THE HISTORY OF THE LABORATORY FOR VISUAL SIMULATION AND RESEARCH WORK IN TAMPERE

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Many things are born from lucky chances or as the sum of them. I see it that way when I consider those events and stages that have led to this meeting in Tampere.

For myself, the study of the environmental simulator and the activities around it started in Copenhagen in 1977 in the meeting of the professors of architecture of the northern countries. I met Professor Acking from Lund University of Technology and he told me about his studies in perception and the black-and-white environmental simulator that they had built.

When we started architectural education in Tampere in 1969, I had from the beginning looked for new ways to teach in order to renew the old, traditional ways of teaching architecture. After the meeting in Copenhagen, we decided to build our own environmental simulator in our faculty in Tampere. I had been in the right place at the right time and met the right person – this was lucky chance number one.

However, from the first idea to the implementation of the simulator was a surprisingly long way. We also had good luck when looking for the technical means to construct the simulator. I met two enthusiastic students of mechanical and electrical engineering, who were interested in the challenge of the environmental simulator project. I met Ilkka Alavalkama in 1978. That was the beginning of the long collaboration which resulted in the technical realization of the simulator in 1980; a collaboration which is still going on. I had met the right person at the right time again – lucky chance number two.

Figure 1
Environmental simulator of the Department of Architecture,TUT.

In 1978, as far as we knew, there were two environmental simulators: one was at the University of California Berkeley and the other at Lund University of Technology. Both were black-and-white picture based. We set our goal to develop a color picture simulator which should be extremely simple and realiable to use: an instrument which could be used by all students by themselves, not only by the laboratory staff. I think we chose the right goals – that was lucky chance number three.

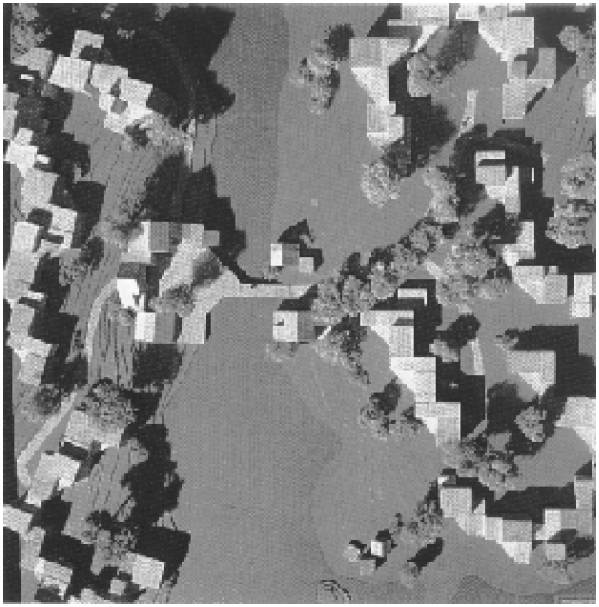
Developing a sharp and vibration-free picture in 1981 was a technical achievement in itself. We admired in confusion the motion picture of the white model – however, the picture itself did not give any answers, but it posed the critical questions to be answered. These questions included: Because the picture was in color, what should the model be like to get a life-like effect? What did we experience, how well did the simulation correspond to motion in reality? What were the things that were important when considering motion? What was the importance of slow motion and fast? What is motion itself in general and what does it mean particularly in architecture? And in the end: what kind of answers did we have for the students who had been interested in motion through the use of the simulator?

The traditional knowledge based on architectural education did not seem to be enough at all when starting

to study the profound problems of motion. With all these problems in my mind, I met a young and talented researcher Seppo Aura who was interested in starting teaching and studying environmental psychology in our department. He was interested in architectural theory in general and particularly the study of the content of motion. In 1982 we started our collaboration, which is still going on. During this time, Seppo Aura has done his doctoral dissertation, *Episode as A Unit of Analysis of Movement* in the field of architectural theory and environmental psychology. In addition, we have published in collaboration two books: *The Form and Content of Architecture* and *Motion, Time, and Architecture*. – The collaboration with Seppo Aura was lucky chance number four.

The simulator was designed intentionally for the use of students as a design tool. Thus, it was natural that in alongside the use of the simulator we also developed teaching, transmitting the knowledge acquired through research to the students. Among the students we found an inspiring teacher who was interested in the teaching of simulator aided design: Henri Palmqvist, who is to be thanked for arranging this conference in Tampere. Henri Palmqvist is the head of the applied research using the simulator. – Having Henri Palmqvist on the research staff was lucky chance number five.

During the years, the international connections in the collaboration of the simulator have continuously increased. In 1987, when our book *Motion, Time, and Architecture* was published, we sent it to the specialists in the same field and asked whether they would be interested to participate in the conference on the environmental simulator in Tampere. We received many encouraging answers and good advice on widening the subject of the conference to include the whole range of the study of motion in architecture. The collaboration with Bob Martens from Vienna started in 1989 after his visit to Tampere. From his inspiring initiative started the EAEA. We have gathered here at the first conference of the EAEA thanks to the ideas and practical efforts of Bob



Figures 2 and 3
Student-exercises before and after the use of environmental simulator. Instead of functionally and static-aesthetic orientated architecture (above) the dynamic-aesthetic based architecture has achieved a foothold (below).

Martens and Henri Palmqvist. – Lucky chance number six was meeting Bob Martens.

During all these years I have been particularly happy about extending high level basic research, which is continously increasing our knowledge of the interaction between time, motion and architecture. The latest addition to the basic research done in the field is the dissertation *Duration and Order – A Theory of Spatial Configuration* by Anne Stenros in 1992. This study creates connections between cognitive science and architecture; while Seppo Aura's study made connections between architecture and environmental psychology. We now have very promising opportunities to participate on an international level in interdisciplinary collaboration at a high level. We have succeeded in creating an active research group which is becoming internationalized. – Lucky chance number seven.

The audience might be interested to know what kind of influences simulator aided design and the knowledge of motion-based architecture have on the content of architecture. Although the duration of experience and observation has been only 10 years, I can see a clear change in the work done by the students and the graduate architects of our school. Instead of functionally and static-aesthetic orientated architecture, the function and dynamic-aesthetic based architecture has achieved a foothold. In addition, as I said when I was invited to visit the Moscow Institute of Architecture in 1985: the Russians sent the first man into space but we have brought the designer back to earth to observe the environment on the level of the eye. Perhaps it is not a chance that a former student of our school, Vesa Helminen, who shared the second prize with Kazuo Shinohara in the international competition of the Museum of Contemporary Art of Helsinki, said that the basic idea in his project was the idea of motion.

In this connection, I want particularly to empahasize the use of the simulator as a tool during the design phase and not as a way to analyze completed projects. We have purposely tried to develop different kinds of simulator

aided design methods for the use of the students. In addition, I want to stress the importance of applied research when trying to transform the knowledge brought by basic research into useful knowledge of the practice of design work.

As professor emeritus, I passed over the responsibilities of teaching and research to my successors a year ago. I feel deeply grateful for those many lucky chances which have led to the beginning of the road, at the end of which we may see the birth of a new kind of architecture based on new values and contents.