IN HOUSES, MANSIONS

1865 - 1904 Lithuanian language is banned

1830

1840

1850

1860

1870

1880

~1830 **SAMUEL WILDERSPIN**  
MONITORIAL SYSTEM  
UK

classroom rearranged like gallery, all students can see the master; the importance of surveillance



1837 **FROEBEL**  
KINDERKARTEN

Germany

children develop through their own activity  
the best environment for children is rich and complex



1870 **THE NORMAL AND THE HIGH SCHOOL FOR GIRLS**  
Boston  
advanced environment design



EDUCATION BUILDINGS

1830-40 **SEPARATE (AGE-RELATED) CLASSROOMS** IN PRUSSIA

INDUSTRIAL REVOLUTION

FROEBEL KINDERKARTENS ARE BANNED

BLACKBOARD started to use commonly



1872 PUNISHED KID

1874 **E.R. ROBSON**  
BOOK "SCHOOL ARCHITECTURE"  
UK

he travelled in the Continent for the most up-to-date school-planning ideas; he built several hundred schools in London

EDUCATIONAL IDEAS

OTHER INFLUENCE

- VARIETY
- FLEXIBILITY
- COMMUNITY
- OUTSIDE



1915 FIRST LITHUANIAN GYMNASIUM, VILNIUS  
*at home of Pimenov*



FROM 1921 TYPICAL PROJECTS MANY NEW SCHOOLS not all built

architekts: Feliksas Bielinis, Steponas Stulginskis

1890

1900

1910

1920

1930

1940

1896 LABORATORY SCHOOL JOHN DEWEY University of Chicago  
*In the former residence building, hands-on learning activities*

1904 WALDESCGULE - FIRST OPEN AIR SCHOOL BUILT BY WALTER SPICKENDORFF  
Germany  
*in the woods*

1918 THE NETHERLANDS

1907 MONTESSORI FIRST CLASSROOM  
Rome, Italy  
*interaction with the environment, liberty to choose and act freely*

1919 RUDOLF STEINER WALDORF SCHOOL  
Stuttgart, Germany  
*wooden furniture, pastel colours, natural lighting, presence of natural objects*

since 1918 PRESTOLEE SCHOOL, UK E. F. O'NEIL BROUGHT NEW IDEAS  
*learning by doing*

1929 OPEN AIR SCHOOL, AMSTERDAM J. DUIKER

1935 RICHARD NEUTRA CORONA SCHOOL  
LA, California  
*Montessori method, active participation of the student, importance of outdoor space*

1930 HENRY MORRIS VILLAGE COLLEGES  
Cambridgeshire  
*physical and psychological well-being for child, environment, behaviour... Child As A Whale*

1937 THE SCHOOL OF SOUND BY KAJ GOTTLÖB, Copenhagen

1935 SURESNES OPEN-AIR SCHOOL by E. Beaudoin, M. Lods  
Paris, France  
*hygienic, sun and light full school*

1934 GIUSEPPE TERRAGNI SANTELIA SCHOOL  
Como, Italy  
*glass, partitions - flexibility, light*

JOHN DEWEY (1859-1952) ideas  
US  
*school is a social institution, conversation, inquiry, making things, artistic expression*

MONTESSORI

RUDOLF STEINER WALDORF SCHOOL IDEAS

JOHN DEWEY - UTOPIAN SCHOOL  
*large grounds, gardens, greenhouses "well-furnished home"*

OPEN AIR SCHOOLS FOR HEALTH (tuberculosis)

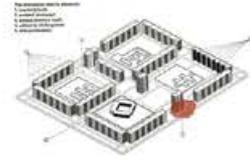
CRITIQUE TO SCHOOL DESIGN  
*traditional designs of buildings and furniture were increasingly exposed as failing the health needs of children*

1910 "THE HYGIENE OF SCHOOL LIFE" BY RALPH CROWLEY  
*about school buildings, furnishings and organization for teaching and learning*

1924 DECLARATION OF THE RIGHTS OF THE CHILD  
BEATRICE ENSOR  
WW2

wrote: ROBSON, McMILLEN, STILLMAN

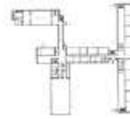
STANDARDIZATION IN ARCHITECTURE



1971-1985 SCHOOLS DESIGNED BY TYPICAL PROJECTS  
176 schools



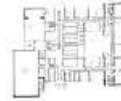
TYPICAL PROJECTS  
LTSR



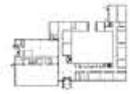
1971



1975



1979



1985

1940

1939 CROW ISLAND SCHOOL by Eiel Saarinen with Perkins, Wheeler and Will. "First modern school"  
self-contained modules provides access to different kind of spaces; collaborative design

1945 FIRST REGGIO EMILIA SCHOOLS  
environment(school) as the third teacher

1939 IMPINGTON VILLAGE COLLEGE: Walter Gropius and Maxwell Fry  
Cambridgeshire  
'practical, functional and beautiful'; but it also possessed eleven essential requisites for 'a natural mode of education'

1938 EMERSON SCHOOL  
'without classrooms'

1951 HANS SCHAROUN ELEMENTARY SCHOOL IN DARMSTADT - NOT BUILT

REGGIO EMILIA

1950

1956 TULSE HILL COMPREHENSIVE SCHOOL, LONDON  
'perversely inhumane'; 9 stories, for 2210 boys, for working class

1954 HUNSTANTON SECONDARY SCHOOL BY ALISON AND PETER SMITHSON  
two floors, grouping, two courtyards, large hall, no corridors

1960 HERMAN HERTZBERGER DELFT MONTESSORI SCHOOL

1944-1960 HENRY SWAIN CLASP - COMMUNITY SCHOOLS - prefabricated materials - cheap, fast



SCHOOLS WITHOUT CLASSROOMS IDEA IN USA

1960

1962 HANS SCHAROUN Geschwister-Scholl-Gesamtschule "CLASS-DWELLING"

1959 FINMERE SCHOOL BY MARY AND DAVID MEDD  
simple exterior, complex interior; differentiated spaces; CLASSIC OPEN PLAN DESIGN

1960 CANTONAL SCHOOL IN FREUDENBERG, ZURICH BY JACQUES SHADER  
Modern Movement in architecture

IN 1960 HIERARCHICAL SYSTEM IN SCHOOLS ARE BEING QUESTIONED

1970

1964 CHURCHFIELD SCHOOL BY RICHARD SHEPPARD  
solving problem of a large school - 12 parts

1973 AUF DEM SCHAFERSFELD IN LARCH BU GUNTER BEHNISCH  
dynamic free forms, essential quality of openness, retaining the basic classroom form

Eveline Lowe Primary in London, designed by David and Mary Medd between 1964 and 1968  
DOMESTIC ENVIRONMENT

1976 AGIOS DIMITRIOS SECONDARY SCHOOL BY TAKIS ZENETOS  
called utopian school, renovated 2005

IDEAS ABOUT DESCHOOLING

HOMESCHOOLING

FROM TEACHER CENTERED TO MORE LEARNER-CENTERED WAYS OF KNOWING

1950-52 PREFABRICATED (CONCRETE) SCHOOLS IN LONDON

HOME ENVIRONMENT AT SCHOOL

1970 BARONESS WARNOCK STATED THAT SCHOOL MUST BE SUITABLE FOR HANDICAPPED CHILDREN TOO

TECHNOLOGY - FIRST PERSONAL COMPUTER INTRODUCED

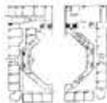
BABY-BOOM

~1950 OPEN-PLAN SCHOOLS

1959 The United Nations General Assembly adopted the United Nations Declaration of the Rights of the Child

~1960 OPEN-PLAN SCHOOLS? BY GOLDFINGER, FRANK... IN UK

1995 WALDORF SCHOOL IN VILNIUS



1989 (1986)

VARIOUS INITIATIVES  
Thinking Schools Lithuania  
"Renkuosi Mokytiš"  
"Kūrybinės partnerystės"  
TED ED Lentvaris  
"Architecture(children) Fund"



2010 **BALSIAI SCHOOL**  
BY SIGITAS KUNCEVICIUS  
ARCHITECTURE STUDIO  
second school built in  
independent Lithuania

SCHOOLS RENOVATIONS  
(changing windows, painting...)



2012 WALDORF SCHOOL RENOVATION  
BY JP ARCHITECTURE

2013 KARALIENĖS MORTOS SCHOOL RENOVATION  
BY S. KUNCEVICIUS  
individual based learning



2016 DEMOCRATIC SCHOOL  
CONCEPT DESIGN  
BY SPRIK

?

1990

2000

2010

2015

2020

2025

1991 HEINZ GALINSKI SCHOOL BY ZVI HECKER  
aesthetics over function;  
city within a city

2002 HELLERUP SKOLE, by ARKITEMA  
Copenhagen, DK

1996 ZOO SCHOOL, BRUCE A. JILK  
project based learning,  
sense of belonging

2005 PARTICIPATORY DESIGN  
INGUNNARSKOLI  
**INCOMPLETE CLASSROOM**  
BRUCE A. JILK  
Reykjavik, Iceland

2011 BRIGHTWORKS SCHOOL  
In the old Best Foods  
Mayonnaise factory

2012 Justus-von-Liebig School, Moers, Germany,  
by Peter Hubner  
participatory design

2007 FUJI KINDERGARTEN BY  
TEXUKA ARCHITECTS  
Japan

2010 XIAOQIAN ETHNIC ELEMENTARY SCHOOL by TAO  
local materials

2011 RENOVATION VIRGILIO FERREIRA SCHOOL ATELIER CENTRAL, Portugal

2005 ORESTAD HIGH SCHOOL by 3XN Architects  
Copenhagen, DK

2008 COMPLEXO ESCOLAR DOS by CLAUDIO SAT  
used by community

2010 KIRKKOJARVI SCHOOL by VERSTAS Architects  
Finland

2011 MARYSVILLE GETCHELL HIGH SCHOOL CAMPUS BY DLR  
Washington, USA  
creating learning community

collaboration with children, they right for their space

PROJECT BASED LEARNING

2006 TINKERING SCHOOL

ONLINE LEARNING

2006 KHAN ACADEMY  
online courses  
(take your pace)

IDEAS ABOUT DESCHOOLING

BRENT DAVIS  
complexity science and education

TECHNOLOGY AS INTEGRATED TOOL

SUSTAINABILITY!

## CONTEMPORARY VIEWS ON EDUCATION

*"As architects and scholars, we recognize a political role in the urban realm for these small public spaces, where design is not aimed to produce objects standing independently, such as it happened with the cathedrals of consumerism (the shopping malls) or the cathedrals of culture (museums) which, despite their most private ownership, are considered the new public arenas of the society. An innovative reconsideration of school buildings and their role within the urban realm and the community can provoke different ways of inventing the present and of planting seed for a better future. In this view, school buildings can be considered great political mediums."*  
(C+S Architects/ Alessandra Bello, Pietro Savorelli).

Such attitude towards school architecture puts a lot of responsibility on these buildings, as well as makes it clear that this is a subject worth discussing.

Education methods and ideas are changing fast but still most of the pupils study in the conventional classrooms. Also, children, their interests, and their lifestyles are changing so fast that we cannot know precisely which skills and knowledge these kids will need, and we can hardly imagine what technologies they will use once they become adults, and how these technologies will influence people's lives.

Almost a decade ago, the Organisation for Economic Co-operation and Development (OECD) published a study on 'Key Qualifications for a Successful Life and a Well-Functioning Society' (Rychen and Salganik, 2003) that identified a set of three essential qualifications: 'act autonomously', 'interact in heterogeneous groups' and 'use tools interactively'.

In the European Commission paper "Strategic framework – Education & Training 2020" emphasis is put on reflective and critical thinking, the importance of creativity, innovation and entrepreneurship, which could be learned through more active participatory learning. Besides, the ideas how to achieve more personalised learning are discussed. For example, Finland is considering its most radical overhaul of basic education yet - abandoning teaching by subject for teaching by phenomenon (R. Garner, 2015), which means that all the subjects will be integrated and a learning system will be based on projects.

Besides the institutional approach to the establishment of educational needs of tomorrow's children, there are few interesting initiatives that are gaining momentum in all education spheres, such as Ken Robinson's emphasizing that "naturally human beings are different and diverse" so education system should let it be developed (K. Robinson Ted talk, 2010); or Ricardo Semler's ideas that students (as well as adults) should have a chance to work on their own pace so they could reach their potential (R. Semler, Ted talk, 2014).

Similar ideas are brought to light in Lithuania by A. Landsbergienė – the Doctor of Education and founder of several education institutions. Her ideas challenge any hierarchical leftovers of education system. In one interview she points out that pupils should surpass their teachers so that the next generation is more emotionally intelligent, freer, braver, more self-confident and more creative (A. Landsbergienė, 2013).

Herman Hertzberger – Dutch architect and professor – connects education values and kids behaviour to architecture of learning spaces in his books as well as in his school designs. He translates those values to physical form and explains its role. For example hall as a "town square" is supposed to create feeling of togetherness; creating different heights levels so as to create as many places as possible



Drawing by 10 years pupil "My Dream Classroom", Vilnius

**environment  
that nurtures  
curiosity,  
exploration  
and provokes  
creativity**

where children can work individually or in groups; creating movable objects so that kids can change spaces and feel the part of their surroundings, etc. (H. Hertzberger, 2008).

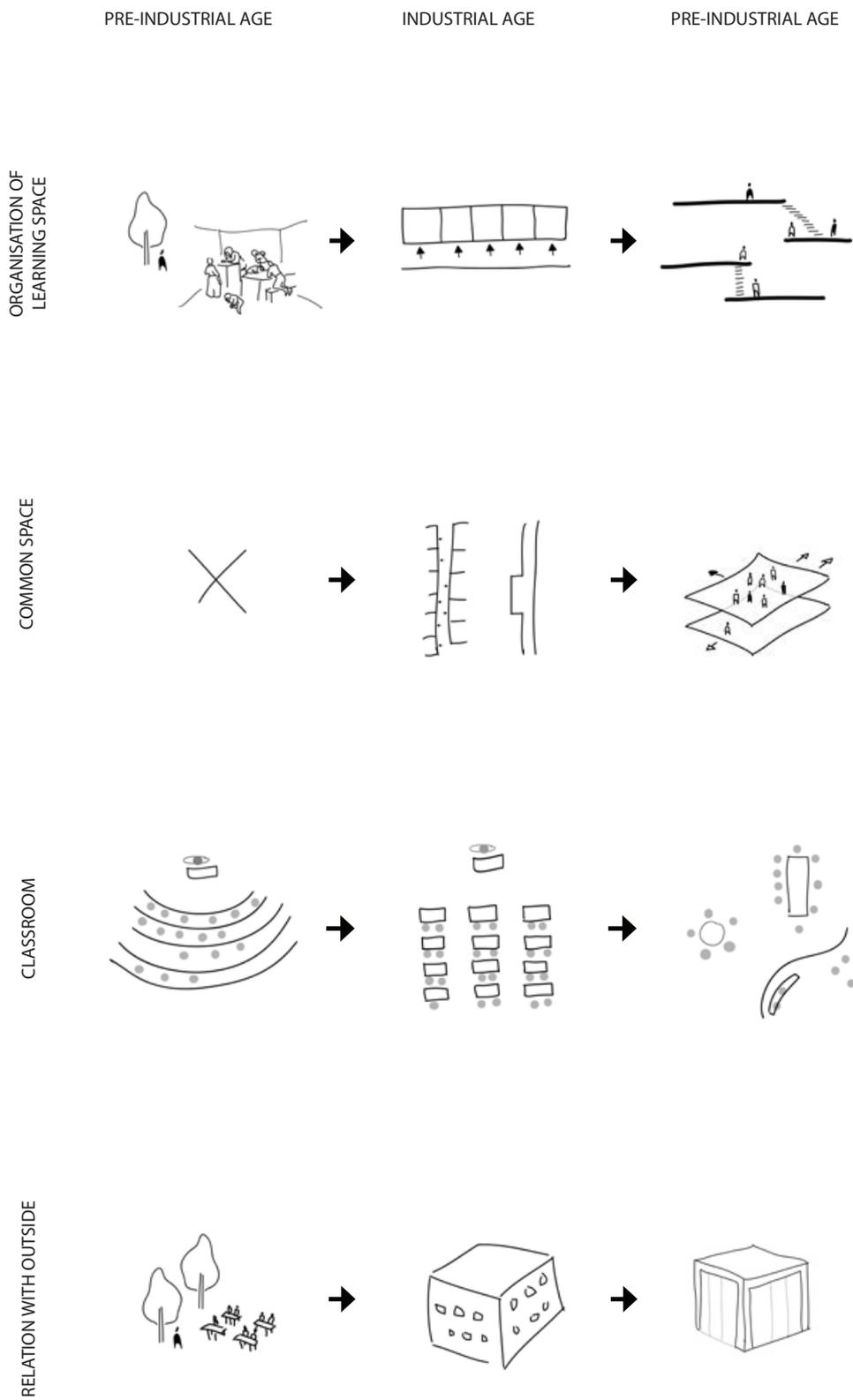
From now on I will also work from the architect's perspective on those values that I believe contribute positively to children's development – which means that I will work on developing environment that nurtures **curiosity, exploration** and provokes **creativity**. These are the aspects I choose to give the priority from all the ideas and values mentioned by most educational theorists as

desirable for a contemporary school system.

To make all these developments possible there also has to be a **freedom of choice** for each individual – in order for kids to discover what fascinates them and which activities evokes their curiosity the most. However, even during the more individualised learning children have to learn how to **work together**, how to learn from each other and see themselves as a part of society, developing **awareness of their environment** and becoming **responsible** human beings.



Kids building their dream classrooms, photo by Liutauras Nekrošius



DEVELOPMENT OF THE LEARNING SPACE

## CHAPTER 2

# CASE STUDIES

From the timeline analysis of evolution of school architecture I have selected few buildings – particular cases from historical approach and few outstanding contemporary examples. Given their spatial arrangement, characteristics, innovative proposals, etc., they have a good potential to nurture those values of which I believe they need to be paid most attention when thinking about designing the schools of tomorrow. These are the schools which provoke discussions about the importance of learning space and show that certain characteristics of school spaces enrich learning processes.



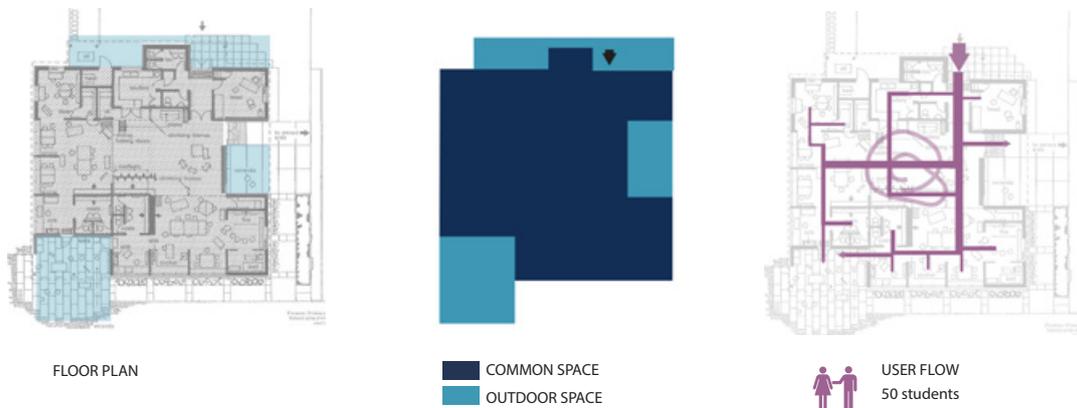


Bernard Hoffman "Bored schoolgirl in Maine", 1942

## EXEMPLARY SCHOOL DESIGNS

**Finmere School** was built in 1959 in the UK. It was designed by one of the leading school of architecture in England and Wales - David Medd (1917-2009) and Mary Beaumont Medd (1907-2005) (*I.Grosvenor; C.Burke, 2008*). The architects designed a school that reflected the small, closely knit community of its village setting. It conceived as two independent classroom spaces with a third shared area for activities, including music, meals and physical education. Traditional classrooms had

been extended to become a linked series of learning areas. The spaces could be separated or merged using sliding partitions, which allowed for different sized spaces to be created for teaching, group work, etc. It was a school with simple exterior but more complex interior where spaces were differentiated, from private working rooms to large common spaces. Because of its movable partitions and its huge windows, the school had a bright and open atmosphere.



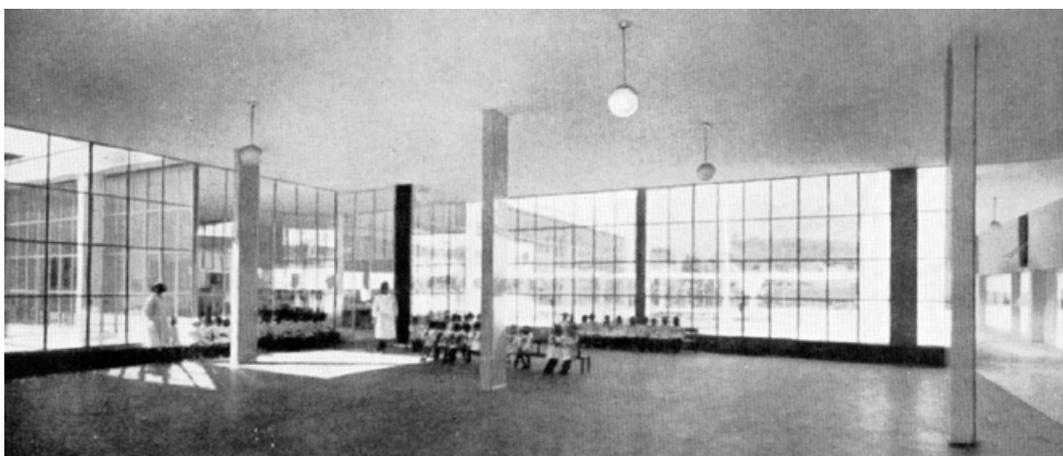
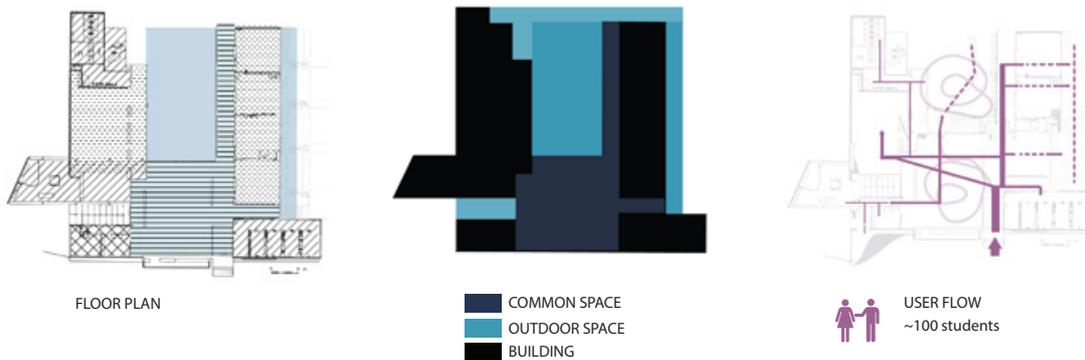
Learning by playing in Finmere School



Finmere School

Architect Giuseppe Terragni designed **Sant'Ellia School** in 1934 in Como, Italy. It became an early example of flexible interior spaces in an educational building (*Nicola-Matteo Munari, 2014*). It is a one-story structure with floor-to-ceiling windows. Inside, classrooms were large open spaces that flowed seamlessly one into another, and

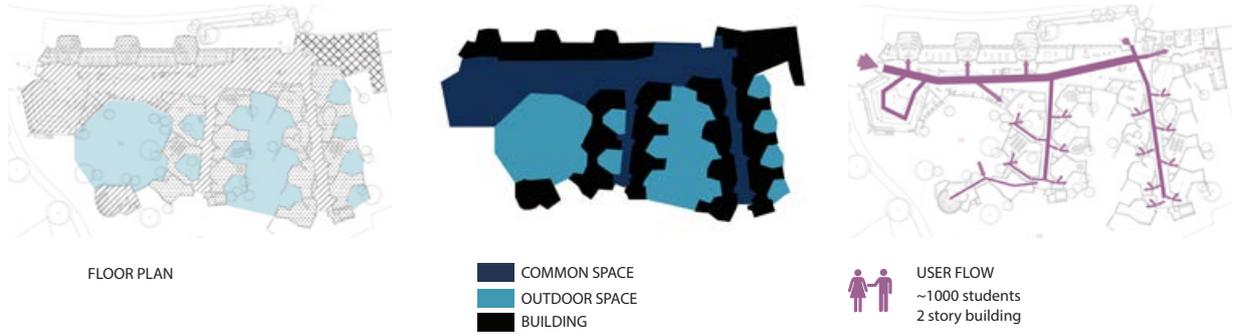
within the overall square plan of the building. Movable, non-load-bearing walls allowed for maximum flexibility and ensured that a variety of activities could easily take place. The glass wall separating the two recreational zones could be folded back to create one single, easily supervised area.



Interiors of Sant'Ellia School

**Geschwister - scholl - gesamtschule Lünen School** is a good example how to integrate schools and its surrounding communities. It was designed by architect Hans Scharoun in 1962 in Germany. The "organic building" (*I.Grosvenor; C.Burke, 2008*), with its shapes drawing on nature, is supposed to promote the students' independence and individuality.

School division into smaller parts promotes sense of community and allow collaboration between different parts. The smallest element of the school is class-dwelling. This concept was implemented by making learning space more similar to the living space. In this school the hall containing different functions became a meeting place.



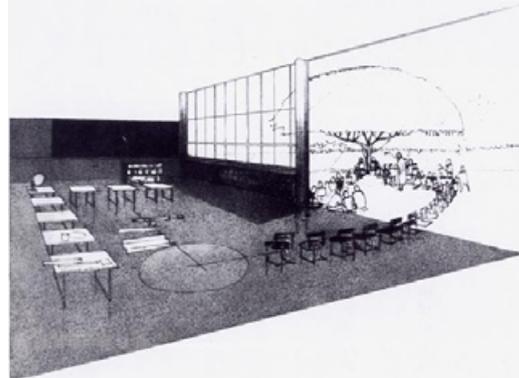
Interior spaces in Geschwister school



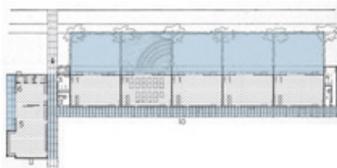
Geschwister - scholl - gesamtschule Lünen School

**La Corona School** by Richard Neutra was built in Los Angeles, California in 1938. La Corona was an experimental school where new educational methods from Europe were tried out. In this case, it was the Maria Montessori's pedagogical method, in 1915 (*F. Martínez Mindeguía, 2012*). This method is based in the active participation of the student in the development of the classes, so classrooms were designed for dynamic learning. The space of the classroom had to allow as much freedom of use as possible, and for that, the room had to expand outwards, because lessons could start inside and later be moved to the backyard. With this purpose, the classrooms of Corona School were distributed in a comb-like shape, illuminated by large windows which also

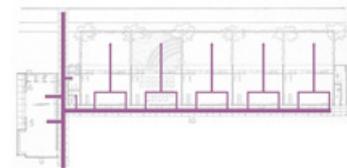
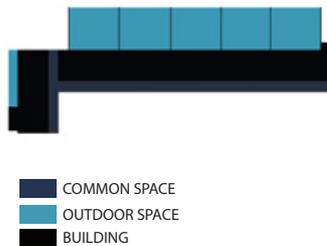
allowed the extension of the terraces surface. Besides all classrooms were on the ground floor and the exterior spaces were separated by bushes.



Drawing showing link between inside and outside spaces



FLOOR PLAN



USER FLOW  
~500 students  
2 story building



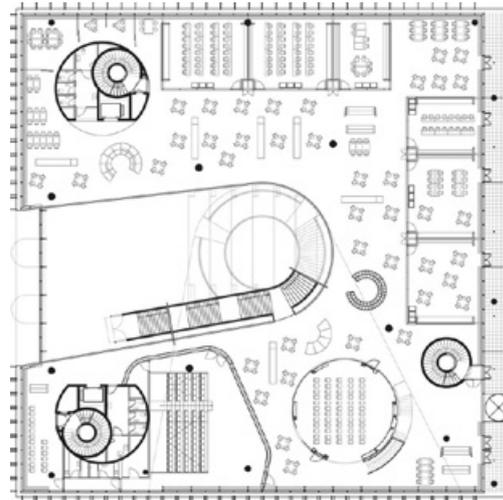
Learning in an outside space, La Corona School

## CONTEMPORARY SCHOOL DESIGN - CASE STUDIES

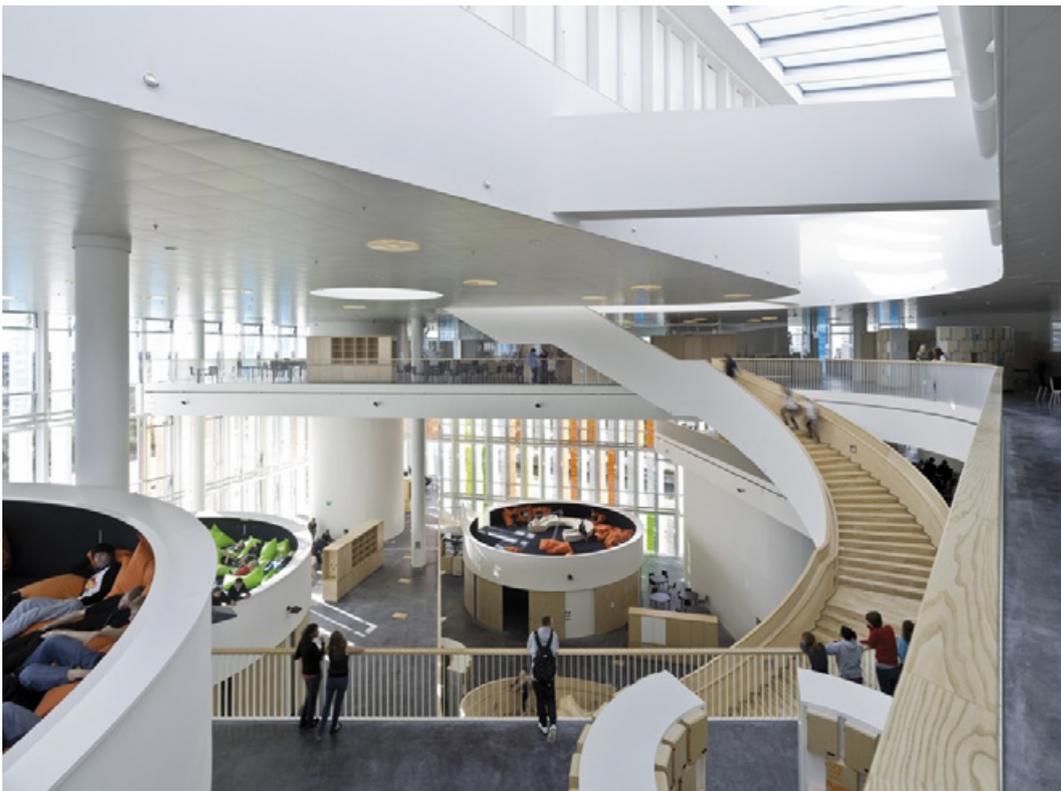
The diversity of spaces nowadays means not only creating more spaces for collaborative work but also to give the opportunity for students to have their own space where they could concentrate. This issue is further discussed in the article "Why Students Need a Space of their own" by architect Laura Warnick.

These ideas go along with educator Ken Robinson previously mentioned statement that "naturally humans are different and diverse", that's why school system and learning environment should nurture different learning potentials.

**Ørestad High School** corresponds to the new visions on content, subject matter, organization, and learning systems that are part of the new Danish reforms for high schools that came into effect in 2005. School was completed in 2007, designed by 3XN Architects. Flexibility and openness are key words for the new building, which has open rooms, subject zones, niches for creativity and concentration, and free access everywhere to the virtual space. Traditional spaces such as classrooms and lounges no longer exist in the high school. Instead, the building is divided into four "study zones" (3XN, 2007). It not only gives possibility for pupils to adapt these spaces for their own needs, but also by doing so they become a part of school changes and feel more involved.



Floor plan of Ørestad High School



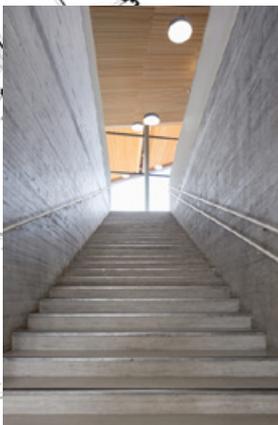
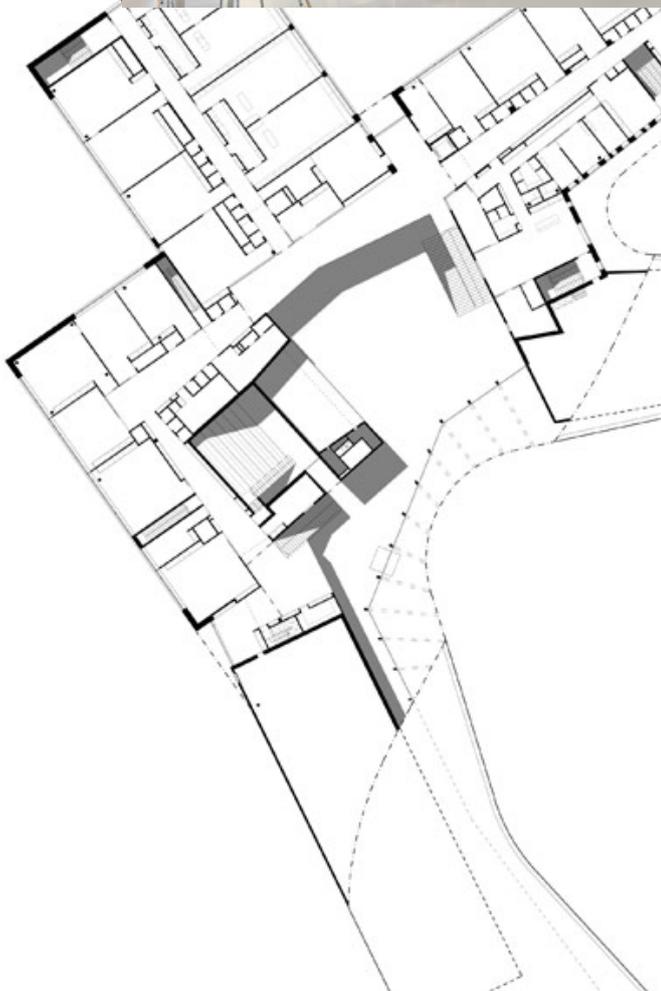
Ørestad High School in Denmark by 3XN Architects, 2007

**Saunalahti School** in Espoo Finland designed by Verstas Architects is called “a new platform for learning, culture and community” (*Verstas Architects*).

“The openness and the sense of community can also be seen in the architecture”, says architect Ilkka Salminen. The heart of the building is the multi-purpose dining hall, which opens up to a large school yard.

In order to emphasize the importance of learning by doing. Architects arranged the workshops open through glass walls to the street and the school yard.

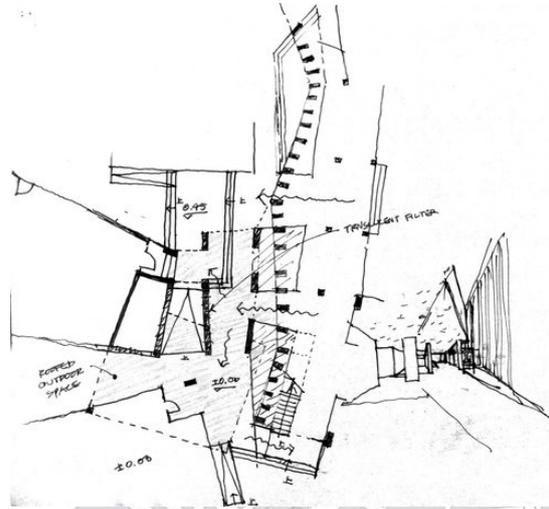
Besides, the school building is outstanding by the variety of materials and techniques and care to details - creating the environment where children are understood as a sensible users of the space.



Saunalahti School, Espoo, Finland by Verstas Architects, 2012

Architects TAO (Trace Architecture Office) designed a school in **Xiaoquan town Sichuan** Province, China in 2010. Its total floor area is 8,900 sq. m. These places are intended to encourage diversified and spontaneous activities of children. Architects explore to maximize the use of local resource and craftsmanship which can be acquired. Local materials such as wood, brick and bamboo are used for windows, walls, and ceilings. The recycled bricks from earthquake are used in pavement. What is more important is that the school building merges in the city pattern. It shows a school being a part of the city and society (TAO, 2010). The design itself is conceived as a cluster of small buildings to create a micro-city like campus. The fragmentary instead of unified building

composition creates many urban like places such as streets, plazas, courtyards, and steps at various scales. Such variety of spaces nurtures curiosity and provokes exploration, which, as I said, is one of the goals of today's education that I believe will become more and more relevant in the future.



School in Xiaoquan Town Sichuan Province, China in 2010 by TAO Architects

Another school building emphasizing connection with surroundings is **Rillieux-La-Pape School** in Rillieux-la-Pape, France. It was designed by Tectoniques Architects in 2013. (*Tectoniques Architects, 2013*) The complex comprises a nursery school, an elementary school and a gym, which is also available for community activities. The site occupies an entire block, close to the centre of the district.

One of the project's major characteristics is the relationship it establishes between architecture and nature. The structures are cohabiting with their surroundings, at times allowing nature, more or less literally, to "get the upper hand". The project harmonises vegetation on the upper and lower levels. The volumes in wood are separated by the broad, planted-out roofs, with their waves of colour.



Rillieux-La-Pape School, France by Tectoniques Architects, 2013

## SPATIAL PROPERTIES OF TOMORROW'S SCHOOLS

After analysing education values, school architecture in different aspects and taking a closer look to the case studies, I come up with the characteristics of exemplary learning space for today's education. With this, some conclusions can be extracted about which are the key characteristics that positively interact with the values that I defined as the key values for the education of tomorrow: learning space should be complex enough so that it would keep pupils curious. In order to correspond to the need of different learning methods it should offer spaces in a range from very private to the common spaces accessible to everyone. Besides it is important to have a visual connection and also see what is happening in other parts of the school so pupils can learn from each other and join for collaborative projects.

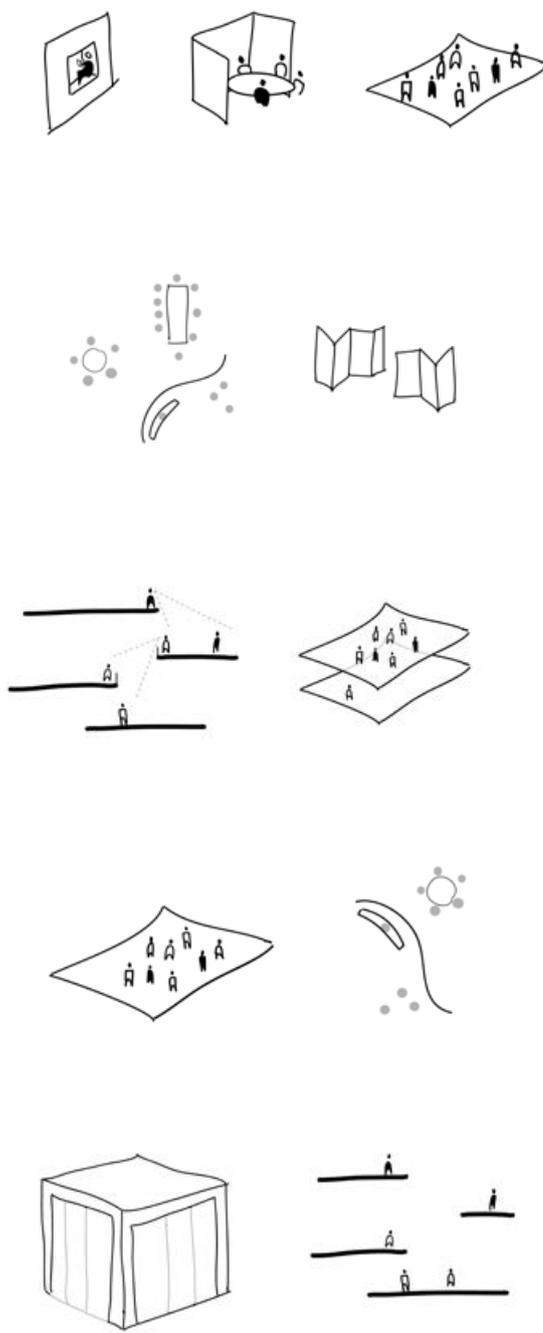
Moreover it is beneficial to create visual connection (light and open spaces) with the outside world and connect school to the neighbourhood in any other ways in order to help pupils feel a part of the society. School has to be accessible to everyone and it is beneficial to make it visible in its design too.

Also, as school becomes the environment from which children learn, implantation of sustainable solutions can not only help to save the energy and nurture further a connection between students and environment, but also educate them about how sustainable technologies work and how important they are.

Looking at all the school examples analysed in previous sections, there are three characteristics that manifest in all of them: **variety** of their spaces to reinforce the sense of discovery and learning, **flexibility** in functional applications of those spaces, and **openness** of the inner spaces towards the surroundings. Thus, I believe that, to nurture the future educational values, these three characteristics should be taken into account when designing schools, creating spaces that put the three of them into balance.

From the timeline and case studies I also determined the spatial division of school buildings that is common in most of the schools: **classrooms**, **common-space** and **outside space**. These three spaces, together with their **layout** in the school building, define the four fundamental areas where design decisions will be made in order to bring variety, flexibility and openness to future schools.

At this point, I can already establish a general framework that will allow me to evaluate Vilnius' schools, trying to identify the potential improvements in each of the fundamental areas defined in the previous paragraph that would bring flexibility, variety, and openness to their spaces.



Schemes of contemporary school spaces

## CHAPTER 3

# CONTEXT AND BACKGROUND OF SOVIET SCHOOLS



Antanas Sutkus "The start of Lazdynai District - Pavement", Vilnius, 1976



Vilnius' neighbourhood by author, 2012

## STANDARDIZATION AND MASS CONSTRUCTION

During the post-war era the world suffered from enormous housing shortage, which led to the huge modernist housing projects that were meant to accommodate people in ideal districts. Despite of having different society and regime, Soviet building projects were based on similar principles as other modernist projects (T. Grunskis, M. Šiupšinskas, 2012).

In 1954 Khrushchev gave a speech introducing a new model for building within The Soviet Union that was interpreted almost as a manifesto for modern architecture. The speech soon became a law and revolutionised the way Soviet people lived. Housing standardization and industrialization had to ensure 'an apartment for every family'. On a higher level, this new way of developing architecture was shaped by a strong hierarchy of urban cells that would provide ideal distribution of services within the city so that everyone would be equal.

Between 1955 - 1985 50 million apartments were built in Soviet cities (K. Balėnas 1985). It was a huge step towards industrialisation and urbanisation. More than 80 percent of the urban fabric of Soviet cities consists of prefabricated housing. As location was not significant most of the population lived in almost the same buildings, same apartments, went to the same looking schools, kindergartens and shops. Standards of flats in USSR were regulated by the famous SNiP's - construction norms and rules, so the architects hardly could go over 9 sq. m. of living space per resident, 6 sq. m. standard kitchen, etc. This explains why the wealth of a family in the Soviet society started to be measured in square meters of living space.

On November 29, 1962 Nikita Khrushchev speech at a meeting of the Presidium of the Communist Party Central Committee (Volume #21, *The Block 2001*):

*"I think, both project design work and housing construction should be centralised [...]. In the old days of Mikolaj (meaning the Emperor Nicholas II), there was one type of zemskaya (local municipal) school, and this type was widespread in the whole of Russia. One could come into a village and see that it's a zemskaya school, one wouldn't mistake it for anything else, because its type was defined [...]. Schools, hospitals, especially cinemas, should all be similar. What can you invent for a cinema? It's a box protecting people from the outside, with chairs inside - that's all [...]. Once the type is defined, its parameters and shape are defined, at once. [...]"*



Construction works  
of Soviet neighbourhoods



Antanas Sutkus "Pioneer", 1964

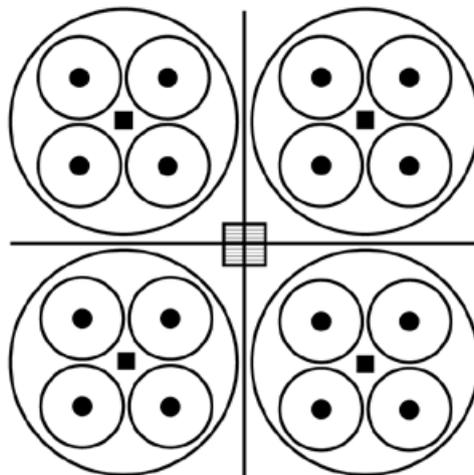
## THE ORIGIN OF MICRORAYONS

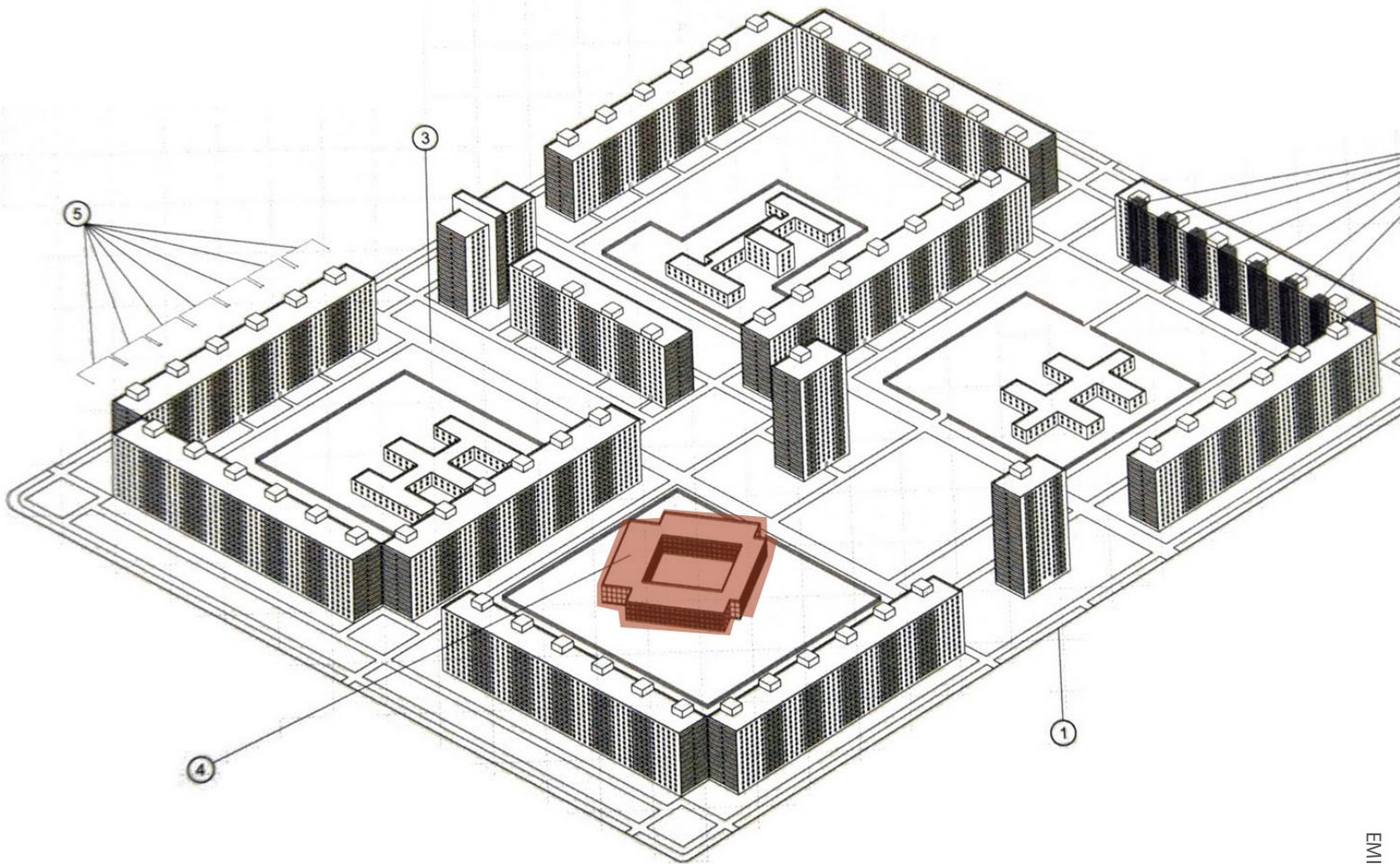
Together with industrialized housing constructions in Soviet Union a new form of composing the apartment buildings was introduced: the microrayon or microdistrict - the smallest urban element. It consisted of the organisation of apartment buildings and all the amenities at a walking distance from them. Kindergartens or schools were usually placed in between microrayons, while the social services and shops became the centre of the microrayons around them. In such way, several microrayons formed a neighbourhood.

According to the Construction Rules and Regulations of the Soviet Union, a typical microdistrict covered the area of 10–60 hectares, up to, but not exceeding, 80 hectares in some cases (*M.Groskaufmanis, B.Czuba, 2013*), and comprised residential dwellings (usually multi-story apartment buildings) and public service buildings. As a general rule, major motor roads, greenways, and natural obstacles served as boundaries between

microrayons, allowing an overall reduction in city road construction and maintenance costs and emphasizing public transportation. Major motor roads or through streets were not allowed to cross microrayons' territories. Standards also regulated the accessibility of the public service buildings by imposing a 500-meter limit as the farthest distance from any residential dwelling (*K. Šešelgis, 1975*). One of the city-planners' tasks was to ensure that the fewest number of public buildings was built to cover the microrayon's territory in accordance with the norms.

This format allowed children to reach schools without the need of crossing any roads; shops, sports facilities, and parks, were all at short walking distances. Usually in between the apartments there were yards filled with vast greenery, and all the free space in between them was left as a public space.





- MICRORAYON  
1 - block  
2 - stairway  
3 - service road  
4 - school or kindergarten  
5 - module

## IDEOLOGY

The uniformity of buildings and neighbourhoods represented stability and equality. Everyone received keys to similar flats and got similar living conditions. Besides, the environment itself suggested the feeling of stability - solid blocks of flats were organised in a rational way. Along with massive urbanisation, the Communist party reformed education and health care (compulsory schooling, vaccination, etc.).

This kind of strict organisation created a monotonous environment and pushed people to homogenous lives. In the end, this type of planning appeared to work only in ideal environment, where all the citizens would follow the same planned routine. Of course that did not happen and as a result these districts were criticised as not suitable for comfortable living.

All this structure was created to develop a society focused on production. Posters from those times state: "In order to have more - we have to produce more. In order to produce more - you need to know more". Similar ideas were brought into schools, too: they were supposed to "produce" students with the similar knowledge, ready to carry similar lives regulated by the government.

Though around 1950 soviet citizens were provided with free education (*posters, 1920-1960*), well-educated teachers tended to have small class sizes, but the cost was a highly

nationalistic curriculum, as education was the cornerstone of Stalin's efforts to create a new society. The media that students were exposed to in the classroom promoted the communist system, obedience to the state, and the rejection of Western ways of life.

By 1959, attempts to culturally control Soviet schools were well underway. The subject matter of lessons was rigidly controlled and made to subscribe to Marxist-Leninist orthodoxies. It is likely that attempts to encourage students to become involved with "cultural" subjects like drawing and music were intended to solidify the Soviet political ideology in children, for the arts themselves served the purpose of propaganda (*posters, 1920-1960*).

At this point, some noticeable general connections between ideology and spatial organisation of school buildings can be made, being the most obvious the long monotonous corridors, and the similar sized classrooms, emphasizing the equality of pupils and the importance of producing. The functional separation clearly shows when and where learning process should happen, organisation of the classroom emphasizes the significance of the teacher and passive learning. Thus, education system was based on a hierarchical model where pupils listened to the teacher during the lessons all day, while, at the same time, there was a clear lack of common spaces and variety of spaces in general.



Poster "Be an excellent student", 1948

## CHAPTER 4

# VILNIUS' SCHOOLS: HISTORY AND CHARACTERISTICS



## RECENT HISTORY OF SCHOOL BUILDINGS IN LITHUANIA

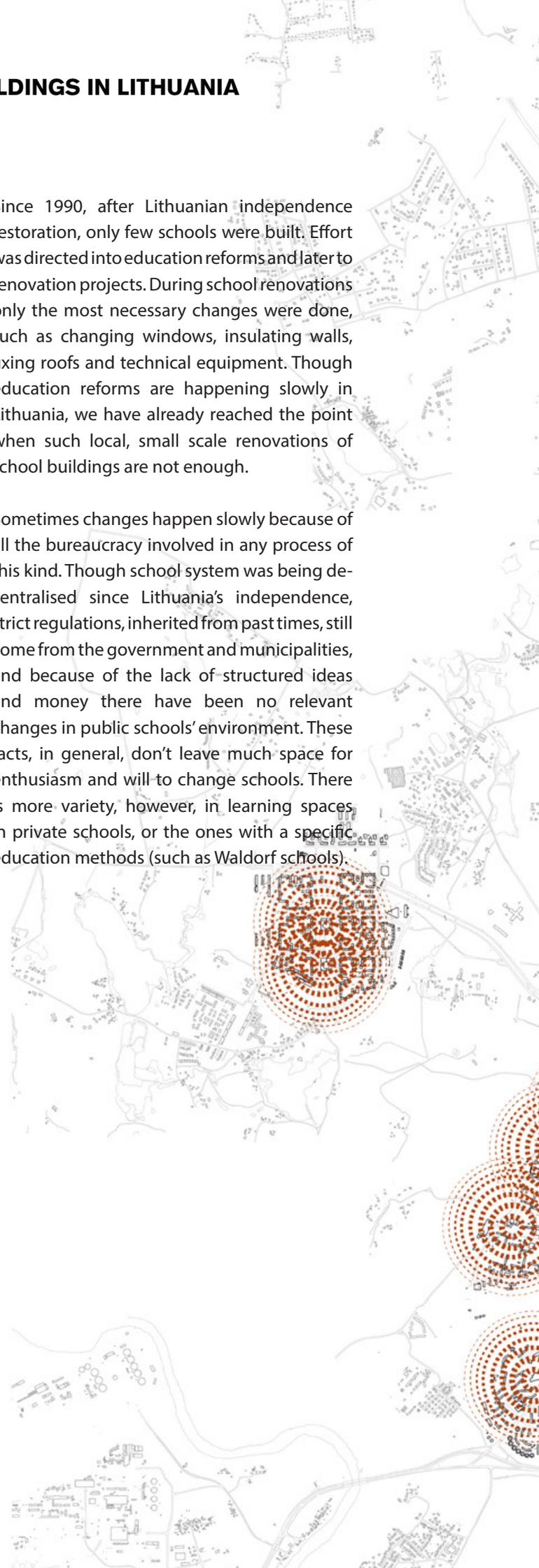
Lithuania was occupied by Soviet Union in 1940 and declared its independence in 1990, so it was affected by most of what was explained before. The industrial period of mass housing in Lithuania started in 1958, when 5 factories for pre-cast construction elements were built in five major cities of the republic. In 1959-1964 2.5 million square meters of living floor space, 70 schools, 56 kindergartens, 20 medical institutions, 17 cinema theatres and many other buildings were built, defining already the microrayon landscape in Lithuanian cities (K. Balėnas, 1985).

A vast majority of the school buildings currently present in the country, and particularly in Vilnius, were built during the Soviet times. To put an example, just between 1971 and 1985, 176 schools were built in the whole country following typical projects for the mass housing districts (G. Blažiūnas, 2008). The school projects were being prepared in Lithuanian design institutes, but their financing and coordination depended on higher institutions: all the projects had to correspond to the strict USSR regulations, had to be orientated towards planned economy and cope with isolated construction material market. Architects were working on the school projects for specific locations, but later these buildings were duplicated in another places often without consulting an architect who built the first school of this type.

Architects, such as S. Kuncevičius, who has built several schools in Lithuania, were often told how many slabs and other materials they could use before they started designing (T. Srėbalius, 2011). Reinforced concrete slab systems were used in all schools; Kuncevičius explains that "Such a thing as a monolith, which allows greater freedom for the architect, was like a curse word. If you designed to use some kind of monolithic element, you could have been penalized or even get fired for that. You had to design buildings to be built from elementary rectangular plates that could be produced in the concrete factory" (G. Žemaitytė, 2010).

Since 1990, after Lithuanian independence restoration, only few schools were built. Effort was directed into education reforms and later to renovation projects. During school renovations only the most necessary changes were done, such as changing windows, insulating walls, fixing roofs and technical equipment. Though education reforms are happening slowly in Lithuania, we have already reached the point when such local, small scale renovations of school buildings are not enough.

Sometimes changes happen slowly because of all the bureaucracy involved in any process of this kind. Though school system was being decentralised since Lithuania's independence, strict regulations, inherited from past times, still come from the government and municipalities, and because of the lack of structured ideas and money there have been no relevant changes in public schools' environment. These facts, in general, don't leave much space for enthusiasm and will to change schools. There is more variety, however, in learning spaces in private schools, or the ones with a specific education methods (such as Waldorf schools).





Vilnius plan  
Circles show 500m radius around school buildings built 1970-1990

## MEMORIES

G. Žemaitytė in her thesis "Ode to School" compares five same type schools" (*G. Žemaitytė, 2010*). As she has studied in two of these schools herself she had surreal feeling when both of the schools' spaces started to mix in her mind. In my opinion this work depicts the monotonous environment and the feeling Soviet school buildings provoke.

It is intriguing how former pupils remember these spaces - a lot of them mention long

corridors or uncomfortable desks. My father, who studied in such a school in Vilnius around 1970-1980 remembers how they were told to walk along the corridors during the breaks and were not allowed to sit on the windowsills (there was no other place to sit), not mentioning restrictions for their appearance or even punishments for being left-handed, because everyone had to be equal, which meant - everyone had to be the same.



Vaclovas Straukas "The Last Bell", 1974



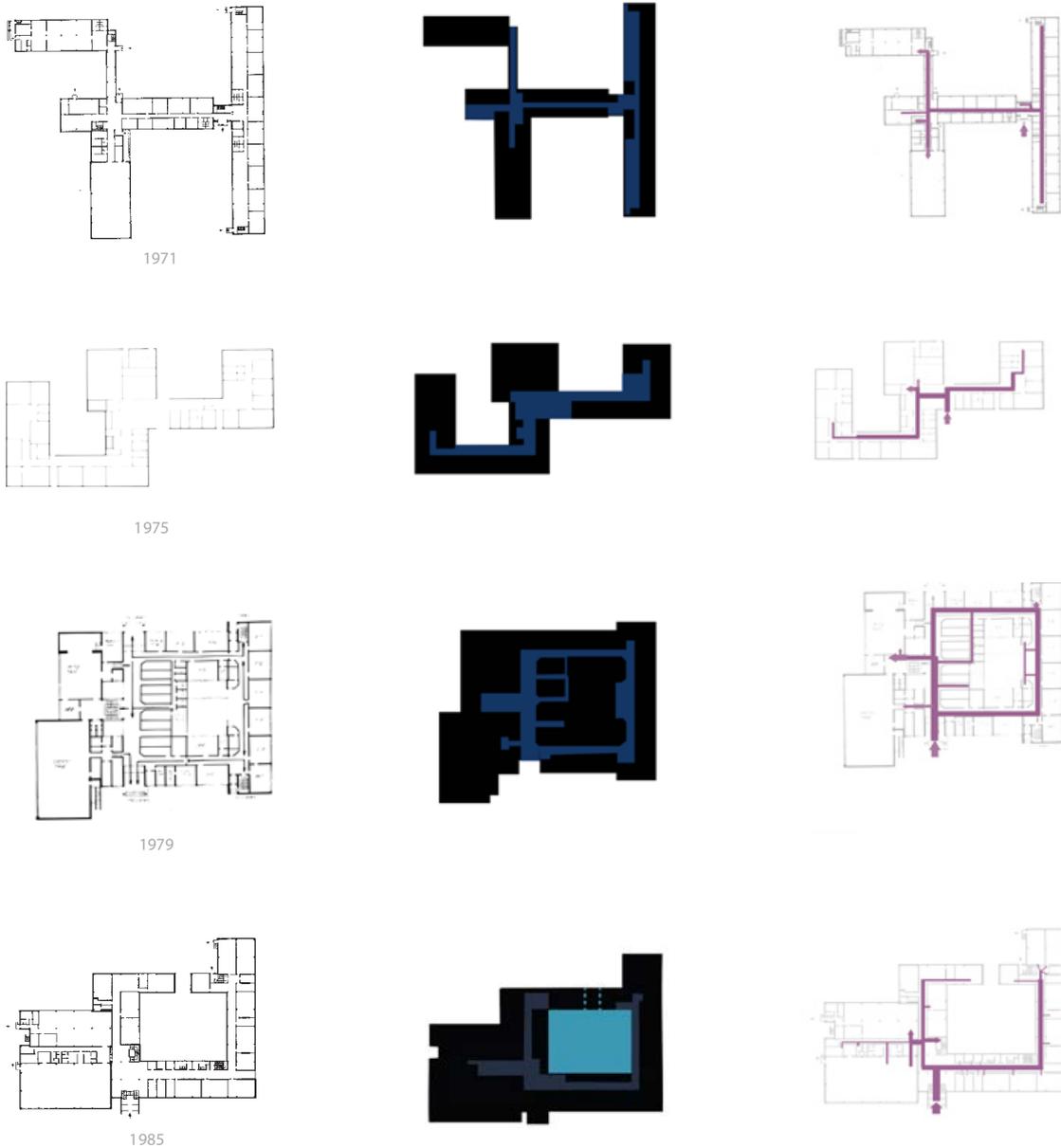
Gabrielė Žemaitytė "Ode to School"

# SPATIAL ANALYSIS

I defined four most typical school plans in Vilnius. To understand the main spatial characteristics of these school buildings, four main elements, mentioned before, (organisation of spaces, common space, classroom and outside space as well as connection with surroundings) will be described.

# ORGANISATION

Schools were usually designed for 1000-1400 students, which meant that classrooms were organised along long corridors. It is most visible in the first two earliest examples where corridors finish with dead-ends, which give a feeling of closed space and create dark areas. However, it can be noticed that in the later years there were more efforts to optimize school corridors and at least avoid dead-ends. It can be done by creating circulation loop, for example with a courtyard in the middle.



FLOOR PLAN, YEAR OF CONSTRUCTION

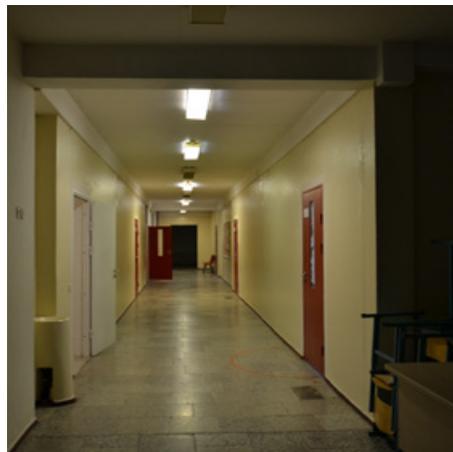
- COMMON SPACE
- OUTDOOR SPACE
- BUILDING

- USER FLOW

## COMMON SPACE

Such organisation of spaces, and the wish to give a function for every area cause a lack of common space. In most of the schools there are no common spaces other than corridors. The width of the corridors vary from 1.2 to 3 meters. Some of them have wider areas or some little squares in the ends of the corridors

but still they are not suited to play the role of a common space, because of its isolation and lack of connection with key areas of the school. Besides, these areas do not differ from the atmosphere of the classrooms because they lack complexity and diversity.



Vilnius Schools - corridors

## CLASSROOM

Most classrooms are of the same size, which creates monotonous impression and don't give possibilities for different activities. Furthermore the organisation of the classroom stays the same everywhere – one desk of the teacher in front and few rows of desks for pupils arranged in a strict linear way. According to today's Lithuanian construction regulations there should be a minimum of 1.7m<sup>2</sup> per pupil in a usual classroom and 2.4 m<sup>2</sup> in the laboratories. These measures are suited for an educational

model where pupils stay seated during all the lesson. However even in Architects' Data Book Neufert is stated that in usual classrooms there should be 2m<sup>2</sup> per pupil and for teaching in sets at least 3m<sup>2</sup> per pupil. In the Soviet Union everything was being built according to the minimum standards, so there are any variations in the classroom sizes. Only the sport hall and the auditorium are more distinguishable, so that they can be seen also from outside.



Vilnius Schools - classrooms

## OUTSIDE SPACE/ CONNECTION WITH SURROUNDINGS

In more recent school designs, courtyards were implemented, which in the most schools are used only for big school events.

Schools' windows are usually the same size and same height, which, for example, doesn't allow pupils to look outside when they are seated in the classrooms. This reduces connection with

the outside and creates a feeling of a closed building.

Following the organisation of the typical microrayons described before, school buildings in Vilnius' were usually well located in the neighbourhood so all pupils could walk to school even without crossing big roads.



Vilnius Schools - outside spaces

# CONCLUSIONS

## **CLASHES BETWEEN EXISTING SCHOOL BUILDINGS IN VILNIUS AND CONTEMPORARY VIEWS ON A PROPITIOUS LEARNING ENVIRONMENT**

With all the information gathered in previous chapters, those 'clashes' existing between school buildings in Vilnius and important characteristics of today's learning environment can be defined.

To meet contemporary views on educational values (see chapter 1) a school needs to nurture curiosity, exploration, provoke creativity, offer more freedom of choice, and make students feel part of a community. The case studies (see chapter 2), which in various ways are consistent with the contemporary views on education, were all characterized by flexibility, variety, and openness.

To formulate it slightly differently: in order to meet the spatial requirements of learning spaces for the future, they should provoke and nurture children's personality as well as their potential. Spaces have to give more freedom of movement and more freedom to choose how, when and where to study. Nowadays society requires more dynamic and playful learning, where children can try things themselves, get curious and feel involved. All the numbers and facts they need can be found in the internet with proper guidance, so what they need to

focus on is learning how to think critically, be creative and how to share their ideas with others. These qualities are related to three main properties of learning environment: variety flexibility and openness. Architects and designers should rethink how the most important architectural elements in schools (classrooms, common spaces, outside space, layout) interact in order to provide future learning environments with these desirable properties.

Given the monotony of Vilnius' schools, there is a need of more differentiated classrooms and other spaces, enhancing their variety. They could differ in their size and organisation offering pupils different levels of privacy and more collaborative spaces.

Common spaces are too small or they are not enough developed. It is important to improve these spaces and put more emphasis on common halls in order to show that collaboration is a crucial part of today's education.

Besides, there should be more freedom left for pupils to organise or re-organise their learning

space, so that they could feel as part of the school community and also adapt classrooms according to the different activities.

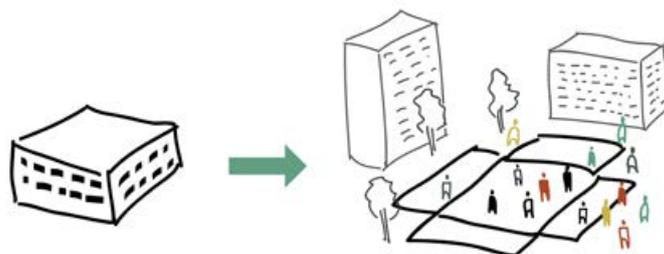
As collaboration is important also with the outside world (neighbourhood and society), school should be expressed as more open institutions. It could be done creating more visual connections or making school accessible for the neighbourhood. Instead of dead-end corridors there should be more spaces with wide views towards the outside. In the Vilnius micro-district context it is especially convenient as schools are usually placed in a very central position.

Another way to link a school with the neighbourhood is by implementing more functions and activities into the school building. These new functions or activities could easily become active after school hours or during the holidays, but it might be possible to share some space even during learning hours. Also, designing smaller schools or

dividing existing ones into few parts could enhance their openness and connection with the surroundings.

Another relevant idea in contemporary school architecture are sustainable solutions. They have not yet been implemented in any school in Vilnius. If we want to bring consciousness to pupils about their environment and sustainability one of the best ways is to make it present in their everyday life. So if children see energy saving solutions in their schools they can be encouraged to learn about them, and understand that it is important.

These are crucial changes which should be implemented in existing school buildings in Vilnius. They would positively affect the **variety, flexibility, and openness** of their spaces, thus adapting them to the changing education system and serving as a better and more inspiring learning environment for future generations.



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