

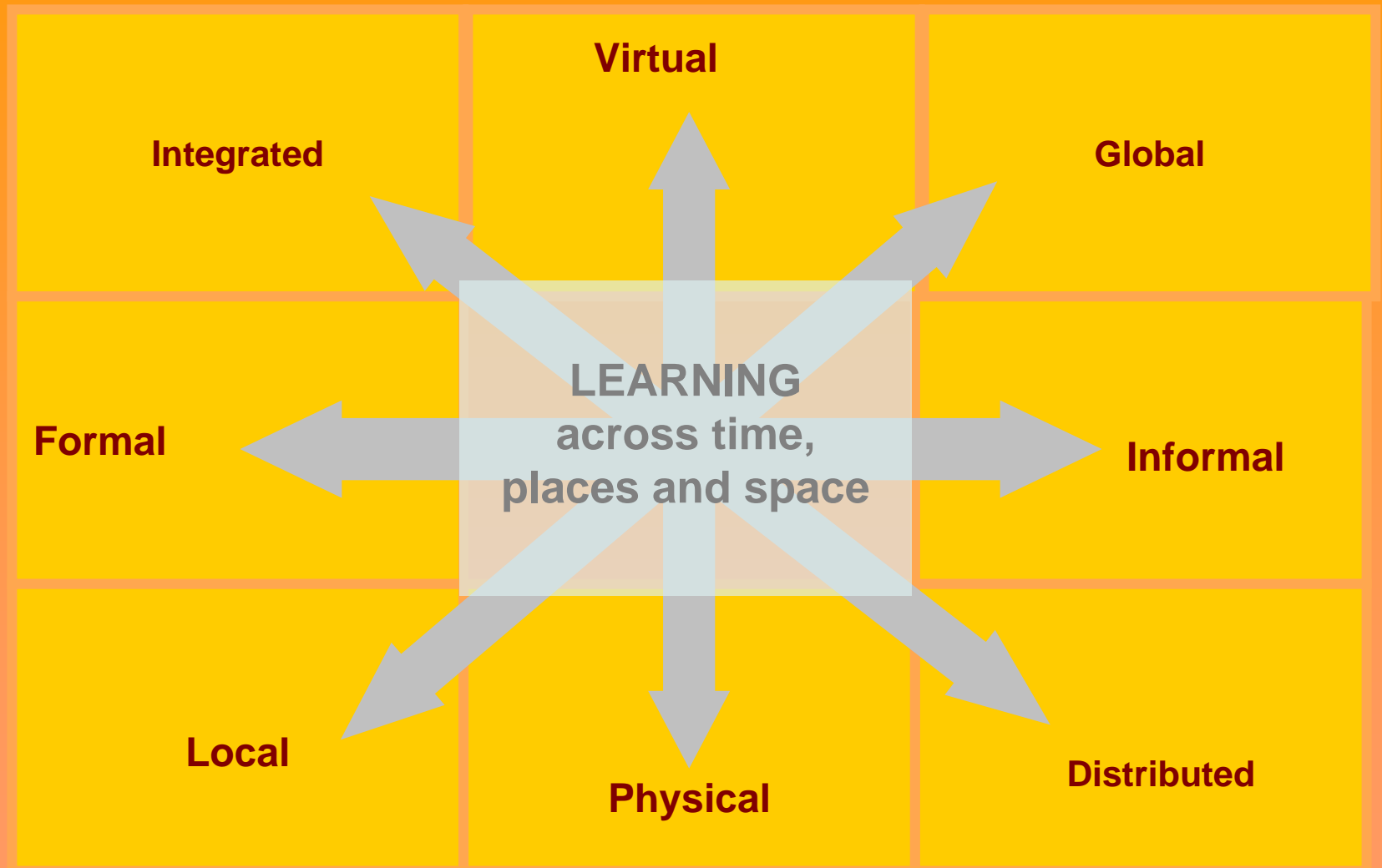
**ARCC 2009 - Leadership in Architectural Research,  
between academia and the profession, San  
Antonio, TX, 15-18 April 2009**

# **Mediating Spaces Acting for the Collaboration in the Future School**

**Teräväinen, H., D.Sc.(Tech), Architect**



**HELSINKI UNIVERSITY OF TECHNOLOGY**  
Department of Architecture  
InnoArch: Teräväinen, H., Staffans, A. & Hyvärinen, R.



**Learning (TSL) is approached as an activity that can take place in both formal and informal contexts, physical and virtual environments.**



**Our transdisciplinary context  
for the Future School concept:**

**InnoSchool**

**1.1.2007-30.6.2008 & 1.9.2008-28.2.2010**

**InnoArch/ Helsinki University of Technology,  
Department of Architecture**

**InnoServe/ Helsinki University of Technology,  
Department of Computer Science and Engineering,  
SimLab**

**InnoEdu/ University of Helsinki, Faculty of Behavioral  
Sciences, Center for Research on Teaching**

**InnoPlay/ University of Lapland, Rovaniemi,  
Faculty of Education, Centre for Media Pedagogy**

**Funded by TEKES = Finnish Funding Agency for Technology and Innovation**



HELSINKI UNIVERSITY OF TECHNOLOGY

Department of Architecture

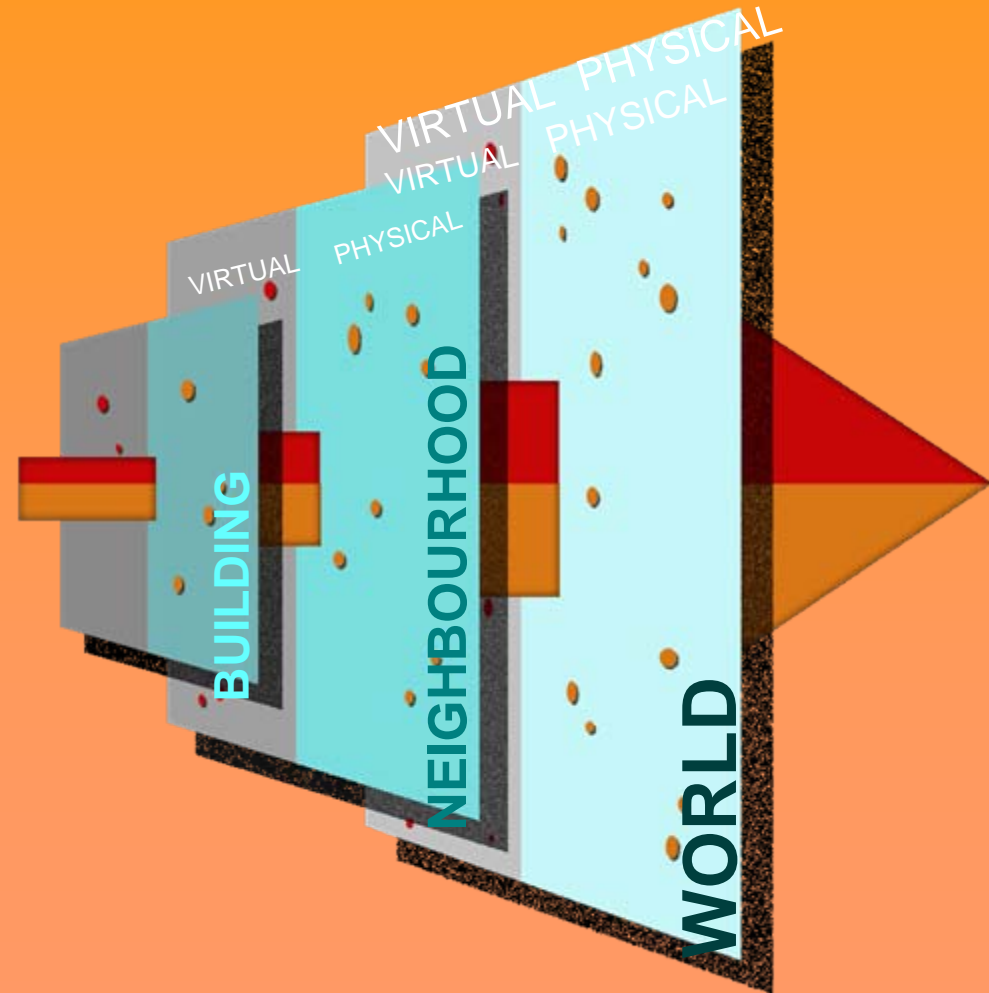
InnoArch: Teräväinen, H., Staffans, A. & Hyvärinen, R.



**Primary Goal:** to deepen the understanding of the interrelationship between a spatial experience and a meaningful learning process (TSL)

### TSL\* processes

**Secondary Goal:** to develop a collaborative, inquiry based planning and design process for the future school



# 2.1. Research questions

**In this paper we are trying to answer the following question:**

*“What are the qualities required of a project based learning lab (PjBLL) for it to act as a collaborative and mediating space for both teachers and students?”*

**and in ongoing phase in our study the second question is**

*“How does the virtual space support linking the PjBLL space and the physical environment locally/globally?”*

**Mediating Space and Place**



# The Method: Collaborative Workshops



- The TSL (teaching, studying & learning) method used here, and generally in Finnish architectural and environmental education for children, has its ground in “learning by doing” (as J. Dewey)
- two sub-studies or cases:
  - 1) “The Future School” in Arkki School (2007 )
  - 2) PjBLL –lab in Jakomäki (2008)



# Data Gathering in the Collaborative Workshops

- **Photographs, notes and video taping in the workshops and later the artefacts**
- **Video taping** is useful in taking notes on how children described their ideas and drawings for the future's learning space. One can also ask whether the use of video in research is only **an evidentiary tool** or also **a media form** that records stories, convincing viewers and readers of emerging texts and enabling them to understand what happened as the research was taking place.
- Through an **ethnographic lens** we can see, as Geertz (1973) has told us, “the importance of being there”.
- We understand, following post-modern ethnographers, that convincing the reader that she was there is **not the Truth**, but partial truth, a construction of what she experienced and how she interpreted that experience into a textual narrative. (Goldman etc. 2007)



# 3. THE THEORETICAL BACKGROUND

- 3.1. Socio-cultural and pedagogical basis
- 3.2. Basis in human geography
- 3.3. Sensory design





# 3.1. Socio-cultural and pedagogical basis

- **The concept “culture”:** according to the definition of Clifford Geertz (1973) culture is as “a system of inherited conceptions expressed in symbolic forms by means of which people communicate, perpetuate, and develop their knowledge about and attitudes toward life”. The function of culture is to impose meaning on the world and make it understandable for the people living in it.
- **Cultural mediation:** Lev Vygotsky investigated the development of children and how this was guided by the role of culture and interpersonal communication. He observed how higher mental functions developed through social interactions with significant people in a child's life, particularly parents, but also other.
- The specific knowledge gained by a child through these interactions also represented **the shared knowledge of a culture.** (Vygotsky 1962, 1978)
- **The constructivist theory:** knowledge and understanding are constructed by the learner from their experiences. Vygotsky's theory underlined the contribution to learning made by others, and is known as a social constructivist view.



## 3.2. Basis in human geography

Our research concerns on **places and spaces** (Y. Tuan (1974, 1975, 2001) and E. Relph (1976)).

Places are not neutral, objective segments of the physical terrestrial reality but sites of concrete human involvement. Places are those 'pieces' of terrestrial-spatial reality that have been claimed by human intentions. The interactions and implications between "space" and "place" are the basic components of the lived world, seen from the perspective of human experience.

**Place is a centre of meaning constructed by experience.** Tuan is defining "space" and "place" by each other. He also presents how the space is transforming into place (Cresswell 2006,8).



## 3.3. Sensory design

**The space experience** on each environmental scale is perceived with all senses: sight, hearing, taste, smell, touch and body awareness. Learning by doing” includes also the importance of the experience, both practical and aesthetic. In architectural philosophy, we also like to see in this context the importance and meaning of the spatial experience. (Dewey 1925, 1934)

**What if we designed in order to please all of our senses?** What would our built environment be like if sensory response, sentiment, and memory were critical design factors, the equals of structure and program? (Malnar and Vodvarka 2004)

This kind of thinking is also involved in the Finnish architectural familiarizing for children; one that could be seen sharply contrast with the Cartesian model of seeing that dominates the architecture today.



# The Two Case Studies

**Arkki School 2007**



**Jakomäki School 2008**



## 2.2. Research study – phase 1 (2007)

- **Children's Collaborative Workshops at Arkki School**







**Children's Collaborative  
Workshops at Arkki School**

# Future School Workshops & Curriculum



## Workshop

## Date

## Topic

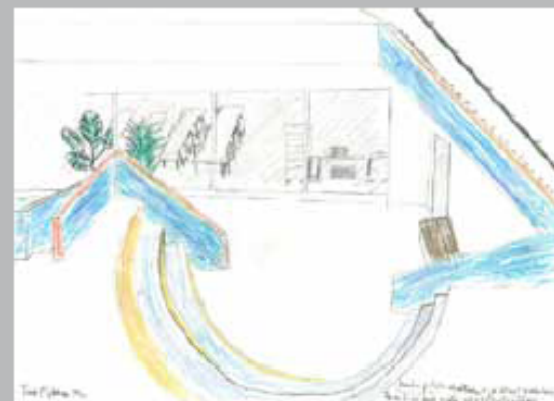
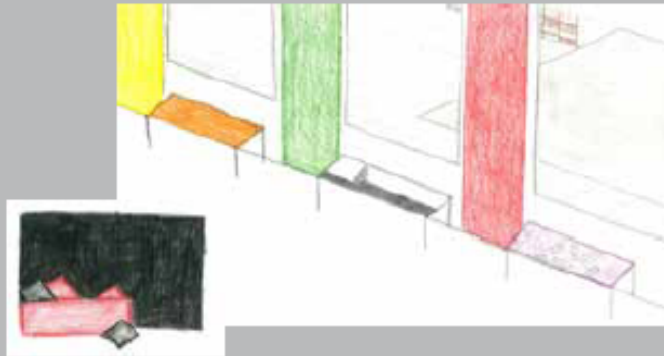
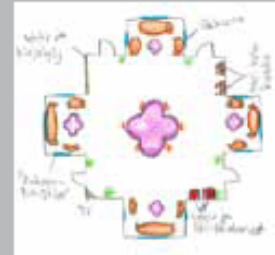
1. Workshop	25.9. & 26.9.2007	From Own Experiences to Inspiring Space
2. Workshop	2.10. & 3.10.2007	Own Space and Learning Space
3. Workshop	9.10. & 10.10.2007	Learning Space Groups and Clusters
4. Workshop	23.10. & 24.10.2007	Common Spaces in Future School
5. Workshop	30.10. & 31.10.2007	Meeting Places in Future School
6. Workshop	6.11. & 7.11.2007	Specialized Spaces in Future School
7. Workshop	13.11. & 14.11.2007	Clusters & Patterns
8. Workshop	20.11. & 21.11.2007	Outdoor Spaces and Roof Gardens
9. Workshop	27.11. & 28.11.2007	School Appearance; Layout, Plan, Ground Plan
9. Workshop	11.&12.12.2007	Perspectives, Scale Models
Final seminar	19.12.2007	Discussion and analysis of the results. Photos.







# 1 From Own Experiences to Inspiring Space



## 2 Own Space & Learning Space

What will learning be like in the future?  
Where will learning take place in the future? What will learning space or a workstation be like?

Thumb rules were given to assist in the drawing assignment: What are the colours, materials and shapes like in consisting spaces? What about rhythm, lights & shadows?

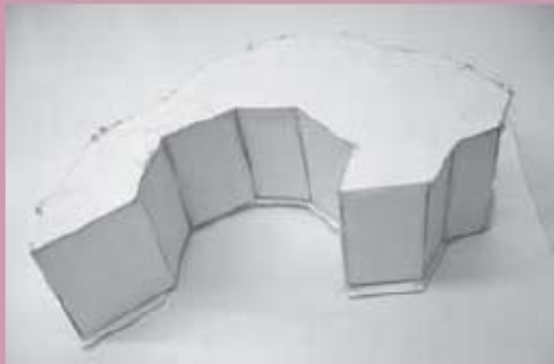








## Workshop - School Appearance, Form and Layout





Thus there were a lot of similarities to be found when comparing Finnish research and international literature and researches on the subject. We would like to crystallize our key findings from the Arkki children's workshops around few key themes that will be used as the building blocks in the typologies of the next chapter:

- Amount of light
- Spacious and operable/flexible spaces
- Nature around and inside the building
- Child's own space
- Meeting places
- Smaller entities inside bigger ones
- Varying outdoor spaces



# "New School Typologies"

Master Thesis in Architecture,  
Sini Meskanen May 2008



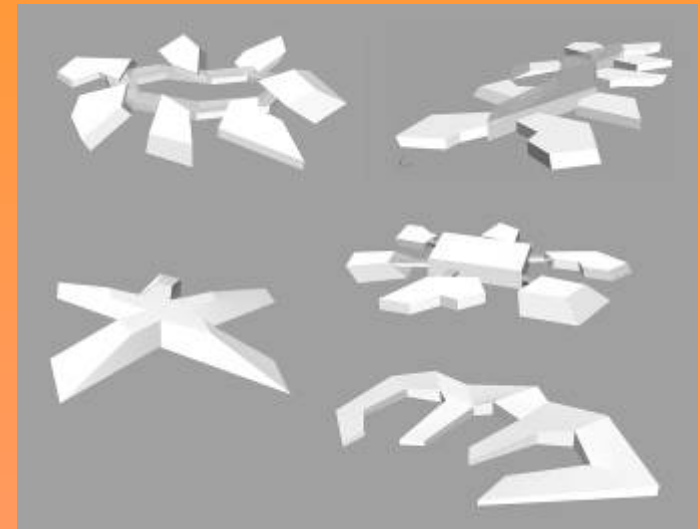
"Piazza"

"Stoa"

"Serial Atriums"

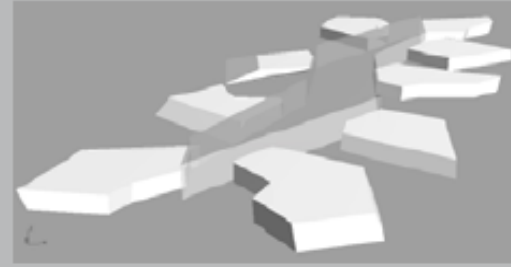
"Roof Garden"

"Heart, bridge and  
clusters"



# Part 2

## Typologies for the Future School





# **FUTURE SCHOOL**

## **–Designing With Children**

**Author Sini Meskanen Editor Helena Teräväinen**

## **2.3. Research study – phase 2 (2008)**

### **Children's Collaborative Workshops at Jakomäki School**



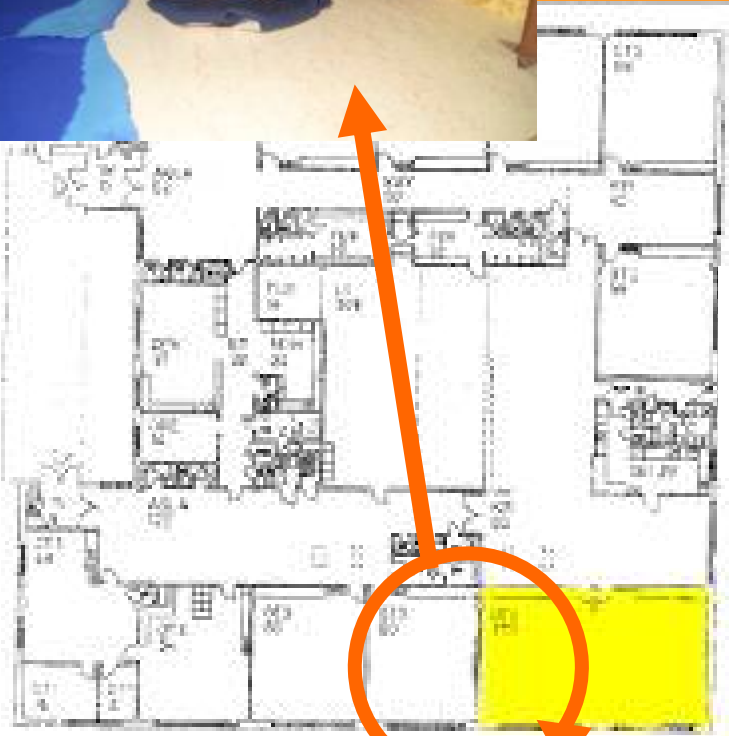


- **Project-based learning lab PjBLL:** a space at Jakomäki Elementary
- six architectural workshops with pupils in November- December 2008;
- ca. 200 children and youth; 43 scale models
- Preliminary Analysis of the scale models (photographs)
- “Design” for the PjBLL with teachers, January 2009
- Building up the PjBLL in Summer 2009



# Jakomäki School Context

## 1) Project-based learning lab PjBLL



**Kuninkaantien Koulufoorumi**

Tervetuloa Kuninkaantien koulufoorumille

Olet Jakomäki-Puustolan paikallisen bedon foorumilla. Tällä sivustolla alueen viiden koulun oppilaat julkaisevat koulutoitaan kaikkien ihaltavaksi. Toiden aiheet liittyvät omaan lähimpäänstoon ja ne kinnitetaan kartalle. Myös muiden alueesta kiinnostuneiden on mahdollista lisätä kartalle oma kohde ja kirjata näin omia kokemuksiaan Jakomäki-Puustolan alueesta.

Toivottavasti viihty Koulufoorumilla!

**Uusimmat Koulutyöt**  
[Tulevaisuuden koulu](#)  
21.11.2008 - 14:29

**KATSELE KARTALLA>>>**  
Koulufoorumin kartalla löydät paikallista oppilaiden ja alueen asukkaiden tuottamaa tietoa.

**LISÄÄ OMA KOHDE KARTALLE>>>**  
Voit myös merkitä omia kohteita kartalle ja kertoa näihin liittyvistä asioista.

**Mukana foorumilla**

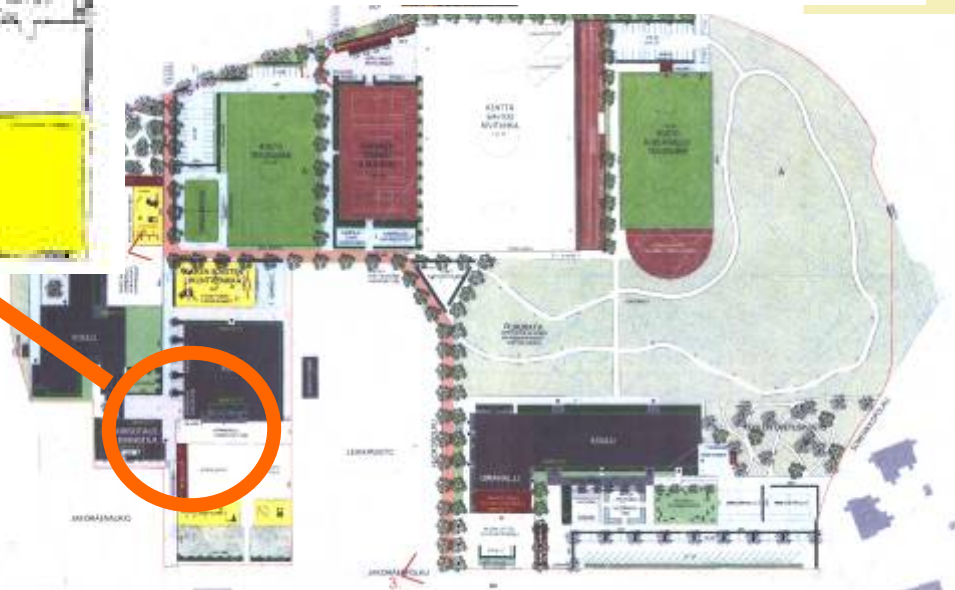
- Kuninkaantien koulut
- Jakomäen ala-aste
- Jakomäen yläaste
- Huhtikanten koulu
- Puustolan ala-aste
- Puustolan peruskoulu
- Helsingin kaupunki
- Mediakampus
- Teknillinen korkeakoulu
- InfoSchool-hanke

**Yhteistyössä**

**PUUSTOLA**

**Uutiset**  
01.12.2008

## 2) Local Internet Forum





# Kuninkaantien Koulufoorummi

## Tervetuloa Kuninkaantien koulufoorumille

Olet Jakomäki-Puistolan paikallisen tiedon foorumilla. Tällä sivustolla alueen viiden koulun oppilaat julkaisevat koulutöitään kaikkien ihailtavaksi. Töiden aiheet liittyvät omaan lähiympäristöön ja ne kiinnitetään kartalle. Myös muiden alueesta kiinnostuneiden on mahdollista lisätä kartalle oma kohde ja kirjata näin omia kokemuksiaan Jakomäki-Puistolan alueesta.

Toivottavasti viihdyt Koulufoorumilla!

## Uusimmat Koulutyöt

### Tulevaisuuden koulu

21.11.2008 - 14:29



Millainen on tulevaisuuden koulu? Miten se poikkeaa nykyisistä kouluista? Onko rakennukset samanlaisia, entä opettajat ja oppilaat? Voisiko kouluista tulla koko asuinalueen yhteisiä oppimiskeskus.

[Lue lisää](#)

### Helsingin korkein luonnollinen kohta

13.10.2008 - 11:04



Jakomäenkalio on Helsingin korkein luonnollinen kohta. Viimeisimmän jääkauden väistyessä jään sulaessa.

Selaa

Hae

Lisää oma kohde

Ohje

### KATSELE KARTALTA>>

Koulufoorumin kartalta löydät paikallista oppilaiden ja alueen asukkaiden tuottamaan tietoa.

### LISÄÄ OMA KOHDE KARTALLE>>

Voit myös merkitä omia kohteita kartalle ja kertoa niihin liittyvistä asioista.

## Mukana foorumilla

### *Kuninkaantien koulut*

- [Jakomäen ala-aste](#)
- [Jakomäen yläaste](#)
- [Nurkkatien koulu](#)
- [Puistolan ala-aste](#)
- [Puistolan peruskoulu](#)

### *Helsingin kaupunki*

- [Mediakeskus](#)

### *Teknillinen korkeakoulu*

- [InnoSchool-hanke](#)

## Uutiset

01.12.2008

[Kuninkaantien projektihuoneen suunnittelutyöpajat](#)

## Katsotuimmat koulutyöt

- [Tulevaisuuden koulu](#)
- [Helsingin korkein luonnollinen kohta](#)
- [Mikä Kuninkaantie oikeastaan on?](#)
- [Ruska](#)

## Yhteistyössä



PUISTOLA



# Childrens workshops 2008 making “the space” for their own place and for the future learning

Quantity of children	180
Quantity of workshops	6
Age of pupils in the workshops	10-14 y.
Quantity of scale models	43
The space as one (1 or whole)	28
The space divided in 2 areas or rooms	8
The space divided in 3 or more rooms	9



# **Childrens workshops 2008 making “the space” for their own place and for the future learning**

<b>Smaller rooms (tent or cottage) inside the space</b>	<b>5</b>
<b>Quantity of models with furniture for group work</b>	<b>28</b>
<b>Quantity of models with furniture for individual work</b>	<b>12</b>
<b>Flowers, water or some other elements of nature in the models</b>	<b>11</b>
<b>Covered or painted floor and walls</b>	<b>33</b>
<b>The walls remained plain (naked)</b>	<b>10</b>



# Scale model: Group work for 3-6 pupils

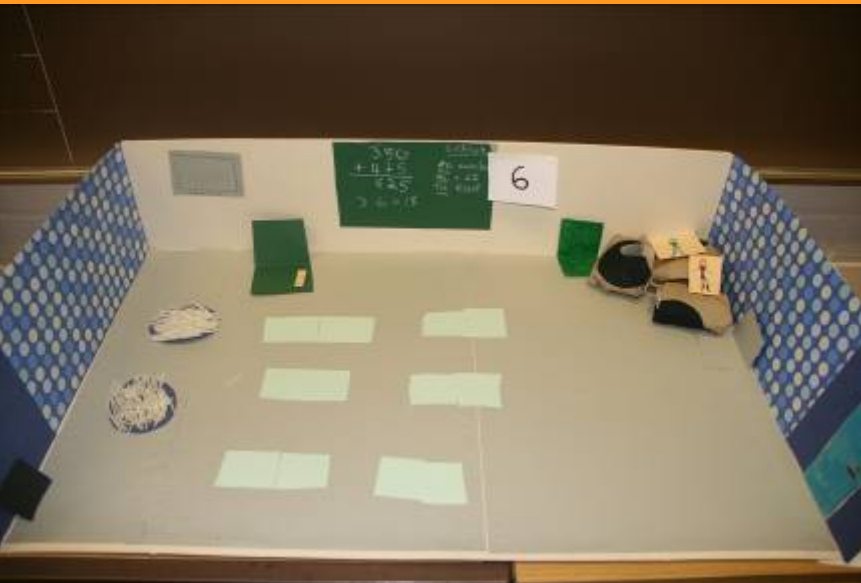


- Workshops took place in the class room which will become PjBLL
- Children from different schools and cultures
- Furnishing and giving "make-up" to the scale model of the class room

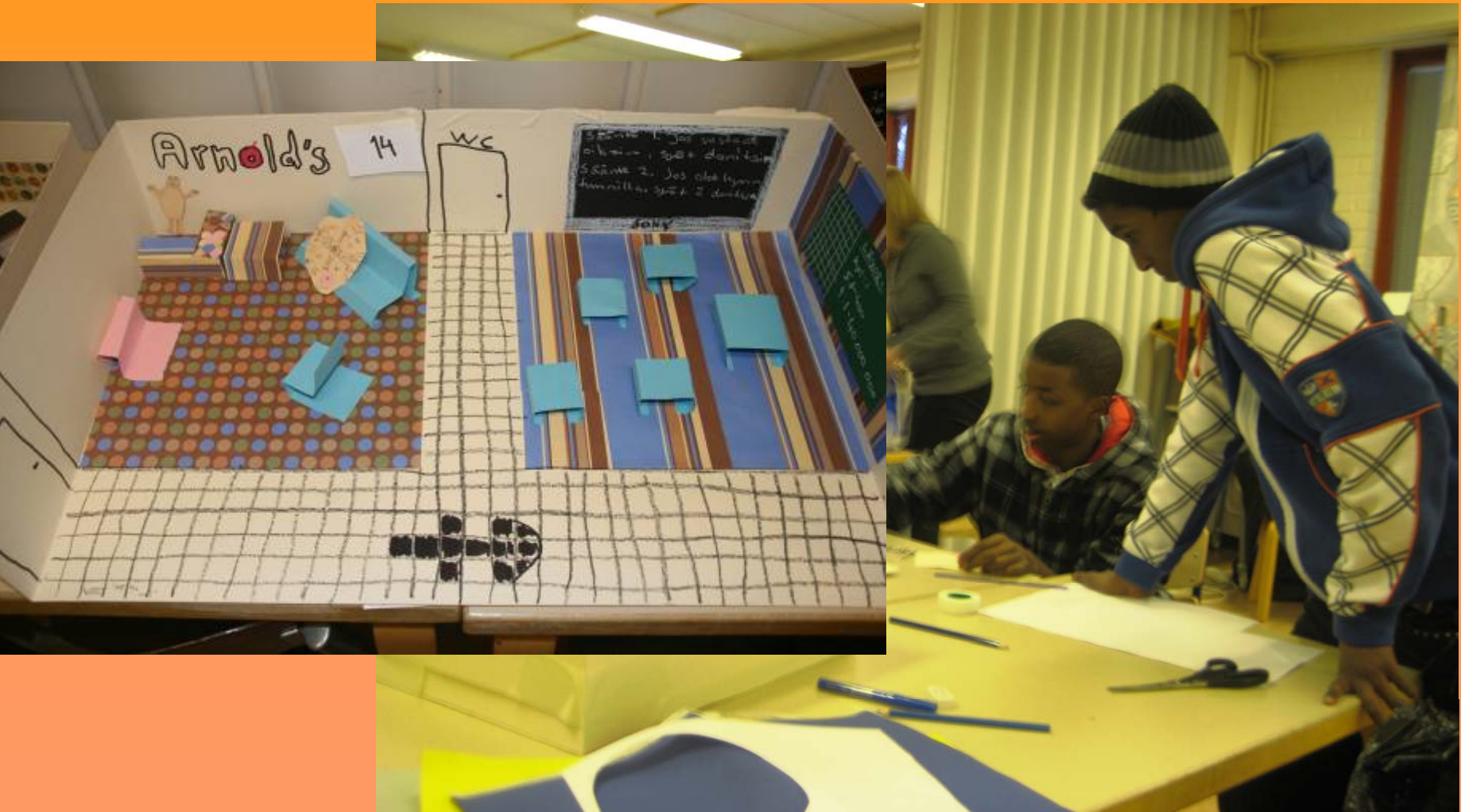




# The space kept as one (1 or whole)



# The space divided in 2 areas or rooms





# The space divided in 3 or more rooms



# Smaller rooms (tent or cottage) inside the space



# The walls remained plain (naked)





# Furniture for individual or/and group working

		Model numbers
<b>Scale models which included furniture for collaborative group work</b>	<b>27</b>	<b>1,2,4,5,10,11,13,14,15,18,19,20,21,22,24,27,30,31,33,34,35,37,3840,41,42,43</b>
<b>Scale models which included furniture for individual working</b>	<b>12</b>	<b>3,7,9,10,14,16,21,23,25,29,32,39</b>



# Scale models which included furniture for collaborative group work



# - furniture for collaborative group work







# Scale models which included furniture for individual working



# Nature Elements or Memories –different personalizings for the space

<b>Nature elements: plants, animals, water etc.</b>	<u>7</u> , <u>8</u> ,15, <u>23</u> ,29,38
<b>Things from memories (from home or abroad)</b>	4,21, <u>23</u> ,24,26,28,30,31, 39, 40
<b>Elements from outside spaces</b>	3,5, <u>7</u> , <u>8</u> , 9,10,14,18,33, 36,41,43
	In 35 models



# Nature Elements





24



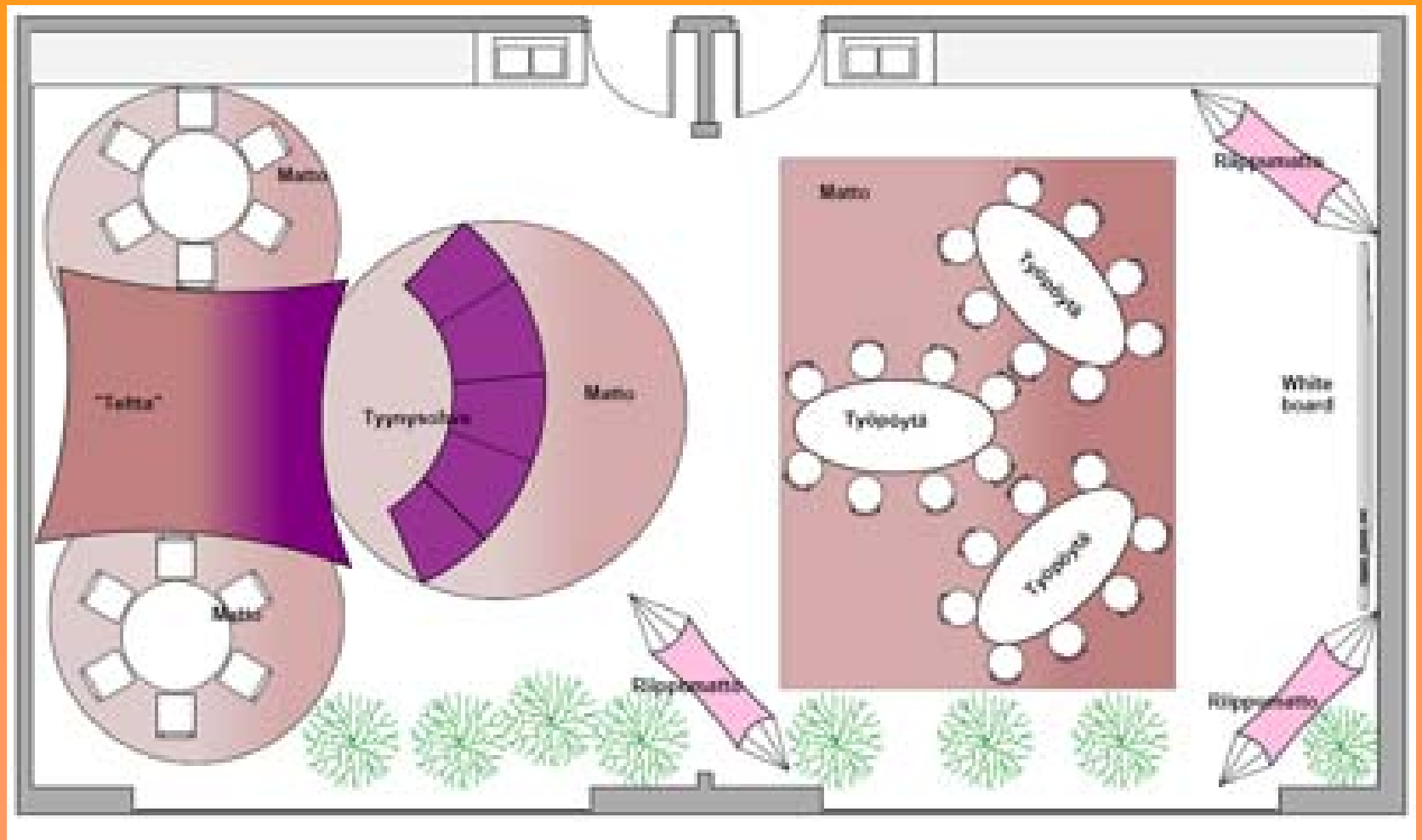


# Outside elements, mostly sporty



# Things from memories





# A mediating space

- On the basis of above-presented we have here **three preliminary findings** of different ways how to see “*the mediating space*” when planning the future school (learning space and place) with children. The children are active learners at school. **The space which is activating them in learning, is considered a mediating space.**
- In this paper, we present as “*Mediating Space*” the space which is transforming into a meaningful place in the Mediated Learning Experience; we see *in this preliminary phase the Mediating Space to act as a mediating tool in the learning process.*



## A mediating space (1)

- First we present this process as a personalizing process of the *space*, “**place making**” (Tuan 1977 etc.): to children (pupils) have a possibility to bring their own memories, hobbies and ideas into the “space” (the class room) and it will become a *place*.
- In making this – when “memorizing” their favorite places – the pupils can be advised to **use all senses, fearlessly**.
- And like L.U. Marks is putting it in her text: “Although much of sensory experience is presymbolic, it is still cultivated, that is, learned, at the level of the body” (2002, 145).





## A mediating space (2)

- Vygotsky said that people are also thinking in “a roundabout way”, by using **mediating tools** (Vygotsky 1994, 61; here Säljö 2007, 26). We accept the human mediation (collaboration) to be important, but we try examine the role of the space (class room); **could it act as a mediating tool or a mediator.**
- Feuerstein has presented, in the context of the socio-cultural educational theory, the **MLE, Mediated Learning Experience**. According to Feuerstein and colleagues (1980, 23) the acquisition of MLE does not depend on either the content or the modality of interaction.
- Following Feuerstein (1990; here Kozulin 2005, 26) , we argue that the process in which the space became a place in the workshops was a **Mediated Learning Experience. In this MLE** pupils learned to work together and they had possibility to tell about the places, which are meaningful and important for them, first they could tell it non-verbally (drawings and model workshops 2007, models 2008) and then also in speech (video tapes).



## A mediating space (3)

- We are expecting children's epistemic agency to grow in this MLE, which is a part of the learning process. We see the purpose of learning as not only to preserve knowledge but also to expand and renew it (Engeström 2001).
- When we accept childhood as a social category, not merely a transitional phase towards adult life, then we have to ask children and youth their desires and opinions of the environment; and more precisely, as done here, to what kind of learning environment do they long for.



# 2.1. Research questions

**In this paper we are trying to answer the following question:**

*“What are the qualities required of a project based learning lab (PjBLL) for it to act as a collaborative and mediating space for both teachers and students?”*

**and in ongoing phase in our study the second question is**

*“How does the virtual space support linking the PjBLL space and the physical environment locally/globally?”*

**Mediating Space and Place**



**Palaute** **Etusivulle**

# Kuninkaantien Koulufoorumi

## Tervetuloa Kuninkaantien koulufoorumille

Olet Jakomäki-Puistolan paikallisen tiedon foorumilla. Tällä sivustolla alueen viiden koulun oppilaat julkaisevat koulutöitään kaikkien ihailtavaksi. Töiden aiheet liittyvät omaan lähiympäristöön ja ne kiinnitetään kartalle. Myös muiden alueesta kiinnostuneiden on mahdollista lisätä kartalle oma kohde ja kirjata näin omia kokemuksiaan Jakomäki-Puistolan alueesta.

Toivottavasti viihdyt Koulufoorumilla!

## Uusimmat Koulutyöt

### [Kalevala-teemapäivä Puistolan peruskoulussa](#)

26.03.2009 - 21:38



Puistolan peruskoulussa vietettiin Kalevala-teemapäivää perjantaina 20.3. Kalevalan maailmaan perehdyttiin pitkin viikkoa, ja teemapäivän aikana koko koulun väki teki erilaisia Kalevala-aiheisia töitä.

Kalevala-teemapäivän aikana tehtiin mm. Kalevala-aiheisia pelejä ja kuvitettiin Kalevalan tarinoita.



**Selaa**

**Hae**

**Lisää oma kohde**

**Ohje**

### KATSELE KARTALTA>>

Koulufoorumin kartalta löydät paikallista oppilaiden ja alueen asukkaiden tuottamaan tietoa.

### LISÄÄ OMA KOHDE KARTALLE>>

Voit myös merkitä omia kohteita kartalle ja kertoa niihin liittyvistä asioista.

## Mukana foorumilla

### Kuninkaantien koulut

- [Jakomäen ala-aste](#)
- [Jakomäen yläaste](#)
- [Nurkkatien ala-aste](#)
- [Puistolan ala-aste](#)
- [Puistolan peruskoulu](#)

### Helsingin kaupunki

- [Mediakeskus](#)

### Teknillinen korkeakoulu

- [InnoSchool-hanke](#)

## Yhteistyössä



**PUISTOLA**



**JAKOMÄKI SUURMETSA**

## Uutiset

27.03.2009

[Taidenäyttely Opetusvirastossa syyskuussa 2009](#)

19.03.2009

[Kalevala-teemapäivä Puistolan peruskoulussa](#)

12.02.2009

[Tanssin taikaa Puistolan peruskoulussa](#)

Valmis

Käynnistä

Ruutukaappauksia - Micr...

Kuninkaantien Kouluf...

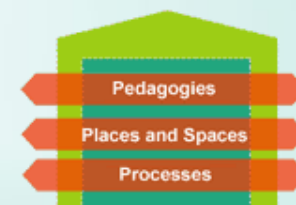
http://kuninkaantien.koulufoorumi.fi/

Siirry

21:20  
sunnuntai



"A day in my life"



Select tool:     

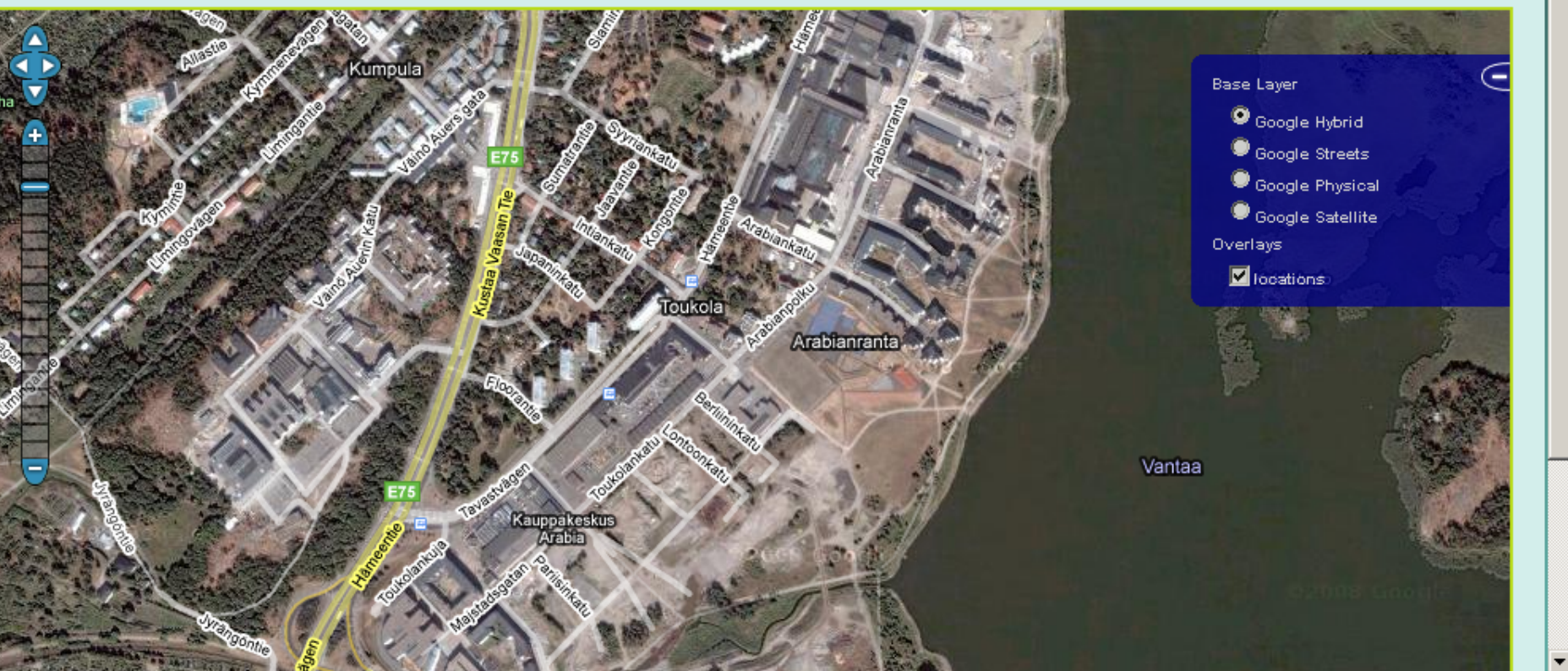
Helsinki, Suomi



Mesa, California

**InnoSchool Globus 2009**

Research Project in California & Finland



Base Layer

- ☒ Google Hybrid
- ☐ Google Streets
- ☐ Google Physical
- ☐ Google Satellite

Overlays

- ☒ Locations




"A day in my life"



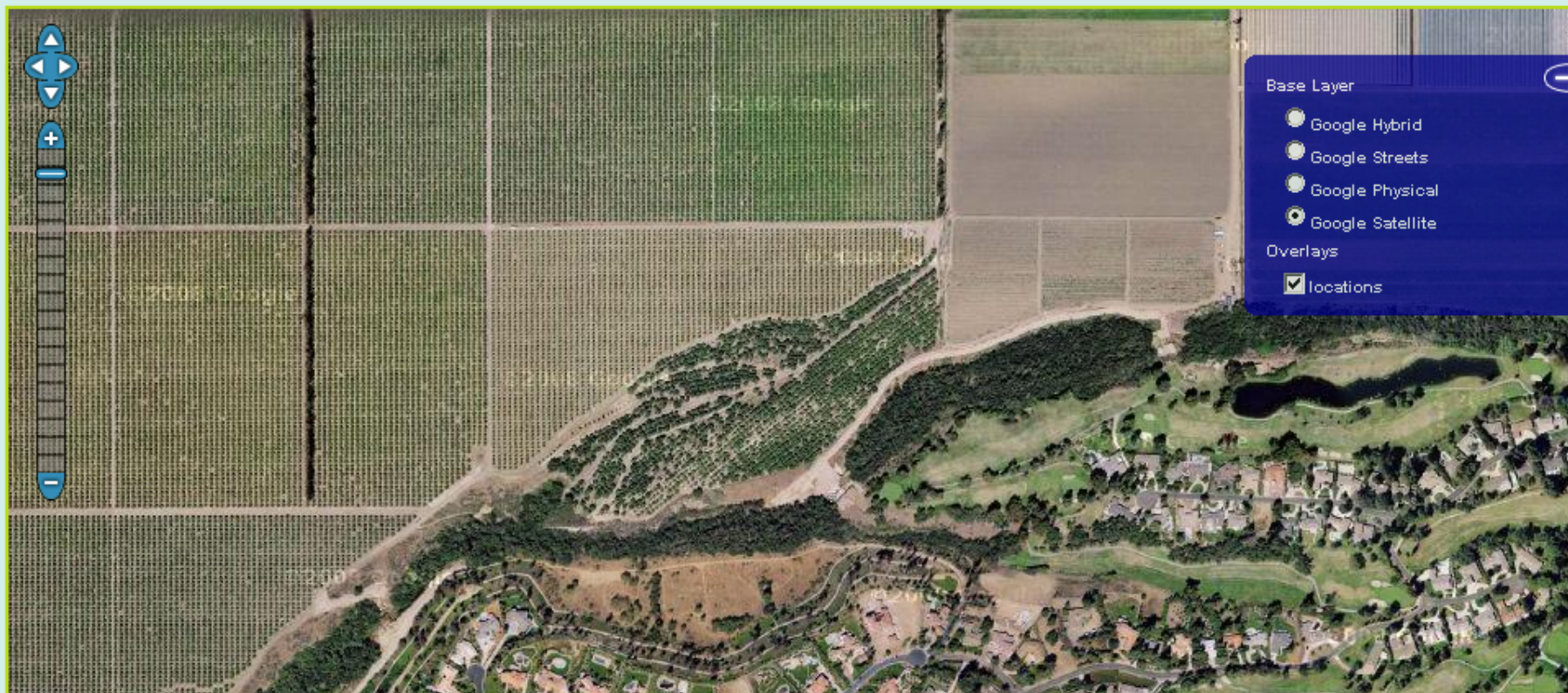
Select tool:     

Helsinki, Suomi 

 Mesa, California

**InnoSchool Globus 2009**

Research Project in California & Finland



Base Layer

- ☐ Google Hybrid
- ☐ Google Streets
- ☐ Google Physical
- ☒ Google Satellite

Overlays

- ☒ locations

*Thank You!*

**InnoArch**

**Places and Spaces for Learning**

**<http://innoschool.tkk.fi/innoarch>**



HELSINKI UNIVERSITY OF TECHNOLOGY

Department of Architecture

InnoArch: Teräväinen, H., Staffans, A. & Hyvärinen, R.