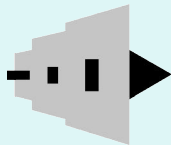


InnoSchool co-project

# InnoArch

Places and Spaces for Learning

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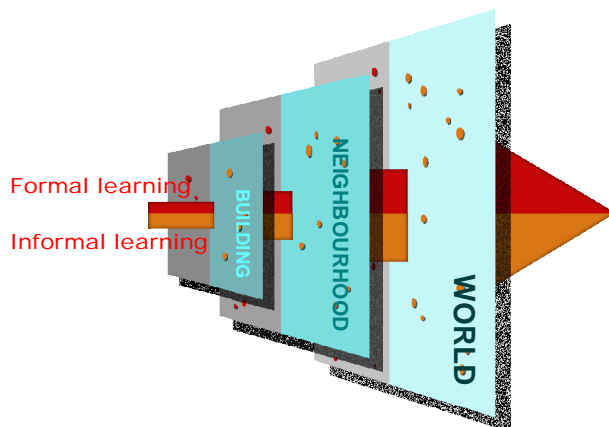
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## InnoArch - Places and Spaces for Learning

InnoArch is a co-project lead by laboratory of planning and urban design (Helsinki University of Technology) concentrating on the places and spaces for learning; physical environment like school building and surrounding neighbourhood. Other co-projects are InnoPlay, InnoEdu and Innoserve and together they form research project InnoSchool.

The goal of InnoSchool is to develop the Future School Concept: a set of research-based good practices, processes, models and designs, and recommendations for their successful combinations in the Future School. Primary goal for InnoArch is to deepen the understanding of the interrelationship between the physical environment and the meaningful learning process (TSL) and to create new knowledge of this correlation. Secondary goal is to develop collaborative inquiry- based planning and design process for future school.

InnoSchool is realised together with Helsinki University of Technology (InnoServe, InnoArch), University of Helsinki (InnoEdu) and University of Lapland (InnoPlay). TEKES (the Finnish Funding Agency for Technology and Innovation) is the main financier of the project. Additional funds come from several partner companies and cities.



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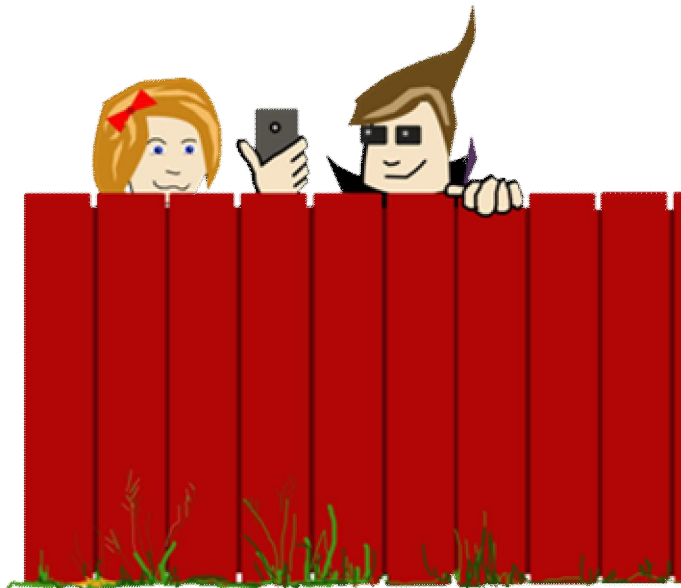
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InnoArch Outdoor Studies

## “ Children as environmental agents”



Pilot study “Children as environmental agents” 24. - 25.5.2007  
Elementary school of Arabia, city of Helsinki

30.08.2007  
Sirku Huisko  
Reetta Hyvärinen

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## Introduction to InnoArch outdoor studies

InnoArch outdoor studies research learning supportive outdoor environment in two ways: From the learning point of view by asking "what kind of places and spaces support learning?", and from the planning point of view by asking "How to plan places and spaces which are learning supportive?" Main responsibility for carrying out the InnoArch outdoor studies are with researcher, landscape architect Sirkku Huisko and research assistant, student of geography (also pedagogical studies), Reetta Hyvärinen.

First pilot study called "Children as environmental agents" was carried out 24.-25.5.2007 in the Elementary School of Arabia, In the City of Helsinki, Finland. During the spring other researchers of InnoArch collected video data in the same school together with InnoEdu (HY) for the purposes of the indoor studies.

During the pilot study experiential environmental data was collected from the children. The study served as a test bed for the chosen methods and equipment and also as a source for the ideas for studying and creating learning supportive environment.

## Pilot study "Children as environmental agents"

Study "Children as environmental agents" can be considered as pilot, because new equipment was used and tested for the data collecting. Experiential environmental data was collected using mobile phones, GPS-logger, interviews and drawing task. It can be said that triangulation was used concerning at least the method, but also the researchers and theories represent different backgrounds.

### *Background*

Theory frame of the study was in James Gibson's theory of affordances. Affordances are considered as possibilities of action that are experienced by the observer, between observer (being e.g. human) and object (things, other humans, animals etc.). The way we observe affordances is dependent in many things e.g. our life experience and background.

During the study children were asked to collect and make notes of things and places that they felt somehow interesting or that gave them feelings i.e. nice, unpleasant, fun, beautiful, ugly, boring, exiting, scary, dangerous and safe. While they were doing this they at the same time took notes of the things and places that offered them possibilities to action, in other words they showed us affordances they had spotted.

Theoretical assumption is that with this method we can localise affordances that can be considered as supportive for learning and personal development. It is thought that environment itself can support learning. Assumption is based, for example, on Lev Vygotsky's Zone of proximal development (ZPD). ZPD means that level of conscious action which is in the upper limit of one's personal performance in which one can operate but not without tutoring. In this study the assumption is that affordances that trigger our imagination can serve as a kind of tutor.

This method offers possibility to hear out children and collect experiential environmental data from them for the purposes of planning. This is why also theories of communicative planning and participation create significant background for the study.

The target was a group of ten year old children. This group was selected because at this age children are capable of self conducted action but are still open for everything new.

## *Equipment*

For taking the notes children had with them mobile phones (Nokia 6680, Nokia 6630) and GPS-Loggers (RoyalTek RBT-1100). Application in the mobile phones was Binder (Brieftec Oy). Subscriber connection was ordinary Elisa mobile phone connection. Used version of the Binder narrowed the platform of the mobile phones to Symbian S60.

Binder is a mobile application based on mobile phones and Internet. It is originally developed to support active learning. Application together with positioning technology creates an Internet based learning environment in which you can collect, store and share information. Application has been developed in city of Oulu, Finland by pedagogical and technical experts. In this study the application was used as a mean to collect data.

With Binder one can collect and save observations in pictures, sounds, videos and text. All the data saved has also coordinate position in Finnish KKJ (YKJ, KKJ3). This data is transferred over Internet to the database where it can be examined and looked also on the map. When using the mobile application user can also see his/her position on the phone screen. This application needs GPS equipment to work. In this study GPS had also logger feature which records the routes. These routes with other collected data can be transferred in e.g. Google Earth or other GIS applications where they can be examined.

## **Data collection**

Pilot study was carried out with one 22 pupil class of 4<sup>th</sup> graders. First phase was to tell the children what these two days will hold within, what we are going to do and with what kind of equipment. Pupils were separated in nine groups decided beforehand with the teacher. Final amount of groups was 9, because of some absences. Groups were named after colours (yellow, lilac, pink, red, blue, turquoise, white, green and violet) and the phones and GPS-loggers were also named with the same colours too. This was to help combining the collected data with the route data recorded separately. The area where children were allowed to move had strict boundaries to prevent sea and routes with heavy traffic.

First day children collected data from the nearby surroundings of the school. While the other half of the class was spotting places and things outside, the other half draw picture of their school route in the classroom. Task was to draw things and places by the school route which are used as landmarks or which are remembered for some other reason. Task was to draw picture of the route as it is remembered, not as it actually is. On the second day every group was interviewed separately. Everything except the drawings was used as background material for the discussion. Interviews were recorded for the analysing and later use.

## *Collected data*

Following material was collected from 20 children / 9 groups (two groups of three children) during two days:

9 routes

183 photos

22 videos

17 drawings

Several hours of interviews

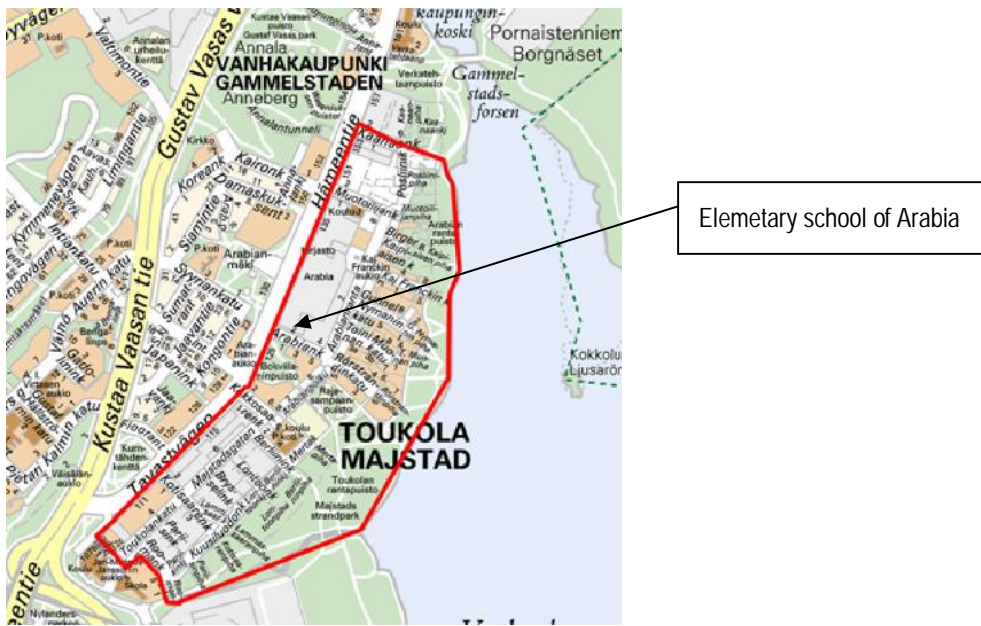


Figure 1 Boundary of the area where children were allowed to move

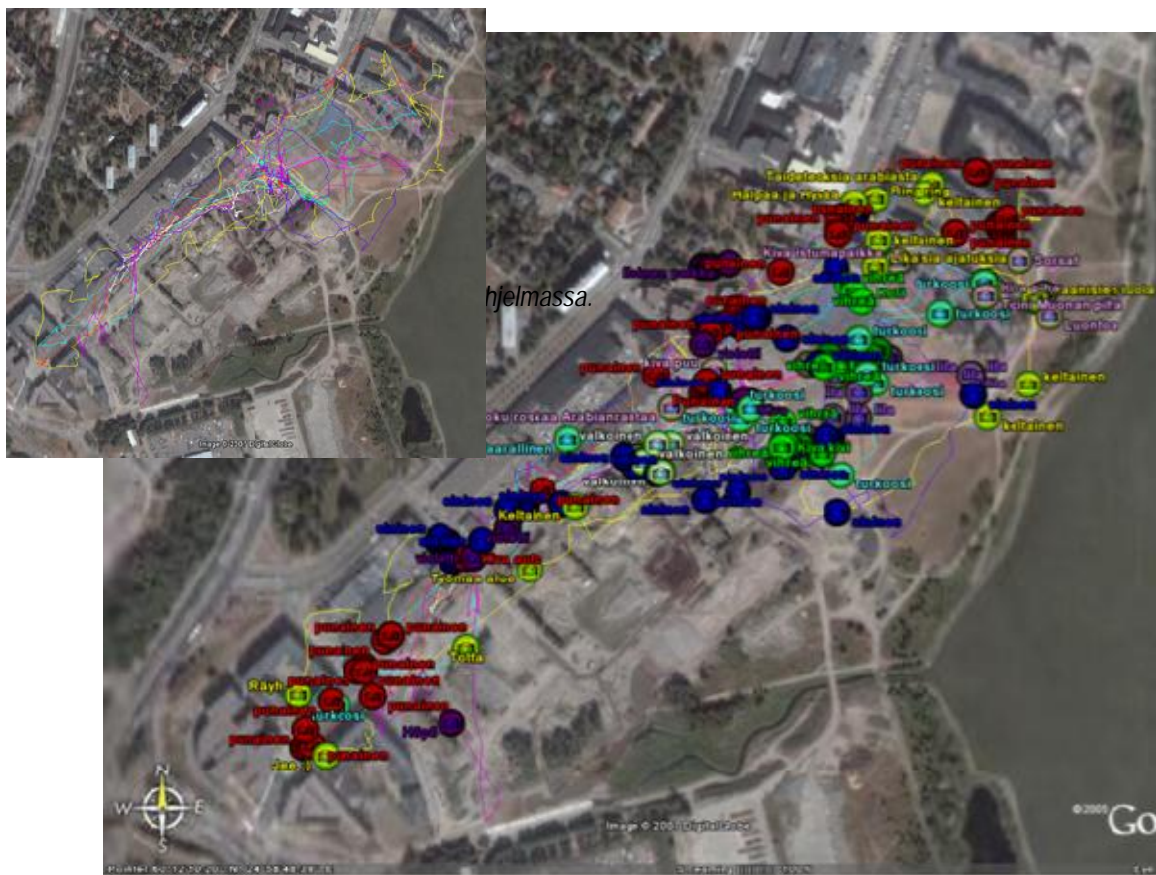
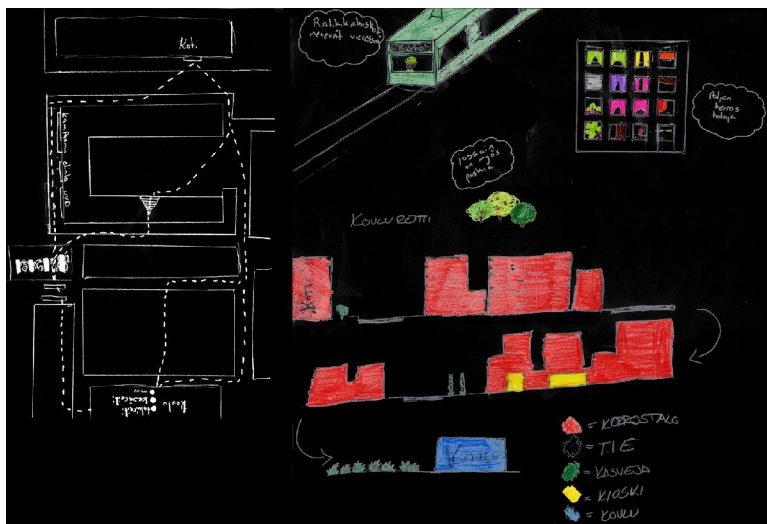


Figure 2 Recorded routes and positioned findings of the children



Pictures 3-6 from upper right corner: "Nice stone", "Troll cave", "Mrauh!" and "Safe"



Picture 7 Some drawings



## Thoughts and notices

### *Method*

Children took the method very well and used the equipment skilfully. Some problems occurred with the application because it went off easily, but this was not because of the children. Most children liked the task and used the equipment enthusiastically. The task was a nice doing together situation for the children without constant supervision of the adults. This can in fact make the data more reliable because children collected the data together without researchers or other adults.

Children use the environment differently from the adults and this can cause conflicts. That is why children don't have any intention to tell the adults everything they are doing with each other (Cele 2005). It is possible that with this method we got a glimpse of this "hidden world". This is because the next day when looking at the pictures and other data taken some children seemed a bit ill-at-ease. It is possible that all the material now obtained could not have been recorded if researchers were with the children when they were doing the task.

With Binder the recordings saved on the Internet database can be watched and commented. This could be developed further to serve as a local environmental experiential knowledge database that can be used as a platform for personal and also community learning. By this people could follow the changes on the area they live in and also the changes of their own attitude towards the area. With Internet all this could be shared.

Recording the routes of the people using the area gives a new perspective for the planning. By this information about the real routes people use while moving around the area can be obtained. These routes are not always the same as planners have thought. This kind of information could help planners and designers to develop routes that serve the purpose better. There are still some issues in the accuracy of the GPS signal caused by buildings and thick woods which have to be taken account.

### *Data*

The amount of details was noticeable in the photo material collected during the pilot study. Single trashes, signs and other environment details have found their way in many photos. Things found are holes in the lawn, flowers, bushes, leaves, stones, street signs, car signs, lonely chair, manhole covers, hammer or juice jar. Almost unnoticeable things seem to trigger children to act; old goggles find their way on the nose and lonely high heel shoe is put on.

Especially noticeable is the amount of photos from the places in between, places that have no name, "wastelands". These places that are not meant for anything or at least not for playing seem to find new life in the children's photos. Sewers are troll caves or scenes for the running games. Under the balcony is found a safe place. Bushes are used for climbing and trees are run around, ducks are chased, artworks are climbed on and used for balancing among with many other things. There are some photos of "real" play equipment, but they are few compared with the material mentioned above.

The services that city offers like video rental shops, grocery stores and department store are found interesting and are photographed. Also vehicles like cars and trucks are found to be entreating. Courtyards, playgrounds and parks are also documented. In the interviews these are described to be meeting places which can be used for playing or just to meet and continue somewhere else.

Arabianranta neighbourhood is situated by the sea and usually water draws children. So it is surprising that documenting by the sea is almost nonexistent. All the photographs taken towards the sea are taken far a way from the shoreline. Shoreline is of course place where children are not allowed to go without supervision, but when asked, children found the shore also boring because "all the nice trees have been cut down" and because "the water is in such a bad condition that it can not be used for swimming". The trees that had been cut down have probably been in such a bad shape that this had to be done, but those trees by the shore were an adventure for the children especially during the spring floods.

It was found during the interviews that children want the cityscape to be multiple in many ways. Trees, nature and animals were wanted but also carefully maintained tidy parks. Children wanted the construction sites to be finished soon because they were found to be dangerous and ugly. Still some children were drawn to these places because of the feeling of excitement and adventure. The cityscape of dreams for these children contains both ends; unattended nature and very urban spaces.

The places and spaces that children photographed could be put in four categories: details in general, wastelands, meeting points and services. Different social and action based meanings are found in all of these four categories.

## Thoughts in planning point of view

In participative planning knowledge of the residents and other interest groups is seen as important part of the planning. Local and experiential knowledge collected from the residents and other user groups is important for maintaining the identity of the place and wellbeing of the residents during the planning and especially during the implementation. This knowledge can be related to the current status of the place or ideas for the future. Methods for collecting this knowledge can be various.

Traditional "get-together" situations attracts usually older people. On the other hand people at working age are found to be users of the Internet based participation methods (Toivonen 2004). By the experience of this pilot study mobile based questionnaires could be interesting method for getting the experiences and ideas of young people and children to be used in planning.

It is interesting to see and hear what kind of thoughts children have of their everyday environment and how they use it. It is impossible for the planner to plan action but by finding out what kind of action occurs in what kind of scenes it could be possible to recreate these kind of places trough planning. Most interesting findings that raises thoughts are the photos and videos about action in so called "wastelands". These are the places what we are trying to get rid of with planning, but for the children they are scenes for unlimited use of imagination, that are full of affordances just to be discovered. But as we know the prise of land is so high that actually if we want to leave these kinds of "places in between" we have to *plan* them. So, maybe this is a call for new kind of attitude towards planning and understanding that planning does not have to mean control over everything.

Although the planned places with play equipment, artworks and street furniture seem to be photographed, it seems that the actions taken in these places are not in line with the originally planned action like sliding down the slide or watching the artwork or sitting in a bench. Children appear do just the opposite; balance on a bench back, climb on artworks and run up slide etc. By studying the ways children use the environment

planners and designers can learn how to create places and spaces that offer platform for imagination and free performance.

Interesting are also the routes that wonder around the parks freely but in places that are found to be dangerous or forbidden the routes concentrate on one more specific trail. So it can be questioned if the freedom of moving has something to do with the form of the place. If the place looks like it is meant to be used for moving around, like lawn, it is used freely, but more disorganised areas that are felt to be dangerous or forbidden pushes moving to trails.

## Spotted problems

Because of the pilot study nature some problems and ideas for improvement were found during the experiment.

More time should have been used in various phases, first for getting to know the equipment. Although the equipments were familiar to the children it was still a new situation and probably this drew some attention away from the actual task. The Binder application was also pretty sensitive and got off easily and children did not know how to get it back on and running. This did not stop the children from taking the photos and other recordings to the mobile phones own memory, which of course caused that these recordings did not go to the Internet server. This made the handling of data more difficult because the positioning of the records had to be figured out comparing the timestamps of the photos and log files from the logger. This causes a possible error of a one minute, which is quite a long time for the fast moving children. Some problems were also caused by old batteries of the mobile phones.

Time to collect the recordings was too short so that the children could really concentrate and results would be reliable. The time was so short because of the test like nature of the experiment and full timetables of the children. Strict borders for moving did probably narrow the results too, but borders were inevitable because of the schools responsibility of the children during the school day. Also the drawing task had to be done in too short time so the actual results of that were pretty narrow.

When doing the recordings weather was also very cold compared to season. Although children were asked to come indoors right away if they felt cold most of them still stayed outside the whole time given.

Shortage of time was also a problem when doing the interviews. Time planned to be used was 20 minutes, but this turn out to be too short. Actual interview times fluctuated between 10-45 minutes, although almost every group would have wanted to speak a little longer. It took about half an hour to get the interviewees relaxed and discussion going deeper. Discussion went on mostly following the interests of the interviewees so the quality and content of the material differs. Approach brings up interesting details but at the same time ruins comparability.

Some problems were also caused by the big buildings as they interfered the GPS signal distorting the routes recorded and probably also positioning of the other recordings. This is a known problem and in this case the routes and recordings are accurate enough.

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