

Media Informatics at the University of Ulm

MICHAEL WEBER

1 Introduction

Ulm has a tradition in design since the 1950s. The former Hochschule für Gestaltung, HfG, founded by Max Bill, is responsible for a still remaining school of design. The HfG saw itself as the successor of the Bauhaus. Names such as Max Bense, Otl Aicher, Hans Gugelot, Nick Röhrich stand among others for the high and world-wide reputation of the HfG Ulm. Besides product and graphics design the production and research in film has been a second main issue of the HfG. He I like to name Alexander Kluge and Edgar Reitz. Today many of the teachers and former students of the HfG still live and work in Ulm and keep and foster the tradition further.

Well after the HfG has been closed due to financial problems the University of Ulm has been opened in 1969. First being a medical and natural science university it has been expanded by engineering (esp. electrical engineering) and informatics in the late 1980s.

In 1996 the first efforts began within the informatics department to revive the academic education in design, but now in the new field of media in combination with informatics and especially media related informatics. In order to explore the viability of this approach and to test its acceptance by students, the faculty decided to offer “media engineering and media design” (Medientechnik und –gestaltung) as a minor subject. Relicts of the HfG have in the meanwhile been structured as a partly university owned institute for media development and media research. Together with this institute the minor subject could be conducted beginning fall 1997.

The test ended with a tremendous success which convinced all of the skeptics in the faculty and the university president. About 40 per cent of the enrolments in informatics selected this new minor subject. We had to cope with up to 60 students in the courses, which lead to a three shift model in the design classes, where you can work only in small groups. A most welcome experience was the much higher share of female students in this minor subject compared to others. One could say: if women studied informatics in Ulm, they chose Medientechnik und –gestaltung.

As a consequence the plan of an entire course program in media informatics – which has been in the back of our minds from the beginning – has been presented to the ministry. An eighth

group (a group in Ulm means two professors plus assistants) in the informatics faculty was required to cover the additional teaching load and to establish research in the field. Finally the ministry approved both – the additional group and the course program in media informatics. It started fall 2000 with 100 enrolled students out of over 400 applicants.

2 Study Plan and Profile

Evaluations of the minor subject showed a few characteristics which formed the study plans of the program.

- Those who selected Medientechnik und –gestaltung were affined to the design and creative aspects of informatics, e.g. in human computer interaction, but also in cognitive and psychological aspects.
- They did not have similar affinities to theoretical and technical informatics (and to mathematics).

This led to an adapted curriculum while keeping the degree of Diplom-Informatik. This was possible, since more than 50 per cent of the curriculum is covered by informatics or media-related informatics subjects. We also intended to strike the emphasis of a sound informatics education to potential employers.

The study plan is, as usual in diploma degrees, separated in two parts – the basic studies and the advanced studies. All in all 9 semesters are required to fulfill the curriculum. The plan for the first two years is strict for all. The advanced studies are rather free with only minor regulations on contingents in certain areas. The following table illustrates the outline of the basic studies. The shaded courses are specific to the media informatics program, the others correspond to the traditional informatics program.

Semester 1	Computer Science 1	Linear Algebra	Analysis	Design 1
Semester 2	Computer Science 2	Higher Mathematics	Interactive Systems	Design 2
Semester 3	Software Engineering Lab	Humanities	Introduction to Media Informatics	Economics
Semester 4	Technical Informatics	Theoretical Informatics	Seminar	Media Psychology and Didactics

Table 1: Study plan in the first four semesters in Media Informatics in Ulm

In the advanced studies students are free to select their courses from the broad range of all courses being offered by the faculty. The restrictions are that between 16 and 32 credits (80 are required in total through exams) have to be gained in media informatics. Courses being offered here are in the areas of multimedia, computer graphics, computer vision, image processing, dialog systems, or web engineering. Students also have to select one application subject from the areas interactive systems, film and video, simulation and animation or media

psychology. Most of these application subjects are organized as problem- and project-oriented courses spanning three consecutive semesters in a class style. Two practical works, seminars and finally a half year thesis fill the program to its 240 credits in total.

3. First Experiences

The first students in the program have reached the sixth semester now. Over the years the applications have always been far above the capacity of 100. For the roughly 400 applicants each year the admission is controlled by the high-school exam grades.

Experiences in the design area show that it has been the right decision to conduct the basic courses as hands-on courses in twenty-person courses. This is highly person and tutoring intensive, but the learning effects shown in higher semesters pay off.

Experiences in the media informatics area show especially in later software engineering projects, that a much higher sensibility for usable user interfaces is obtained. Since traditional and media informatics students are undistinguishable beforehand, many colleagues recognize the differences in education significantly by the “products” of the students. Also the presentations in seminars and the written works show a much higher professionalism in this sense.

Experiences in the traditional informatics area show that there are indeed lacks in theoretical and technical informatics. Depending on the focus of the students these missing basic understandings are most often not revealed. If so, students are required to catch up through self-regulated studies, which is unusual to be done.

Experiences from the selection process show, that students from the media informatics program perform in average better than their colleagues, which entered the traditional program without any grade-based admission control. This holds for all subjects.

4. Research Program

The computer science faculty at Ulm has nineteen professors engaged in teaching and research. Depending on the subject they are more or less involved in areas related to media informatics. Obviously the department for media informatics (two professors) are at the core of the discipline. Research in multimedia, computer graphics and aspects of human computer interaction especially in distributed collaborative application scenarios is conducted here. From the other departments the neuro informatics department provides a significant share in media informatics. Computer vision, image processing and analysis, and cognitive aspects of human machine interaction are among the research areas. The department for distributed systems works on multimedia-capable operating systems and on quality-of-service architectures. Multi-agent systems are part of the efforts in the AI department. The database and information systems department pursues research in multimedia info systems and in metadata approaches. E-Learning projects are jointly performed by the media informatics, the artificial intelligence, and the software engineering departments. The group for pedagogical psychology

being involved in the curriculum performs research in self-regulated learning and how this can be improved by user interface design and metaphors.

From the faculty for electrical engineering speech processing and generation of natural language combine the joint efforts to form a true multi modal spectrum of HCI-research.

5. Conclusion

After three years one can state that the decision to offer the diploma program in media informatics at Ulm has been a success. The number of applications has been much higher than the 100 open places each year. The drop out rate during the studies has been slightly lower than in the traditional informatics program.

Opening 100 places produces a high work load for the design subjects, since they require problem- and project-oriented classroom studies. Whether this expensive style can be held up in the times of decreasing university funding will prove in the following years.

Nevertheless the combination of design with media related informatics is the specific profile of the program at Ulm. We believe to revive and continue the tradition of the HfG Ulm in a new domain being most relevant for the future.