InnoSchool - InnoArch
Presentation of a Research Project

13.9.2008
Aija Staffans
Helsinki University of Technology
Department of Architecture
InnoSchool
Innovations in Architecture, Education, Playful Learning and Services

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

University of Lapland
InnoPlay
Faculty of Education, Centre for Media Pedagogy

Helsinki University of Technology
InnoArch – Places and Spaces for Learning
Department of Architecture

InnoServe
Department of Computer Science and Engineering, SimLab
“The InnoSchool consortium project researches and develops schools, with the goal to develop the Innovative School Concept. The two overarching research questions of the project are:

1) What are the innovative concepts, i.e. the practices, processes, models and principles that should be followed in planning, designing and implementing the Future School so that it becomes a boundary-permeating systemic innovation?

2) Specifically, we want to define the concepts that concern architecture, pedagogy, playful environments, and service processes, and especially their trans-disciplinary combinations that support educational innovations in the Future School.”
InnoSchool Consortium

**Research**
- Helsinki University of Technology
- University of Helsinki
- University of Lapland
- Stanford University
- University of California, Santa Barbara (UCSB)

**Industrial Partners**
- Cramo Finland
- Elisa
- Lappset Group Ltd.
- Martela Group
- Microsoft

**Municipalities**
- City of Espoo
- City of Helsinki
- City of Rovaniemi

**Dissemination Partners**
- National Board of Education
- Finnish Forest Industries Federation

**Funding**
- Partners (20%)
- Tekes – Finnish Funding Agency for Technology and Innovations (80%)
InnoSchool Concept Design

Integrated  Virtual  Global

Formal  Learning across time, places and spaces  Informal

Local  Physical  Distributed
InnoEdu Research Frame

**LEARNING NEIGHBOURHOOD**

**COLLABORATIVE PEDAGOGY**
- Students as knowledge creators
- Teachers as multiprofessional collaborators
- TE as a lifelong continuity

**OUT-OF SCHOOL LEARNING CONTEXTS**
- Integration to basic education

**FLEXIBLE CURRICULUM**
- Redefining formal pedagogy
- Project based integrative content

Source: Leena Krokfors 2008
InnoArch Goals

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

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

*TSL* processes

* TSL = teaching, studying, learning
InnoArch
Research Frame and Focus Areas

"Indoor studies"
- Workshops for children and adults
- Video monitoring and analysis
- Interviews, www questionnaire
- Arkki/Children’s Architecture School
- Arabia School
- Stanford Loft

"Outdoor studies"
- Local www forums
  - Product development
  - Interviews
  - Simulation
  - Workshops
    - Kuninkaantie

Space experience - emotional -
Usability analyses
- Observation
- Walk-through
- Interviews
  - Arabia School
  - 20 schools

Physical Environment

Belonging Participation - socio-cultural -

Place mapping
- Mobile positioning, GPS
- Picture Analysis
- Interviews
  - Arabia School
  - Muurola
  - Kuninkaantie

Usability - functional

Place experience - emotional -

Belonging
- socio-cultural -

Participation
- emotional -

Socio-cultural
- emotional -

Space experience
- emotional -

Usability
- functional -
InnoSchool Pilot Schools

**EXISTING PILOTS**
- HELSINKI
  - Arabia
  - Kuninkaantie 5 schools

**FUTURE PILOTS**
- ROVANIEMI
  - Nivavaara
  - Kauko
  - Muurola
  - International partner schools

**FUTURE CONCEPTS**
- ESPOO
  - Opinmäki

**Schools**
- Helsinki Arabia Kuninkaantie 5 schools
- Rovaniemi Nivavaara Kauko Muurola
- Future Concept

**Years**
- 2007
- 2008
- 2009
InnoArch Indoor Studies
InnoArch as a Co-developer
InnoArch Outdoor Studies

"Mediating Places and Spaces"
Mediating Places and Spaces
InnoArch Indoor Studies: Stanford Loft

Higher Education in Stanford:
Multinational student teams working in a collaborative space called Loft
What makes the learning experience so special?

Source: Lilli Palasto 2008
Mediating Places and Spaces
InnoArch Indoor Studies: Spatial Intensity in Arabia School

"Informal learning and the use of space?"
Mapping and monitoring the use of Arabia School together with InnoEdu

Class of 24 pupils
Age 10
Video observation in the class room and in the lobby for one week

Mapping events in particular places in school house; identifying themes, actions and practices;
Developing video-enabled, evidence-based research methods; archiving, analysis and representing the film (Green & Skukauskaité 2007; Elan & Monty)
Mediating Places and Spaces

InnoEdu Studies: Informal Episodes in Class Room

Source: Leena Krokfors 2008
Mediating Places and Spaces
InnoArch Indoor Studies: Spatial Intensity in Arabia School

What is the connection between space and learning -evidence?

SPATIAL INTENSITY
What Constitutes Experiential Space and How We Perceive It
Arvi Mäkitalo 2008
Spatial Intensity – Augmented Reality

Source: Imaginary Forces 2006 / Bubbles in the wine
Evaluating building performance and looking for activity spots outside formal teaching facilities

Jukka Sulonen 2008
Examples of Finnish Schools
InnoArch as a Co-developer

Case Opinmäki School in Espoo

Education: Place for 1450 students
- International School circa 470 students
- Finnish Comprehensive School circa 750 students
- Swedish Comprehensive School circa 230 students

Day care: Place for 120 children
- Day care in English: 1 group
- Day care in Finnish: 4 groups
- Day care in Swedish: 2 groups
InnoArch as a Co-developer
Case Opinmäki School in Espoo

**Autumn 2007**
- **Arkki Workshops**
  - Data collecting:
    1. Digital video material
    2. Interviews
    3. Photographs
    4. Notes
    5. Artefacts (drawings and models)

**Spring 2008**
- **Analysis**
  - InnoArch researchers apart and together
  - with InnoEdu
  - with the students of Arkki

**Autumn 2008**
- **New School Typologies**
  - Master's thesis in architecture will present new typologies

**2009 - 2010**
- **Designing & building Opinmäki**

- **Architectural Competition Opinmäki**

- **www inquiry**
  - www inquiry to potential end users

- **Comparative study**
  - Post occupancy evaluation of 19 schools in use
  - (PhD study, separate funding)
InnoArch as a Co-developer

Case Opinmäki School in Espoo

Opinmäki workshop
28.8.2008
for Espoo Educational Administrators

"Kick off for the planning process"
InnoArch as a Co-developer

Children’s Architecture Workshops Arkki

Children and young people in ages 11-18 working together
Documented in photographs and video tapes

18 workshops and closing seminar in autumn 2007

Arkki= Architectural School for Children and Youth
Architecture is part of the visual arts education in Finland at the comprehensive school in Finland
7. workshop  20.11. & 21.11.  Future Spaces to study and learn (groups) (2)

8. workshop  27.11. & 28.11.  Future Spaces to study and learn (clusters) (3)

Organic shapes. Cell shape came out and also attempts to share round shape into cornered rooms.
The big central hall surrounded by smaller spaces (class rooms) came out several times.
Rooms were very high with balconies, bridges and many levels inside. On the roofs open air living areas. Access outside directly from every class room. Nature elements like stones or water elements like fountains, ponds and brooks, were placed between the class rooms.
<table>
<thead>
<tr>
<th>Event</th>
<th>Date(s)</th>
<th>Activity Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar at Arkki School</td>
<td>19.12.</td>
<td>Discussion about all topics and creations together with parents</td>
<td>A huge amount of fantastic drawings and models. The overall picture was cleared up to, when everything was repeated and analysed together. The students (pupils) had again opportunity to explain their solutions to the audience.</td>
</tr>
</tbody>
</table>
Future School

Thematic and Typologic Rethinking of School Design with Children

Piazza
Stoa
Serial Atriums
Roof Garden
Heart, bridge and clusters

Source: Sini Meskanen 2008
InnoArch as a Co-developer

Case Opinmäki School in Espoo

**Autumn 2007**
- **Arkki Workshops**
  - Data collecting:
    1. Digital video material
    2. Interviews
    3. Photographs
    4. Notes
    5. Artefacts (drawings and models)

**Spring 2008**
- **Analysis**
  - InnoArch researchers apart and together
    - with InnoEdu
    - with the students of Arkki

**Autumn 2008**
- **New School Typologies**
  - Master’s thesis in architecture will present new typologies

**2009 - 2010**
- **Designing & building Opinmäki**

**www inquiry**
- www inquiry to potential end users

**Comparative study**
- Post occupancy evaluation of 19 schools in use
  (PhD study, separate funding)
Asking children about their perceptions, experiences and movement in the neighbourhood

1. Mind mapping
2. Mobile mapping
3. Interview
Neighbourhood level environmental study by using mobile phone, GPS logger, Brieftec Binder software and GIS applications (Google Earth)

Source: Sirkku Huisko ja Reetta Hyvärinen 2008
Details…

Reetta Hyvärinen 2008
Pets and animals…

Reetta Hyvärinen 2008
Unique hobbies and important elements of everyday life…

Reetta Hyvärinen 2008
Social gathering e.g. shopping malls…

Reetta Hyvärinen 2008
School Forum is
- a mediating virtual space between the school and the local community and
- a publishing platform for project based TSL

5 schools, project groups in art, literature, physics, history
Sharing the School Forum with the Mesa School, Santa Barbara?

IN FINLAND
### Theme

- **Schools as Platforms**
- **Schools as Learning Environments**
- **Schools as Integrators for Learning Resources and Networks**
- **Schools as Platforms for Life-wide and Life-long Learning**

### Expected Results

- Developing collaborative planning methods for the school with stakeholders in all user and age groups
- Local forums as mediators between the neighbourhood and the school; international collaboration
- Collaboration, mediation and sustainability guiding the planning process of the school
- **School as a Learning Neighbourhood**

---

**InnoSchool**

Helsinki University of Technology
University of Helsinki
University of Lapland
Stanford University
University of California, Santa Barbara (UCSB)
IN FINLAND