

**UIA2021RIO**  
**Arch-Edu - Architecture and Education**  
**From Macro to Micro-from past to future**

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Schools and Education are the future of society. Education is the most important "Human investment" for development in all countries over the world. Schools have an important role in upgrading the future of society.

This paper introduces the importance of the relationship between Architecture and Education referring mainly to educational building design and location. Forming a roundtable among Educators, Town planners, Architects and Designers is crucial for creating a successful learning surrounding and school constructions. It starts with the allocation of schools in a master plan and runs along the whole phases of design from macro to micro.. Educational facilities have to be based on a pedagogic approach together with children's overview. The created spaces should answer diversity and flexibility to enable adaptations to future developments. New pedagogic theories are trying to look into the future even though it is still unknown. The new generation will have to be able to compete with new unknown realities.

The world is changing permanently and it is very difficult to predict the events. We have just experienced the Corona pandemic that changed our life unexpectedly. One dilemma was children education during the closure time. Distance learning? Home leaning? Zoom learning, what will stay after Corona time? How this will affect our future schools design?

**Equity - Equality in Education**

One of the main tasks of the modern society is bringing education to every individual in the most equal way. This means providing suitable learning environment and facilities in every city, neighborhood or village, regardless to geographical distances or socio--economic situation, center or periphery. We can see now how important is to enable learning in small groups and also in outdoor spaces. Everyone has the same rights to learn and choose his future by appropriate education system.

**City School**

A special focus should be put on establishing the school as a culture center for the whole community. This will enable easier accessibility to education and learning possibilities as well as involve more people in cultural, social and learning activities.

In fact, a school does not have to be a "solitude building" standing apart. On the contrary, it can be integrated in cities and comprise of few sites and spaces scattered all over the city. It can be part of a mixed uses complex or use existing cultural facilities for studies and activities at certain times, daily or weekly. The bilateral relationship between schools activity and the community activities can bring a wide range of possibilities for the students and the enterprises around. The collaboration of schools with the industry, services, cultural centers and commerce can develop high standard vocational schools. Not everything has to be located on the same site and we can use all the resources around. The idea is to create 24/7 "Multi learning Centers" for all ages that will enlarge the variety and choice of subjects and professions.

These "Educational–Cultural" centers can weave a "net of activities" and function as open unlimited workshops, where individuals, children or elderly people, could take part in a "non-passive" learning. They could, for example, start with participating in the design process, the construction and later in the maintenance of the centers. Participating in the design process can develop a sense of identification in the children's' minds. This will be "their place"; "their home". Sometimes, for street kids, it can be an opening for equal future opportunities. This idea can fit very well in dense cities, where immigrants are moving in daily; there is a great need for learning spaces. This offers a broad flexible system, with no physical limits, which can answer the sustainable idea of recycling old buildings, infill small sites that are waiting to be treated or renovated, and use open spaces as educational outdoor activities near to nature.

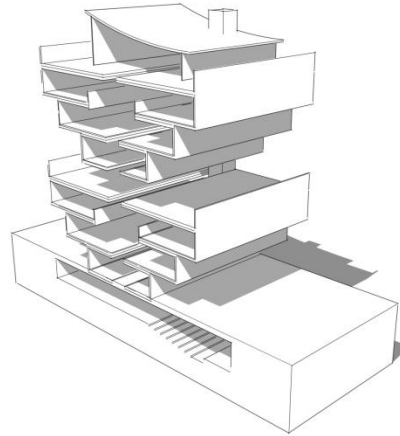
The Corona time demanded more distance and separation. We can see now how important is to enable learning in small groups, act outdoors .and develop long distance learning. All these "activity places" can form a "learning net" that will enable every child or grown up to learn and develop according to his own wish. This new approach can create a real lively, active intensified "Learning city", or as we call it "City School".

### **Multi story and mixed uses of Educational spaces**

Israel is one of the most densely populated countries in the world. The density is 305 people in square km (similar to Belgium, Holland, India, Japan and Lebanon). One of the main problems is the shortage of land intended for public buildings. Most public buildings are built by ministerial and local authorities in existing areas or according to a master plan of new neighborhoods that has been approved.

For many years public buildings were built on separate lots attached to the ground, even those which did not need to use an attached garden or to be on the ground floor. School

buildings were built on big sites up to 2-3 stories high at the most, even if they were located in dense city centers. The sites were closed by a fence for the community and it was a loss of a precious resource for cultural and sportive activity in the afternoon. Since 2007 the policy had changed and we build higher and encourage mixed uses projects. The ministry of Education had launched quite a lot of high rise, mixed uses innovative projects. Building a school on a small lot has to be designed higher and smarter getting greater program areas and funds.



### **Mixed Uses**

The advantages of mixed uses are both economic and social. It enables an efficient land use, creates interactive centers for the community and achieves rational resource allocation and maintenance. It also encourages the use of public transportation by parents and children and answers green architecture guidelines. The disadvantages lie in the human factor and bureaucracy: management, intrusion and budgets time table. We have made a research how to plan mixed uses complexes for mixed uses of housing, cultural commercial and vocational buildings that will support each other economically and socially. One of the conclusions was to form a committee that will administrate the design process the funds allocations and continue to operate and manage the complex after.



Mixed uses center kindergarten, day care and culture center Nes Ziona, architect Gaby Nussbaum

## Vertical Schools

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The idea of building multi story schools and kindergartens arose in very dense cities, where the sites are small and the need is high. Tel Aviv for example as a center of occupation possibilities, has become in the last years a "children's city" with lots of young families, and the need for learning possibilities is very high.

We have made a research trying to develop a strategy of "high rise" school design and examine the minimal site area needed. It is possible to achieve advantages and create valuable educational environments on high floors, as long as we create suitable open spaces for free activities on different levels including roofs and consider mobility issues inside the building. In "Vertical schools" there is the wish to design a variety of spaces. This includes wide and flexible spaces as well as intimate spaces indoors and outdoors. One of the tasks is to avoid the appearance of an "office block:" from outside. The building should expose a friendly look.

As the building is more compact there is a possibility to escalate the infrastructure and raise the standards of building use new materials as well as fit it to green architecture codes. Among the conclusions are: to limit the height up to eight stories, create more gathering places of various volumes on the different floors, use the roofs and terraces for open playgrounds and sport facilities and design the basements for multipurpose halls that will serve as community centers

Some of the problems in mixed uses and vertical schools are the time table, construction phases, financing resources and design process. It is recommended to build the project or the complex in one phase, and design it by one team of architects and consultants.

It is possible to combine the two ideas and have the school in a high construction which is a mixed use project. This can also answer the change in our life style, when social, leisure, cultural, educational and economical activities are mingled.



Vertical kindergarten Tel Aviv, architect Gaby Nussbaum

## Meaningful learning

The ideas of vertical educational buildings and mixed uses as well as the city school are developing in correlation with recent ideas of innovative pedagogic approaches.

The main task is moving from traditional education system to "Meaningful Learning", which encourages personal projects (PBL) initiatives, broad minded thinking' creativity and social involvement. For this we need to design flexible spaces and infrastructures, which enable variety of activities inside the school buildings, in the courtyards and integrate learning centers in the surrounding. The "after Corona" time will show us the creativity we can dig out from architecture and urban design.

The three topics of the "**City School**", "**Mixed uses**" "**Vertical schools** (and Kindergartens)" together with adaptations to new **pedagogic** systems will bring us to fruitful designs of Educational facilities in the 21 century



Bikurim Vertical school Tel Aviv  
Zionov Vitkon architets

Givo'ons school Tel Aviv  
Elyakim architects

The lecture will analyze as a case study the situation in Tel Aviv, where few vertical schools were opened lately some in mixed uses complexes. Also we can show the possibilities to use 24/7 the cultural infrastructure that exists in the city as learning surroundings for all

- The article is based on my two researches "**Vertical Schools**" By the Ministry of Education and "**Mixed uses**" by the Ministry of Construction and Housing
- In the presentation will be introduced few interesting projects built lately in Tel Aviv
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