In common with several other universities in Japan, Osaka University is organized in research and teaching units, rather than classes or courses. The Sasada Lab is one of these units. I will describe how we work, a little of our history to explain this somewhat unusual academic entity and some of results of our efforts.

The lab setting
In our university, a unit has teaching faculty consisting of one professor, one associate professor, and one assistant professor. The number of students in a lab varies from unit to unit, but in our case we have around twenty students in a mix of undergraduate, graduate, and part time students. The numbers change from year to year as does the ratio.

The academic (and later, social too) life of students is centered on the lab. Until the end of the third year of the undergraduate course, all students study basic subjects in a class structure, similar to that in US or European universities. Beginning with the fourth year, all students select a lab to join, marking the beginning of their lab life. After they enter a lab, a number of classes for them is minimized to one or two per week. Students now spend almost of all their life with their labmates, consisting of a few fourth year undergraduates, a larger number of masters students and a few doctoral students. Academic quality is monitored by an examination board which is department based. Thus, a degree of uniformity in standards is maintained between units. After graduation our students join developers, design practices or construction companies. This way of working builds a tight related, intimate and stable research and education unit with a strong connection to our alumni, a distinctive feature of the lab system.

While the majority of lab students are full time, we do have some part-time students. Typically, a part time student is a employee of a design firms, a construction company or a government agency. These organizations pay all academic expenses for their part time students. Some of our students come from overseas. In this rich mix of students and with the intimate atmosphere of a close working group, students learn from each other, knowledge is smoothly transferred from a generation to the next generation. This is perhaps the greatest advantage of the lab system. Incoming lab members are taught basic skills by their colleagues. Particular expertise developed by the lab is not lost as one group graduates and another arrives. Of course, the success of a lab does depend heavily on the character and leadership of
the professor and his colleagues. With the right mix, the lab can be a flourishing and highly productive long-term entity.

**The Sasada Lab**

I had graduated from Kyoto University where we worked on real architectural projects during our studies. Most of my doctoral studies were concentrated on actual design work for Expo’70 in Osaka. It was the biggest event in Japanese architectural design field at that time, and the main part was designed by the mixed team of several units of Kyoto University and Tokyo University under the direction of Prof. Kenzo Tange of Tokyo University. This experience made me to think seriously about design medium and collaboration in design process. I realized that informative and intelligent design media played an influential part in our ability to understand our designs. In the 30 years since graduating I have pursued the same interest - how to develop design media that inform the designer and the design with the goal of improving the final design.

The Sasada Lab started in 1987 when I received my full professorship. Prior to that, I had been running a smaller group within another lab. Starting in the early 1980s, I worked to develop the use of three-dimensional modeling systems for design, including animation systems. Those who were working at that time will remember that there were virtually no systems available, unlike today when a wide variety of commercial systems are offered. We started by developing all the software we needed and even some of the hardware. Slowly we built a suite of tools which could handle the large and complex problems of architectural animation and modeling.

I had meanwhile continued my involvement in design teams and in government boards. From these, we started to receive commissions to participate in design teams or design reviews for agencies. With our stability as a research and education unit, we now receive long-term real design projects from Japanese Government and local governments. As these projects proceed, we identify problems; these problems come to our research subjects. From our research efforts we find solutions and we apply the results in real projects for evaluation. In our lab, education and research are strongly connected to real design projects. In this manner, mainly we concern several research subjects, computer graphics as collaborative media, collaboration with computer networks and so on.

**Major Design Projects**

Over the past fifteen years, we have been engaged more than 100 design projects. Some projects with which you may be familiar include Kansai International Airport; Shanghai Waitan City Renewal (China); Taegon Expo (Korea); JR Kyoto Station; Akashi Ohkura Coastal Community Zone. As we have done this work, we have built a very large and detailed data set of the Kansai region of Japan. This means that when new projects come along in the region, we are able to create an animation or model very quickly and with a high degree of accuracy. As time progresses and more projects are executed, our ability to contribute to understanding the impact of a design increases. Our students appreciate the chance to work on substantial and exciting projects while the design teams benefit from their enthusiasm and research. We find this to be a very effective way to teach architecture and to conduct research into computer tools for design.