



In this portrait article – Mrs. Dr. Irmgard A. Werner

“Students and trainees are the future of a company or institution – in research, production and quality control.

We have the opportunity to help determine the future by not only investing in projects and equipment, but also in the current generation of trainees.”

Investment for the Future

Quality training pays off

This is a very particular concern and at the same time the demand placed annually on Dr. Irmgard Werner, who, as a lecturer at the ETH Zurich, supports around 65 pharmacy students in the 5th semester practical training in “pharmaceutical analysis”. With joy and enthusiasm for her subject she always rises to the challenge of providing the next generation of scientists in research and industry with lasting understanding and cutting-edge expertise. She puts the quality of teaching to the test, again and again, also with self-criticism. For q&more the dedicated expert highlights the situation and the central importance of training.

The information opportunities that we have today are greater than ever. It is crucial to handle them properly and to recognize what is important. It is part of the learning process, to question the established and assess whether new is really better. As supervisors, we can contribute our knowledge, but must also leave the student enough room for his own experiences.

A solid foundation

There is no lack of definitions of learning objectives, credit scoring systems, tests and checks. In particular, however, in addition to pure knowledge transfer, “knowledge at the push of a button”, the understanding of associations must be strengthened. Critical thinking, based on sound fundamentals, is required.

The initial basic principle we regard to be manual skills – starting with the weighing, the correct filling of the volume in a volumetric flask and the correct calculation of dilutions, to name only the most basic actions. It is sometimes surprising how much time you spend with the calculation of measurement uncertainty of a result, although the causes are simple, such as the inadequate balance was used or a dilution was not properly prepared.

Automation helps in many areas, by reducing repetitive work, but this does not remove all the problems. We need to understand how the process of an analysis is structured before we can critically evaluate the test results or think of an optimization. The manual activities must be particularly maintained for students, in order for them to recognize later, in professional practice, the qualities of the work, the boundaries of a method, the difficulty of problem-solving and time involved.

The issue of safety

In recent years it was realized that the young generation brings a critical attitude to chemistry and pharmacy. Curiosity and fear are close together and the protection of one's own health has become a high priority.

Often, however, we must recognize that the theoretical knowledge for environmental protection, laboratory safety and chemistry can, in practice, cause obvious difficulties. For example, already dust masks and the best quality of protective gloves are worn for weighing out sodium chloride, although the night before you cooked pasta in salted water.

Expertise in chemistry and pharmacy can only be achieved if the current and now at any time available online information about risks are properly assessed and implemented.

Knowledge for practice

Laboratories and their equipment are expensive to acquire and maintain. The situation is ideal if the same facilities can be used for the productive side and the training. Older devices can be very useful for understanding measurement techniques, but devices on the cutting edge of technology must also be included in the education, in order to find a connection to new technologies.

At the university we have come to appreciate the companies that in recent years have approached us with Academia

Irmgard A. Werner graduated with a degree in pharmacy and a doctorate from the ETH Zurich, before, as a part-time employee for 15 years, she became concerned with special analyses and quality assurance in the Control of Therapeutic Products, Canton of Zurich, and during this time raised her two sons. Since 2005 she has been employed as a lecturer at the ETH Zurich, Institute for Pharmaceutical Sciences. Together with Ruth Alder and Dani Luthi she instructs students in the practical training “pharmaceutical analysis” and a trainee as an analytical chemistry laboratory assistant. In the research and teaching mainly chromatographic and spectroscopic methods are used. The interest focuses on chiral separations and impurities. Additionally, all are involved in the development and improvement of the monographs of the European and Swiss Pharmacopoeia. The analytical knowledge is the basis for various projects with industry and for basic courses in the field of chromatography.

programmes. It's also a question of transferring information from the manufacturing industry. The workshops by technicians have proved to be particularly popular, when they demonstrate the equipment and proudly explain the inner workings. Practical problems are discussed in groups and experiences exchanged. Each returned to his job with new ideas and developed a better understanding of their own activities and handling of the equipment.

Feedback

Today, hardly a course and hardly an event are conceivable without the feedback form. The student or learner can anonymously express how his care, his progress, his success are measurable. These comments are always critical. In a section at the end, suggestions for improvement are asked for. Meanwhile, however, a certain assessment fatigue has set in, since the course has hardly begun and the participants have to comment on its quality. It is a great art to formulate clearly the needs for improvement. We highly value the feedback from practitioners' who provide us with insides from their professional life.

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