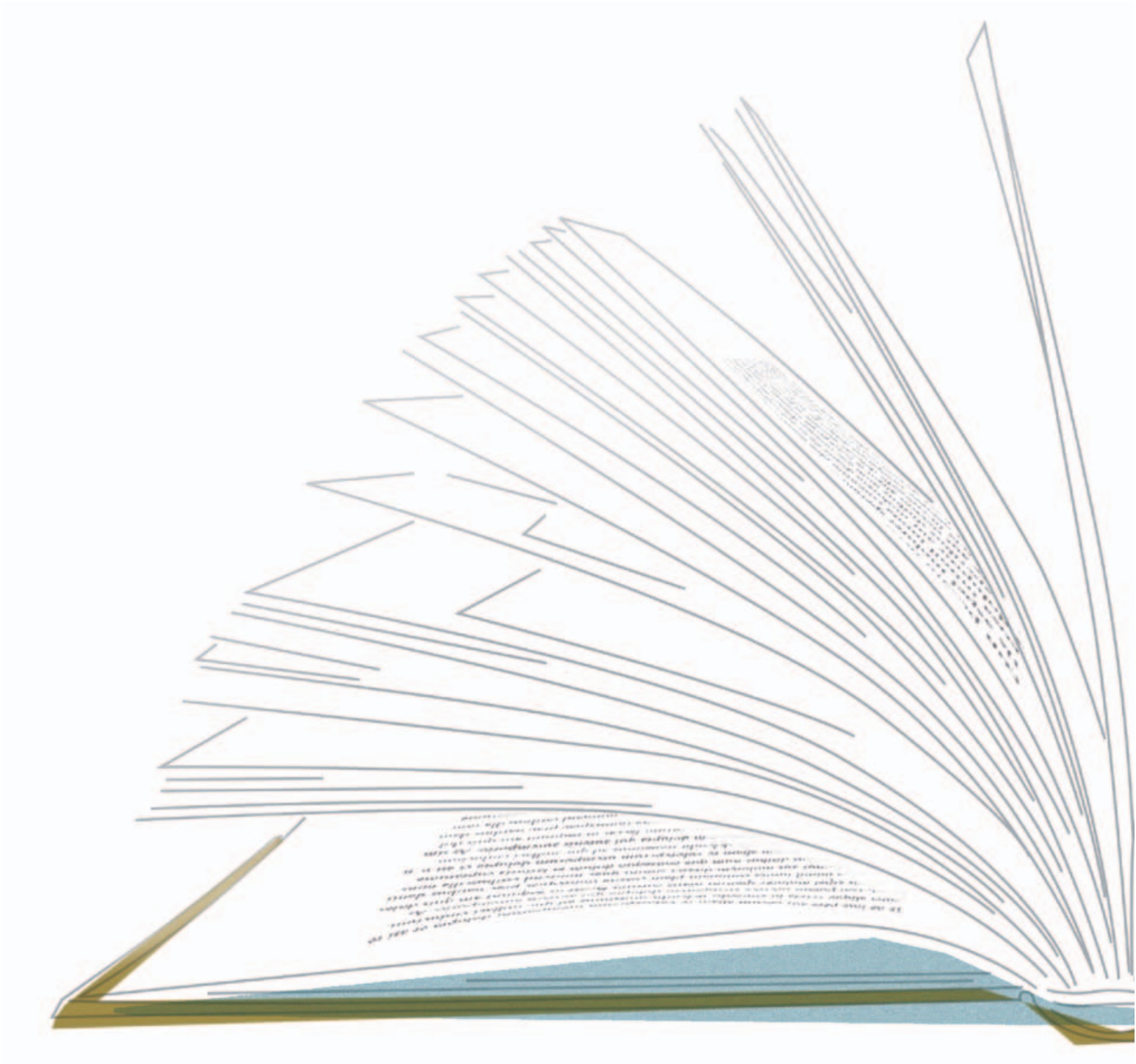


Good Teaching

Fresh Wind in the Sails of German Higher Education



A print copy of this publication is available free of charge by contacting: nexus@hrk.de





Professor Dr Margret Wintermantel
President of the German Rectors' Conference

Dear Reader,

When it comes to the issue of good teaching, the list of demands on German universities made by both government and society is long: teaching should be stimulating, motivating, inspiring, closely related to the real world, and tailored to the various backgrounds of the students. Such recurrent demands clearly reflect the central role our universities play in addressing societal challenges: they are called upon to provide graduates with the ideal preparation for their future roles – in recent years, the question of how best to achieve this has produced a lively debate.

I take enormous pleasure in seeing the commitment with which our universities are addressing these challenges. Across the country, successful projects are underway to promote good teaching. In this magazine we will take you on a tour through Germany to get a taste of the many ideas and innovations currently in progress. Obviously we can only show a few examples here. In order to paint the broadest picture possible, we have endeavoured to visit a wide range of institutions: large and small, new and traditional, research universities, universities of applied sciences, as well as schools of art and music.

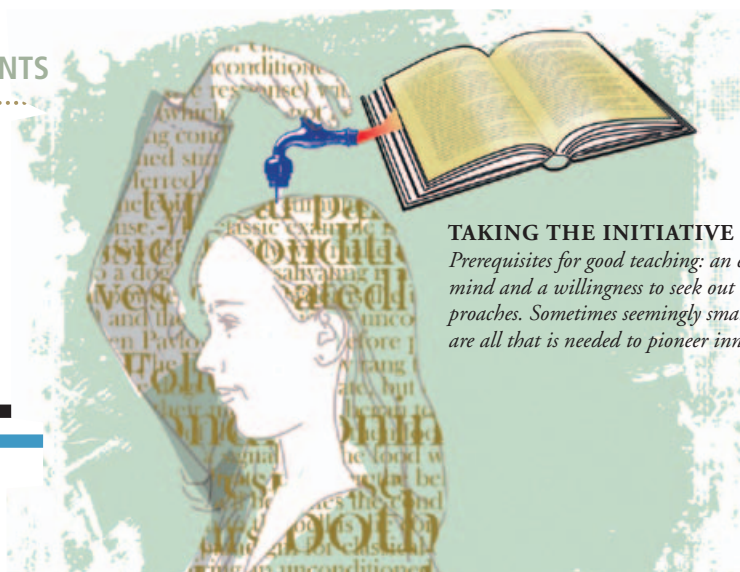
As you read through, you will see that good teaching comes in many different forms. Most people would agree that there is no one right answer, even when it comes to university-level teaching. The approaches described here provide striking examples of how the cultures of different disciplines and the subject expertise of individual teachers can produce tailor-made concepts for the transfer of knowledge; concepts that really work. I am particularly glad to observe the degree of involvement and interest that the students themselves are showing in this discussion.

Germany's universities have long been aware of the importance of good teaching, as clearly evidenced by the examples shown here. Our universities are able to take advantage of ongoing, systematic improvements to enhance their competitiveness far beyond the national borders.

I hope that you will enjoy an inspiring and informative trip through the varied landscape of German higher education!

Sincerely,

A handwritten signature in black ink that reads "M. Wintermantel". The signature is written in a cursive, flowing style.



TAKING THE INITIATIVE

Prerequisites for good teaching: an enquiring mind and a willingness to seek out new approaches. Sometimes seemingly small changes are all that is needed to pioneer innovation



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Photo: Fotoarchiv Leuphana

EXCHANGING IDEAS

The second prerequisite for good teaching: When students and teachers put their heads together, astonishing ideas often result – to the benefit of everyone involved

GETTING HANDS-ON

And the third prerequisite for good teaching: A great deal of commitment, and a pinch of optimism. The examples in this magazine illustrate how rewarding these efforts can be



Photo: Ulf Benz

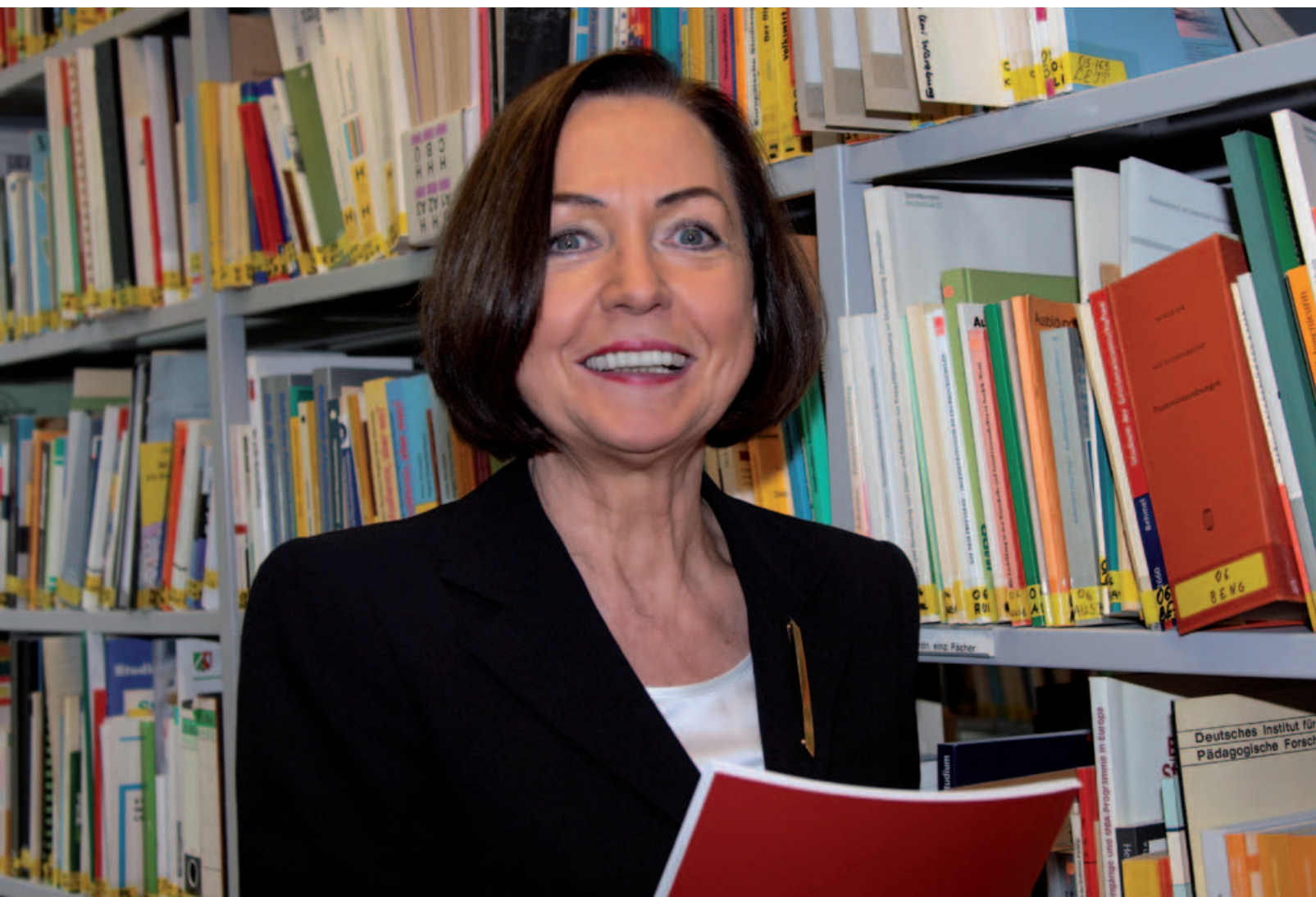
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Room for Individual Achievement

Why efforts to improve quality must begin with the teachers themselves; how good teaching fits into the Bologna Process, and why she has the utmost respect for the commitment and achievements of professors at German universities – a discussion with Margret Wintermantel, President of the HRK

Professor Wintermantel, there is so much talk about good teaching at the moment that it almost seems as if this issue has, until recently, been an unfamiliar concept at German universities. Is a return to a focus on teaching at universities really only taking place now?

No, it would be wrong to believe that. Good teaching has, of course, long been an important issue in German higher education. Indeed, our universities have so much experience in this area that they have become a real repository of creative ideas. Just think of all the teachers who dedicate their entire careers to addressing the needs of students! The reason this is being discussed now more than in the past has a different explanation: higher education is changing, universities are seeing an ever-increasing number of students, and the demands graduates face today are different even from a few years ago.

And there has been another significant change: the reform of European higher education (the

"Bologna Process") has had a major impact on university culture. What impact have these wide-reaching reforms had on actual teaching conditions?

Ongoing measures to improve quality and also quality assurance are fundamental aspects of the higher education reforms that have taken place across Europe. Naturally, this raises direct questions about how effective teaching at universities is in helping students acquire knowledge, theory and skills. In my opinion, these reforms only increase the importance of teaching. That's partly the reason why I am rather surprised when individuals, including those who teach at universities in Germany, claim that Bologna is such an awful thing. I recently spoke with the mother of a student at a university in Berlin. Even during orientation this student was already being told, "You poor things, now you have to deal with Bologna. But we have to go along with it because we've had it imposed on us from above." This attitude cannot remain unchallenged.

But you yourself have just mentioned the increasing numbers of students. How is good teaching possible at all in these kinds of conditions; teaching which ideally results from a close dialogue between students and instructors?

You are probably thinking of a situation that is all too familiar: 600 students sit in an auditorium and the professor stands at the very front and delivers a lecture. If the sound system is out-dated, the majority of the students present won't understand a word of the lecture; at the end they know no more than they did when they first walked in. And you're right: there are some pretty horrifying examples of poor conditions, for teaching in particular. But the reality at universities has already changed quite dramatically, and such extreme cases are found less and less often. I'm quite certain that the majority of professors actually teach well, a claim that is backed up by the results from regular student evaluations.

So are teachers the most important piece in this puzzle?

There is no question that teachers play an incredibly influential role, and that any effort to improve teaching must begin with them. That does not, however, involve dictating a particular teaching scheme that professors are "obliged" to follow blindly. There is no definitive right or wrong; we must leave enough room for individual ideas and approaches,

for the wide variety of teaching methods, and for the particular needs of certain subject areas. It is critical that teachers adapt their teaching to the students and work together with them to develop problem-solving skills. Ken Bain claims, "Outstanding teachers know their subjects extremely well." And in this case, "subject" means the student just as much as the academic discipline. For me, the essence of that sentence is that great teachers are extremely well versed in their field(s) of expertise, allowing them to tailor their teaching methods perfectly to the needs of the student.

But doesn't this create an immense amount of work for the individual teacher?

Yes, good teaching clearly requires of the teacher both commitment and passion. This is why I think it's so important that we acknowledge such great achievement with the due respect!

In practice, however, it seems as if teachers must perform a multitude of tasks and be willing to work overtime to fit everything in.

That is precisely why we are committed to ensuring good conditions for teachers at German universities. We need staffing plans that grow with the number of students – and with society's demands. That is our clear position, and this is something for which we will continue to fight. Indeed, this is one of the core principles of our resolution, "For a Reform of Teaching at Universities", in which we address teachers, students, university leadership and policy-makers. And the purpose of the *Ars Legendi* Prize is to send a strong message to teachers that they will not be forgotten; on the contrary, we are very aware of exactly how much commitment is behind the good teaching already found at German universities.

The *Ars Legendi* prize has already become quite renowned amongst teachers. Looking at the winners in recent years, are there any noticeable trends?

Oh yes; it really reflects the extent to which the German higher education system is in flux, and just how important the issue of teaching has become for all types of higher education institutions. I don't just look at the winners, however, but also at the many other participants and nominees. And every year I am overwhelmed by the passion, creativity and willingness to take on responsibility that these teachers demonstrate in their day-to-day work.

PROFILE

In addition to her extensive academic work as a social psychologist, *Professor Dr Margret Wintermantel* has been involved since the late 1980s with university governance in a number of different capacities, including serving as a member of the Senate Committee on Women's Issues at the University of Heidelberg, as chairwoman of the Association of Baden-Württemberg Women Scientists, and as Vice President for Education at Saarland University, where she also served as president from 2000 to 2006. After her term as HRK Vice President for Research, she was elected President of the HRK in 2006. In 2011 she was elected President of the German Academic Exchange Service (DAAD).



“University teaching must be a part of strategic management”

Education researcher Johannes Wildt in a conversation about the meaning of teaching awards, progress in educational theory – and how experienced professors are finding a new curiosity about teaching

“No one can tell me that his or her teaching can’t be improved upon! There is potential with every teacher; the one just starts with more expertise in teaching, the other with less”

New teaching prizes are popping up everywhere you look in Germany. In your opinion, how seriously should we take these awards?

The teaching awards are beginning to have an effect. I’ve been on different juries over the years, so I’ve had some experience with this myself, and I can say that the quality of the applications is getting better and better every year. It’s apparent that teachers today have stronger theoretical foundations than in the past. The focus isn’t so much on impressive individuals – that too – but more weight is being placed on actual teaching techniques.

Another part of the picture is the “Quality of Teaching Pact”, which was agreed on by the German federal and state governments. Is this really a promising development, or simply a new label that leading universities can attach to themselves?

I’m sure that the Quality of Teaching Pact presents great opportunities for change. We are dealing with significant sums – not peanuts. This kind of funding not only allows the prizewinning institutions to realize a few isolated change projects within limited areas, it provides a real push for the entire university and the university sector as a whole. However, I’m not sure that the funds will really go towards quality and innovation. A large portion of the money may well be used to deal with the constraints of higher demand.

Why does good teaching seem to be in the spotlight all of a sudden?

With the development of the knowledge economy,

the topic has received a great deal of momentum. Social developments demand that higher education expand quantitatively without lowering its standards for quality. Academic activities are not routine activities, and so high-quality education cannot exist through routine learning. Combining quality and quantity is a major challenge.

Good teaching can obviously vary depending on the culture and particulars of the field of study. From the point of view of university education, is there a common denominator?

You’re right, there is no one best way to teach. Quality is also in the eye of the beholder, and this is true when it comes to teaching and studying. What one person might consider high quality, another may find fault with. But I think there is still a key aspect of good teaching, and this is the focus on students. This not only refers to student participation in processes within the university, it’s about rethinking and redesigning teaching from the point of view of the learner.

However, every student will tell you something different if you ask what kind of teaching they find inspirational! How can a professor decide which direction to take?

In an older but still relevant study, which is particularly telling in this respect, the American scientist Jim Carrier examined the teaching award winners at Vanderbilt University. He noted with regard to student ratings that teachers can be good in many different ways. There are teachers who wow their students with authenticity and a brilliant display of their own approach to research – which may well happen in the classical teaching-from-the-front for-

mat. Then there are the facilitators, who advise students and accompany them through the learning process. And then there are those who know everything about their students: those who, for example, memorize the names and faces in the photos at the start of the semester and can then address the students directly. These are all ways in which I could teach in a student-centred way – but they are always tailored to the personality of each teacher.

If good teaching is such a personal thing, how much can one really learn about it?

No one can tell me that his or her teaching can't be improved upon! There is potential with every teacher; one simply starts with more expertise in the teaching, the other with less. Good teaching is about a process of interaction with students; this was discussed at an international level in "Shift from Teaching to Learning". This change has been implemented in the teaching culture through approaches such as problem-based, case-based, project-orientated and research-based learning.

Many universities are faced with the problem that an experienced professor, with the best of intentions, does not want external input about how he or she should go about teaching.

That's true (laughs). But on the other hand, you would not believe how often I sit having lunch in the cafeteria when a colleague comes to me and says: "I have a question..." – that's how they begin most of the time. Advice sessions like this are not formal occasions; the hurdle is simply lower.

So, would professors feel that classic advisory sessions would be beneath them?

It is very difficult to go public with a need for help, and the higher your position in the hierarchy the more difficult it is. This fear is totally absurd: in almost every big company those who have been promoted to a leadership position have opportunities to receive coaching or advice, or have mentors readily available. Many universities are currently trying special programmes such as coaching and fireside chats to reach even those who are not ready to buddy up with their co-workers. But there is also the ancient Chinese proverb that one can only lead

a horse to water. Drinking – which is learning in this context – they have to do themselves.

And in practice this problem is faced by many universities who want to define teaching as a strategic goal. How can teaching become a part of university culture despite some resistance?

It may help to look at examples from other countries. There are universities that have developed very clear appointment criteria: what different things should a teacher be able to do? After a position is advertised, it is possible to check whether a candidate can do problem-based teaching, for example. Exactly what he or she must do in order to fit into the teaching culture is not decided in advance. In that way, teachers improve their skills – and the university helps them.

That's the case for new appointments, as universities naturally have greater influence here. But how can good teaching be established amongst long-serving faculty members?

This is a question of strategic management. It's important to mention positive motivation at this point – the motto could be "higher honours for teaching", as in the name of the competition ("Mehr Ehre für die Lehre"). Creating such an environment is the responsibility of the whole university system, and political and student stakeholders, as well.

What role does educational theory in higher education play?

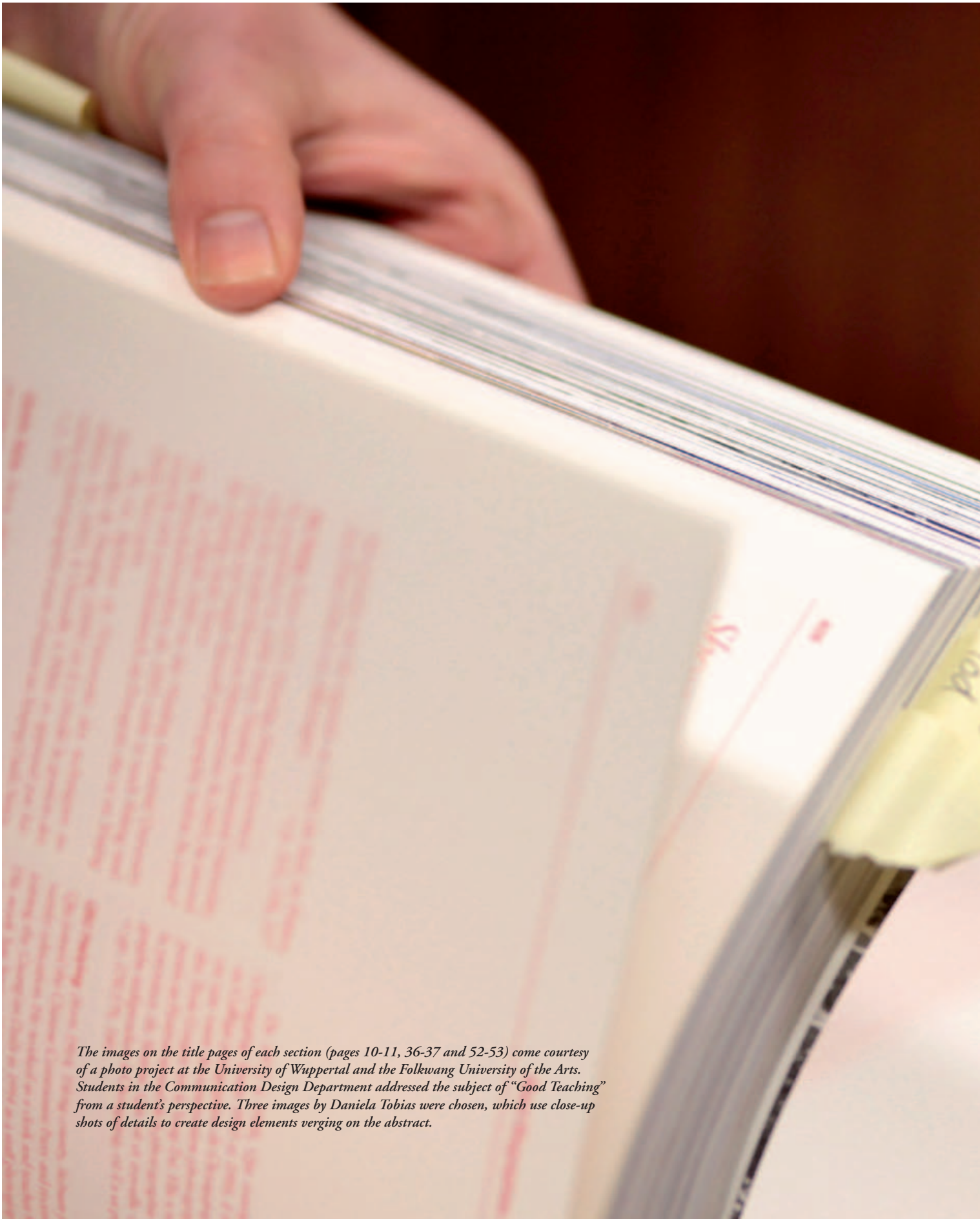
When I started in the 70s, educational theory was primarily normative in character. This has changed fundamentally. Today, we know empirically which adjustments can be made and which effects they will have. We know much more about the possibilities for challenging and motivated learning and which learning strategies students have available to them. In short, educational theory at universities is available today as a broad, empirically rich body of knowledge for teaching. It would therefore be important to understand this not as an isolated issue assigned to a specialized institution. Educational theory can and should be part of strategic management.



Photo: TU Dortmund

PROFILE

Professor Dr Dr h.c. Johannes Wildt is the head of the Hochschuldidaktischen Zentrum (Higher Education Research Centre) at the TU Dortmund and is a nationally renowned education researcher. Since the 70s he has been involved in teaching theory and practice, and in 1997 he was appointed a professor of general higher education didactics with a focus on interdisciplinary issues of teacher education. He is a jury member for many teaching awards and sits on advisory committees on education and teaching, and has published guides, magazines and journals on higher education didactics and academic reform. He is also a member of the HRK Committee for Teaching and Study.



The images on the title pages of each section (pages 10-11, 36-37 and 52-53) come courtesy of a photo project at the University of Wuppertal and the Folkwang University of the Arts. Students in the Communication Design Department addressed the subject of “Good Teaching” from a student’s perspective. Three images by Daniela Tobias were chosen, which use close-up shots of details to create design elements verging on the abstract.

A stack of papers with several yellow sticky notes attached to the top. The sticky notes have handwritten text in blue ink. The background is a dark brown, slightly blurred image of a desk or workspace. The text 'SPOTLIGHT ON' is written in a gold, serif font on a dark brown rectangular background.

SPOTLIGHT ON

TEACHERS

These are the people who generate enthusiasm among students; who manage to convey the fascination of their field to students; who motivate them at precisely the right time; who inspire them to develop their own thoughts and ideas, and help them to formulate new questions.

That's what teachers are for – and more. The core of their work – imparting knowledge and developing skills – involves countless challenges, and each teacher tackles them in his or her own unique way. We'll show you here just how multifaceted good teaching is and the many different forms it can take from subject to subject.



Ars legendi

CENTRE STAGE FOR TEACHING

The Ars Legendi Prize, awarded each year by the HRK and the Stifterverband, rewards outstanding teaching – and has developed into an esteemed award for innovation at German universities

Appause echoed through the hall in Greifswald as the winner walked up onto the stage. It was 2006, when the Ars Legendi Prize was awarded for the first time – the days when teaching quality still received far too little public attention. Even then, long before the start of any public debate, the HRK and the Stifterverband für die Deutsche Wissenschaft had decided to draw attention to pioneers of innovative teaching. Meanwhile, the Ars Legendi Prize has become one of the most prestigious awards in German higher education, and is endowed with € 50,000.

Traditionally, the awards ceremony is a high-profile event at the HRK's annual meeting. The event provides a forum for granting recognition to innovative teaching strategies and facilitating their effective dissemination: as part of the awards ceremony, the winners present the ideas they have been using to improve seminars and lectures – and thereby motivate others to use greater creativity in improving university teaching.

Nominations for the prize are usually submitted by the respective department or the departmental student council; self-nominations are also possible. Every year, the call for nominees is directed at a different discipline: to date, the Ars Legendi Prize has been awarded in Medicine (2006), Law

(2007), Economics (2008), Engineering and Computer Science (2009), Humanities (2010), and Mathematics and Natural Science (2011). The call for nominees is specifically tailored to each subject group. The award criteria are defined in advance by academics from the field(s) in question, and by students and higher education experts. The jury consists of teaching experts from the respective subjects, as well as students and university representatives. In addition to honouring a high level of professionalism in teaching, the jury acknowledges the development and implementation of innovative strategies and methods, as well as initiatives to further advance university teaching beyond the specific subject areas. Award winners are expected to demonstrate outstanding support for their students' learning processes, and also have a strong academic profile.

The Ars Legendi Prize is intended to serve as an incentive for greater engagement in teaching. It is also important to note its role in providing role models for young researchers. Dr Arend Oetker, President of the Stifterverband, summed up this objective at one of the past awards ceremonies: "We want to show that good teaching is just as valuable and deserving of recognition as good research!"





2006 Award Winners

Medicine

Throughout her career, Professor Dr Sigrid Harendza has been committed equally to teaching and research. She set up the Master's of Medical Education programme whilst working on her "Habilitation" (post-doctoral dissertation to qualify as a professor). Later, she used her expertise in her role as Associate Dean of Education at the University Hospital Hamburg-Eppendorf (UKE). There, as part of a general reform of university courses, she led the development of a new curriculum from the perspective of medical didactics. Furthermore, she has initiated a process of organizational change to give teaching much greater significance. This includes further training for teachers, organized in cooperation with other universities. "With this initiative, she has created stable structures for good teaching within the faculty that will ensure lasting quality," the jury pronounced. Harendza shares her expertise through publications, and as a lecturer for project management on the Master's of Medical Education programme at the University of Heidelberg.



Professor Dr Reinhard Putz recognized early on that good teaching goes far beyond the individual: the professor at the Ludwig-Maximilians-München (LMU Munich) has long been creating exemplary training courses for teachers, leading some courses himself. Together with others, he engages in education research and has developed a new medical curriculum, along with teaching and examination materials. "It is very much thanks to him that medical teaching at universities in Germany has developed so broadly and dynamically in recent years," said the jury. The first Master's programme in Germany for medical education, at the University of Heidelberg, can be traced back to his initiative. In his own teaching, Putz, who studied to become a primary school teacher before earning his degree in medicine, places a strong emphasis on personal contact despite the large number of students. He uses evaluations from students to systematically improve his teaching.



2007 Award Winners

Law

Professor Dr Rolf Sethe, LL.M., places special emphasis on the professionalization of teaching. Whilst serving as a dean at the Martin Luther University in Halle-Wittenberg (he has since been appointed to the University of Zurich), the civil lawyer designed introductory seminars for law degrees. He places strong emphasis on the teaching of key skills, for example, legal rhetoric, mediation or negotiation management. In his own teaching, Sethe encourages his students to become familiar with a range of study techniques. He also offers an extensive exam revision course. To ensure his lectures are as well prepared as possible, he regularly takes research-free weeks in which he focuses entirely on teaching. Overall, by his own estimate, he spends more than half of his working time on teaching.



2008 Award Winners

Economics

Professor Dr Michael Vogel bases his classes on problem-based learning. The economist, who is Professor of Tourism Management at Bremerhaven University and the director of the Institute for Maritime Tourism, links classroom subject matter with current events to spark his students' interest. He uses the example of the financial crisis as the basis for instruction in business administration – which provokes interest even in supposedly dry background theoretical concepts. In addition, he involves his students in ongoing research projects in which they conduct interviews and analyse data, for example. Under his close tutelage they become acquainted with scientific work early on. Going beyond this commitment in his own teaching, Vogel has created a broad initiative called "Guugle" ("Gut und gerne lernen und lehren", which translates as "good learning and teaching, gladly") to improve the quality of teaching at his university.



Arsle

2008 Award Winners

Economics

Professor Dr Joachim Winter teaches empirical economics research at the LMU Munich and has been the dean of the Faculty of Economics since 2006. In preparing his lectures, he often takes on a different perspective and asks himself how he can increase students' interest in the subject – despite the tough conditions of a mass programme. One example is case studies, in which Winter immerses his students in empirical economic research so that they gain a deeper understanding of the theoretical and practical content. Along with his team, he developed a workgroup competition for the introductory seminar attended by several hundred students. It provides data sets associated with a specific issue. The groups can submit their solutions online; regular rankings of the top participants help everyone stay motivated. The students also develop their own activities in large lectures.

2009 Award Winners

Engineering and Computer Science

Professor Dr Oliver Vornberger teaches practical computer science at the University of Osnabrück. He places great value on the use of e-learning elements in his teaching. For example, he offers his introductory course on algorithms as a podcast online – and it has generated thousands of downloads. This allows students to learn at their own pace, and repeat content as often as needed. In addition, Vornberger has developed several internet applications that support his teaching and are now used at other universities: the programme "virtPresenter.org" allows the recording of lectures in various formats; for example, it can run synchronized slides and film footage. Students can play the files with standard software on any computer. Meanwhile, the "Opencast Project Matterhorn" emerged from this project, and many different universities have since participated. Another innovation in Vornberger's teaching is "media2mult" (www.virtuos.uni-osnabrueck.de/Produkte/Media2mult), a single authoring system that makes formulas, images, audio and video clips that support the lectures easily accessible to students in a central location.



2010 Award Winners

Humanities

Professor Dr Walter Grünzweig is Professor of American Literature and Culture at the Technical University of Dortmund. In his teaching, he makes use of the potential that results from his students' different backgrounds. In the programme "Dortmund Double", he puts German and American students together in pairs and thus provides international experience even to German students who have not spent time abroad. The visiting students provide their expert cultural knowledge. This approach is now used in a modified form in other subject areas; the "Intercultural Classroom" was founded for aspiring engineers. This programme seeks to achieve a similar objective and students with different backgrounds are actively brought together. Beyond the learning of language skills, it is important that students see their subject in a cultural context, for example, by analysing different attitudes towards technology. In these teaching formats, which have influenced the culture of the entire university, Grünzweig purposefully integrates foreign academics in the spirit of "team teaching".

2011 Award Winners

Mathematics and Natural Sciences

The mathematician Professor Dr Dr Jürgen Richter-Gebert holds the Chair of Geometry and Visualization at the Technische Universität München (TUM). He has developed his own seminar forms in order to enable students to engage actively with mathematics while promoting general skills such as self-reflection, teamwork and communication skills – for example, in "reporter seminars". Apart from additional events such as his "bonbon lectures", which give students a deeper understanding of selected topics, he also offers companion material developed in-house to support his lectures, which he provides on his website, www.mathe-vital.de. Richter-Gebert pays special attention to the visualization of mathematical problems. To that end, he has developed the mathematics exhibition "ix-quadrat" and is involved in the Cinderella Programme (www.cinderella.de).



Photo: Prof. Dr. H. Otten, Fachbereich Gesundheitswesen, Hochschule Niederrhein, Krefeld, 2011



THE BEDSIDE SCHOLAR

One group of Professor Hubert Otten's students create a complete business plan for a cancer centre, while another group examines the hospital's administrative processes. This bold, hands-on approach has met with success: the student teams produce results that astonish even seasoned professionals

Memories from his school days are still deeply engrained: "Back then, if the lesson was really loud and messy," says Professor Dr Hubert Otten, "then it really got interesting." The engineer already had a career spanning many years in the Fraunhofer Society behind him when he was appointed in 2004 to the Niederrhein University of Applied Sciences in Krefeld. He had previously taught only rarely – and when he suddenly found himself in that unaccustomed role, he remembered his own experiences from his school days.

For professors at technical universities, such career paths are not uncommon. The kind of teaching approach that Otten has developed is held up by many of his colleagues as a model; his students feel the same way and have helped him win a teaching award at his university, thanks to their exceptionally positive evaluations. When he leads his lectures and seminars, Otten does not resort to dramatics, but instead uses well-measured elements that inspire his students to think. "Interrogatively evolving teaching", as he calls it, was developed based on his own observations. "I haven't spent much time in university seminars on teaching," he admits. In his learning-by-doing process, he has brought together the methods that are most effective for his target audience.

The programme is called "Health Care Management", which Otten himself helped to develop. The subject is located at the intersection of economics, health and engineering. Students receive preparation for a management career in hospitals or private companies that specialize in health care strategies. In his lectures Otten always speaks directly to his individual students. "Once they begin to develop a consumer mindset and simply watch as if they're at the movies, then it is usually too late," he has observed. "I never wanted to just stand there and show one slide after the next." Instead, he repeatedly provokes his students' curiosity. For example, he uses the famous video of the collapse of the

Tacoma Narrows Bridge in the USA to illustrate the topic of resonance in physics. Central to his teaching, however, are the practical projects. Otten wants his students to be able to take full advantage of his contacts in industry – practitioners regularly come into the classroom and share their expertise with the students. Increasingly, there have also been opportunities for students to immerse themselves in research projects.

In data analysis, for example, students work with records provided by partner hospitals. Recently, they studied almost 30,000 admittance and discharge records of patients in a clinic. The students compared this data with the work-shifts of the pick-up and delivery service employees that move beds from hospital rooms to surgery or from one ward to another. "It turned out that the working hours of these employees differed significantly from the times when the demand was actually the greatest," says Hubert Otten. His students then developed an alternative shift schedule that would address those problems.

The biggest project was the Krefeld students' development of a business plan for a cancer centre. The course had more than 20 students who worked on their projects in four groups: the first focused on the empirical work and compiled the necessary data – how many people are diagnosed with cancer in the region? Where are there comparable cancer centres? How long is the average treatment period? The second group examined the number of staff such a centre requires, as well as the projected associated costs. The third group dissected the processes within the newly established institution, while the fourth looked at the statutory provisions for hospital patient rooms and calculated the amount of investment necessary for the cancer centre. Their work resulted in a complete business plan, to the astonishment of their co-operation partner, the university hospital: the key figures were remarkably consistent with the calculations of experienced professionals.

VERSATILE BACHELOR'S CURRICULUM

The Niederrhein University of Applied Sciences creates a smooth transition between courses of study in medical management, one of its strongest disciplines. The Health Care Management programme is offered both as an undergraduate as well as Master's degree programme. Starting in the winter semester 2011/12, another Bachelor's programme called eHealth will be added. It will provide not only a foundation in business and medicine but also an in-depth understanding of information technology and computer science. According to the university, "Graduates develop an understanding of health-care processes and can actively contribute to software support development, for example, through the creation of web applications." In this way, the course addresses interconnectivity in the health care sector. Graduates of the eHealth programme can then go on to complete a Master's in Health Care Management.



COMPUTER SCIENCE

À LA HUMBOLDT

Jena Professor Klaus Küspert is committed to fostering a community of students and teachers. Once, he even chartered a bus to take his students to Cracow to give them the opportunity to solve real-world problems. It is this dedication that has earned him the title “Professor of the Year” as well as his university’s teaching award

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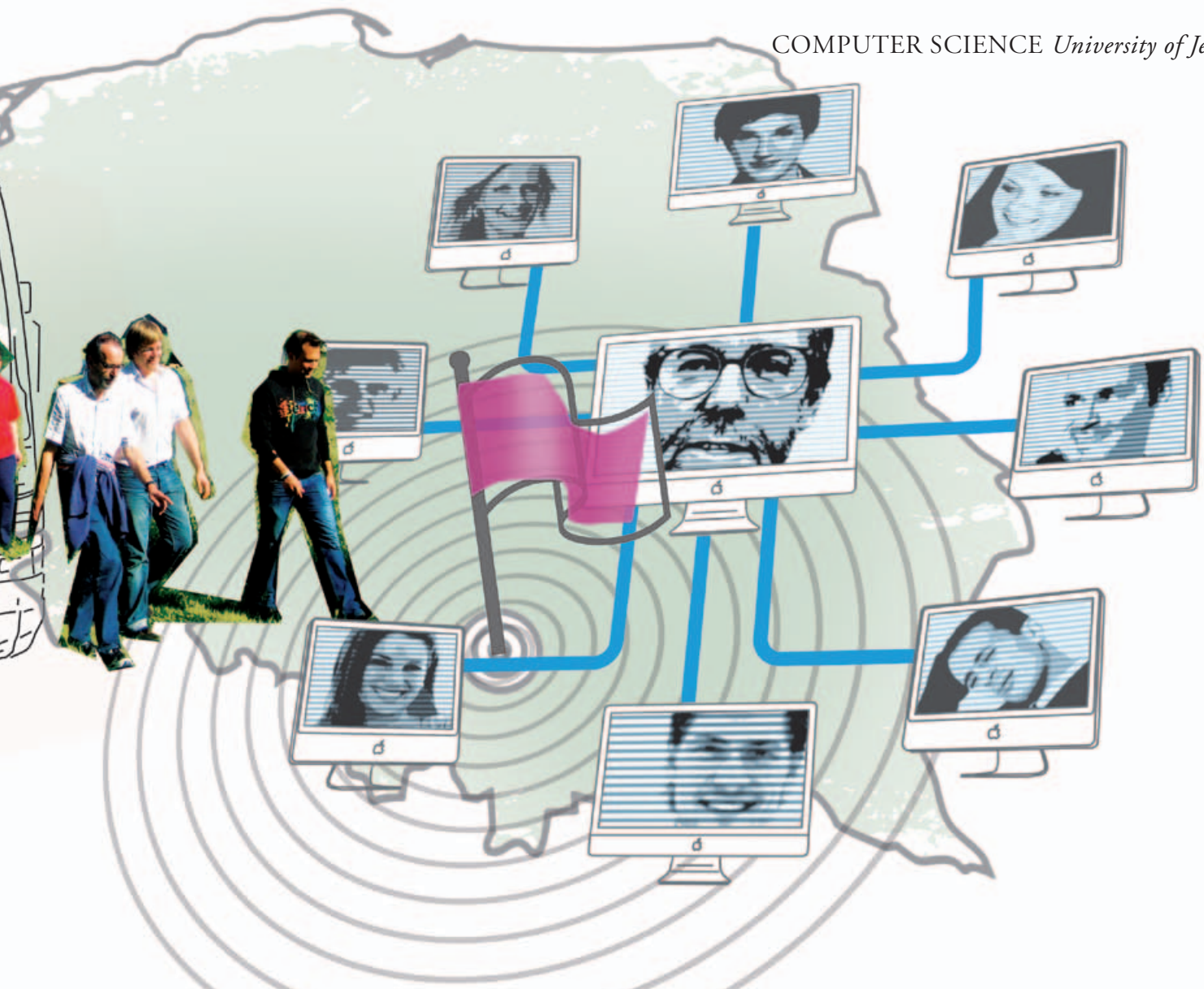
enever his visitors look up at the wall of the conference room, Professor Dr Klaus Küspert jumps up from his chair. He walks a few steps and stands under the series of framed photographs that hang there – they show young academics, all wearing mortarboards on their heads and proud smiles on their faces. Tucked into the bottom of each frame is a business card with name and position of the person in the photograph. “That,” says Küspert, beaming, “that’s my academic family.”

This says almost everything about his self-image: the computer scientist from the University of Jena wants to be a kind of academic father to his students, going far beyond the role of a doctoral supervisor. He has a close relationship with his advisees and keeps in touch with those who have graduated to work in industry. In this way, he builds up a continuously growing network that benefits everyone involved: students receive outstanding support and good professional recommendations, and alumni profit from access to the latest research and promising young talent. And what about Küspert himself, who invests not only his heart and soul but also a great deal of his time? “I always get new ideas for

my own teaching and research through these conversations,” he says. “And it’s a lot of fun.”

As if to prove it, Küspert points to the other wall of his conference room, directly opposite the portraits of graduates. A huge collage is hung up on the wall; in it, his face appears repeatedly amongst those of his students, and there is plenty of greenery in the background. Once a year – a tradition he has established for himself – he travels with his students for a weekend in the country. The university has a conference centre on the Rennsteig trail in the Thuringian Forest, which provides them with the perfect destination. “You get to know one another, which loosens up the atmosphere,” says Küspert, “and in a good atmosphere, you can work a lot better.” All of this evokes Humboldt’s historic ideal of the university as a community of teachers and learners – in, of all subjects, modern-day computer science.

Klaus Küspert sees personal support as the key to good teaching: in his experience, if the students are taken seriously and develop a sense of why they need to learn the complex subject matter, they can overcome technical hurdles more easily. This also means that it gives the students direction as



to what they can do in their professional lives with their newly acquired knowledge. With this in mind, Klaus Küspert chartered a bus and organized a student trip to Cracow this year, where one of his graduates is a senior manager at a large IT company. This practical-experience excursion is intended for students of all semesters, and participation is voluntary. Küspert is convinced that anyone who comes along will benefit immensely from the experience in his or her studies.

His support for young computer scientists does not stop at student trips; it is also evident on the university campus. If he notices a particularly talented student in written or oral exams, he writes the student a personal letter of congratulation, and invites the student to one of his next seminars – which all but amounts to an invitation into his academic family.

But in no way does he want to form an elitist club for only the very best students. "I don't only take the highest achievers. My teaching and research areas and my databases attract quite a cross-section of students – in contrast to theoretical computer science, which some students never dare to try," says Küspert.

He is also willing to get personally involved on behalf of students who really throw themselves into their work. For example: one of his protégés was doing an internship with a large company in Jena – after several weeks, when Küspert stopped by to visit the company, the student's supervisor was stunned: "I've been working with interns for many years now," he said to Küspert, "but you are the very first professor who has come to visit this whole time!" Some colleagues, Klaus Küspert says, squander such opportunities: in computer science especially there are always innovations, which makes staying in contact with industry essential. In his discussions with companies he even gains inspiration for his own work – and sometimes unexpectedly finds answers to problems he's been working on for a long time.

The students are happy to belong not only to the university, but also to Küspert's academic family. And now their professor's legendary level of commitment is known not only amongst his own students: the national student magazine Unicum Beruf recently named him Professor of the Year, and he has won the University of Jena's teaching award.



Photo: FSU Jena / Archiv

Professor Dr. Klaus Küspert



THE SURGEON MISSIONARY

Surgery professor Christoph-Thomas Germer wants to share his passion for his subject with students. He uses uncommon methods to do so: from live transmissions from the operating theatre to an interactive online diagnostic quiz



*Professor Dr
Christoph-Thomas Germer*

When the lights go out at the University of Würzburg, surgery professor Dr Christoph-Thomas Germer is once again in top form. At the end of each year, just before Christmas Eve, he holds his Christmas lecture – and despite the date, the auditorium is more crowded than it ever gets during the semester. This lecture is considered legendary amongst the students, and here they have the opportunity to prove themselves in front of their classmates in the large auditorium.

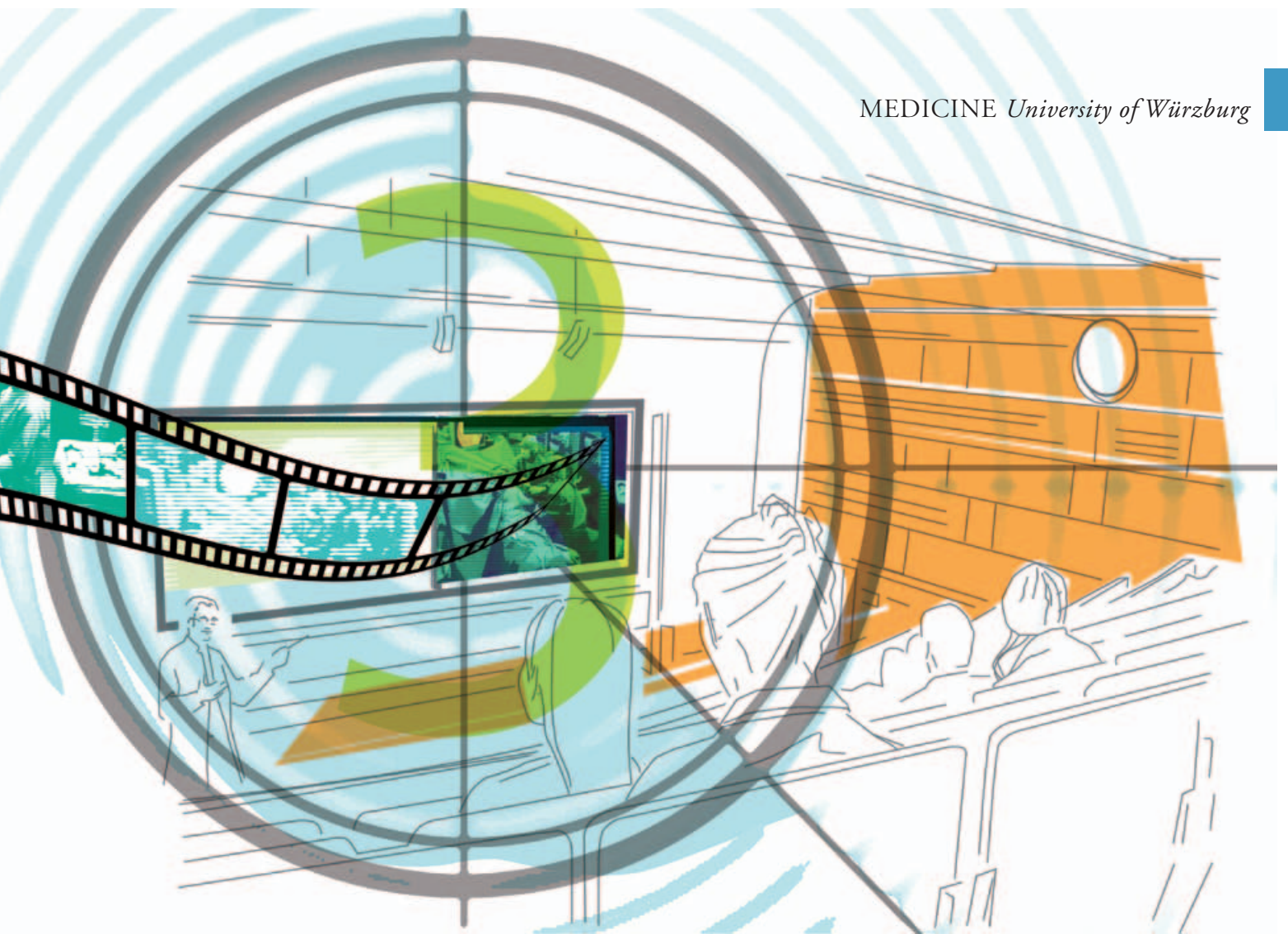
“We found the inspiration in a television programme,” says Christoph-Thomas Germer. In the well-known show, candidates compete against the host in various disciplines and win a hefty sum if they defeat him. “Beat Germer” is what the Würzburg professor calls his Christmas lecture based on that model. For an hour and a half he is challenged by his students – the aspiring surgeons compete against the experienced surgeon in suturing or in other self-elected disciplines. Whoever completes tasks more quickly and accurately than the professor wins expensive textbooks and other prizes that Germer himself provides. Because the students occasionally slip him instruments that have been tampered with, the students always win.

“It’s important to convey the fun of teaching. It doesn’t always have to be deadly serious,” says

Germer. The 49-year-old is the director of the Surgical Clinic and Polyclinic I at the University Hospital Würzburg and the co-founder of a centre for intestinal medicine. Despite these significant commitments, he has turned teaching into a special mission and is always contemplating innovations that go beyond his great Christmas lecture. “During my own time at university I sat in huge lectures, which really irritated me. Back then I decided to do it differently someday,” recalled Germer.

Nonetheless, having fun should not be an end in itself, and the entertainment value should not overshadow the content. Germer’s goal is to motivate students and thus overcome a fundamental dilemma in his field: “Those who specialize in internal medicine can prescribe medication as an intern. The chief physician approves the prescription, and then each student can see the success of his own treatment,” says Germer. In surgery, such an experience is necessarily rare: “Students can go for years without being able to do anything but watch.”

His team found the solution to this problem at an institute staff meeting: one of Germer’s assistants, an IT enthusiast, has designed a website that supplements the lectures. The site, www.chirurgievorlesung-wuerzburg.de, is more than just a place for downloading PowerPoint slides from his lectures;



the site hosts a forum that allows students to interact with their professor, and also hosts discussions moderated by Germer's assistants. There are many other interactive elements as well, including a live webcast from the operating theatre: as a specialist in minimally invasive surgical techniques, Germer regularly posts videos which show procedures from the perspective of the surgeon. In these operations, the tools are controlled digitally, and the mini-camera is the most important orientation tool for the physician. On the internet, students can follow the procedure from the surgeon's perspective; they hear the sound from the hospital, the physician's commands, and the comments of Christoph-Thomas Germer, who also follows the procedure on his screen. This does not create any difficulties for the surgical team, said Germer: it requires no additional cameras, nor a lighting technician; only the people already directly involved are present in the operating theatre. For students, however, such transmissions are extremely helpful: "In surgery they may have few opportunities to do things themselves, but they can observe a lot, which helps them acquire essential knowledge."

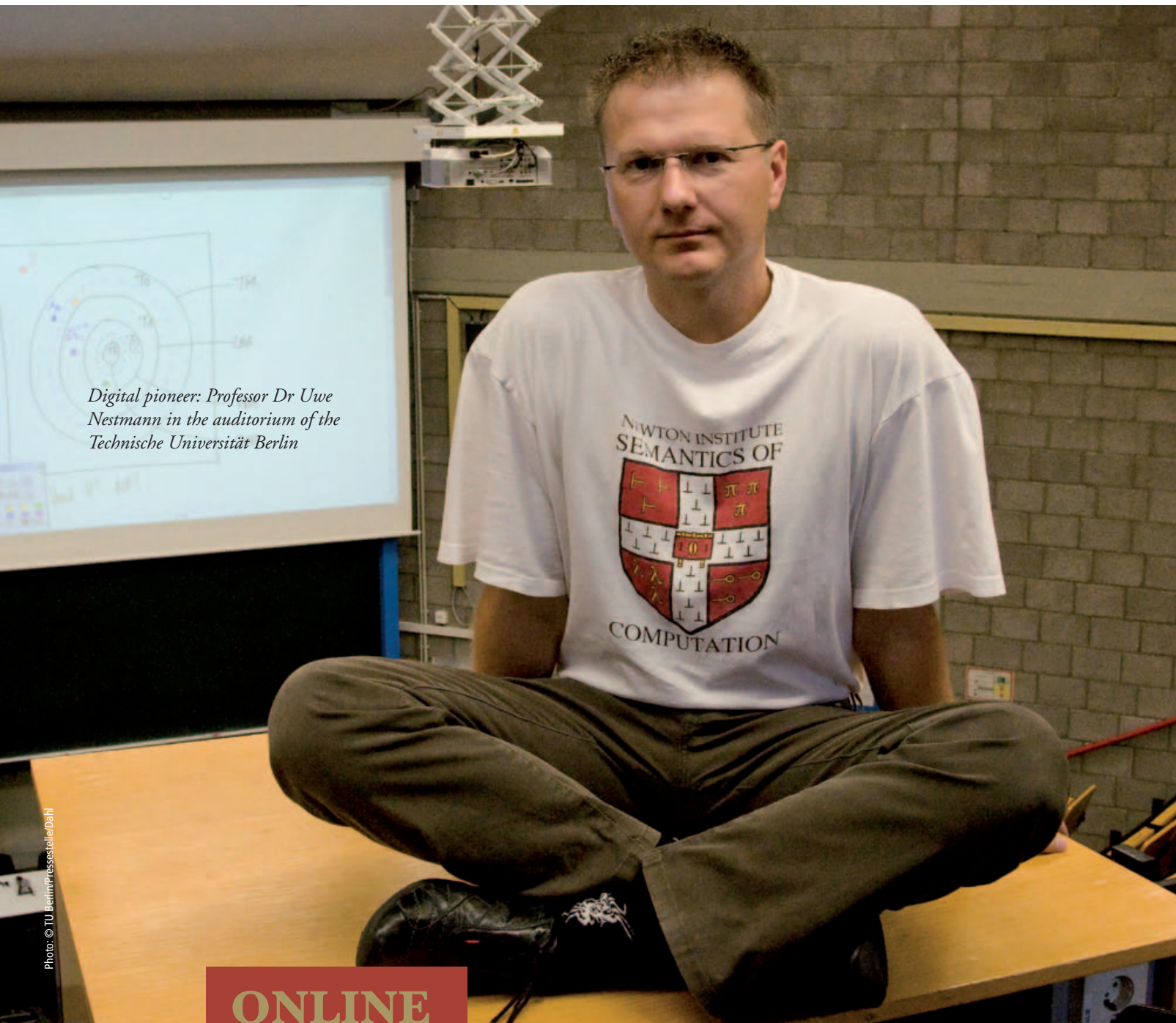
A big hit on Germer's website is the puzzle section. There he regularly posts X-ray images – and whoever correctly diagnoses the disease can win a textbook. This elaborate web presentation is very popular amongst his students: at peak times the

university's server has recorded more than 20,000 hits per month on Germer's website. But it is not just his own students who visit the site; word has spread throughout Germany.

Professor Germer has developed offline innovations, as well. He also seeks to make his classroom presentations engaging. "The main lectures are held in standard lecture format; with the large number of students it can't be done any other way," he says. "But for smaller presentations I try to break this pattern as often as possible." He allows students to prepare certain parts of his lecture; in groups of five they present topics to their fellow students. This is comparable with presentations common in the humanities and social sciences, but which are scarce in medicine. It creates an even more intensive discussion of the topic, Germer has observed.

Experience so far has shown that his fresh approach has done a good job at increasing interest in surgery. "If a student decides against surgery, then that happens early on in their studies," Germer is convinced. "So I want to grab and motivate them early on." His motivation, he says, is intrinsic: "I personally find my field to be fascinating, and I want to share that with others." ■

Surgery students are usually only able to learn through observation. To give students in Würzburg more practical experience despite full lecture halls, real-life exercises are combined with virtual activities.



Digital pioneer: Professor Dr Uwe Nestmann in the auditorium of the Technische Universität Berlin

Photo: © TU Berlin/Pressestelle/Dahl

ONLINE

VALIDATION

The Berlin computer scientist Uwe Nestmann closely monitors what is written about him in online forums. He has learned a lot there about good teaching – and about the real needs of his students

Professor Dr Uwe Nestmann sits at his computer, annoyed. He has pulled up the website MeinProf.de and clicks through the reviews the students have posted about him. His result is sensational: 97 per cent give him top marks; this places him amongst the top-rated in Germany. But Nestmann is not satisfied: "The fact that it's not 100 per cent bothers me!"

Because of his frustration, the computer scientist from Berlin has made good teaching his primary concern. The dropout rates in his field are usually very high, and when he saw how few students have a grasp of the basic fundamentals, Uwe Nestmann decided he needed to do something about it. He focussed his attention on teaching, experimenting with new formats in his lectures – and discovered how fun it could be. In the meantime, his commitment has earned him the Prize for Exemplary Teaching of the TU Berlin Society of Friends.

Nestmann has not introduced any spectacular innovations in his lectures. Sometimes, he says, it only takes small changes to create a noticeable improvement. He stopped preparing an exact script for each presentation. "I jot down only three or four main points that I want to address, and beyond that I leave plenty of room for spontaneity." Through questions and discussions even a large lecture can become more dynamic. "In each class, students must be captured all over again," is Nestmann's philosophy. And: "There is an ongoing struggle to create interactivity between faculty and students!" In any case, he does not like talking about lectures, the notion of which he considers to be outdated. "Motivational and informative meeting" better describes his ideal. For him, that does not mean pandering to students. The high level of course content remains unchanged; it is simply that the means of getting the information across have been improved. "No one gets anything simply handed to them. But respect still should be the basis of the classes and the exams!"

His methods are clearly popular amongst students. They write about his "clear presentation style" on the online evaluation sites, as well as a "sense for pauses for reflection". Uwe Nestmann regularly checks to see how students comment on his lectures online. He has no fear of feedback, he says. And such open forums are in some ways better for improving his teaching than the mandatory course evaluation at the end of each semester. "Aspects such as fairness are almost never asked about on evaluation sheets, but these issues play a huge role on the internet."

As a computer scientist Uwe Nestmann places great emphasis on the techniques he uses to convey his content. In his lectures, he uses two projectors at a time. On one screen, he displays the basics of the lecture, such as formulas and other dry, mathematical background information. And right next to that, on the second screen, he develops the examples and applications with the students. He uses eChalk, a type of computerized blackboard, to write out explanations. He is always open to questions. Everything that is on the wall at the end of the lecture is stored as a digital file and made available online for the students. The complexity of the content can best be resolved across these two platforms, Professor Nestmann has observed.

A few months ago, the computer scientist discovered another innovation for himself and his team: the Screencast is a cross between blackboard writing and video, which the students can download and watch on their computers. The image shows only a blackboard, on which text gradually appears. From off-screen a speaker explains the formulas as he writes them. Nestmann uses the Screencasts as a supplement to his lectures: in them – almost as a digression – he discusses formulas and calculations that are not central to the lecture, but are nevertheless important for overall understanding. "In this type of electronic tutorial we can deconstruct the stumbling blocks that commonly trip up students," says Uwe Nestmann. In his lectures, he can now throw more complex concepts at his students, and they can fill in any knowledge gaps on their own. Thanks to Screencasts, everyone has the opportunity to look through the calculations at home at their own pace and repeat them as often as they need. Nestmann is convinced that this form of digital tutorial is much better than the mere filming of lectures. He now wants to gradually create a broad array of explanatory films, which his students can access at any time. In the initial phase this would mean significantly more work for him and his staff, he admits. But because the videos retain their relevance and can continue to be used by students in coming years, the amount of work required is actually relatively small compared with the amount of use he will get out of them.

In any case, Uwe Nestmann's commitment has had another positive side effect: in computer science, he says, a number of other professors and research institutions offer students opportunities to write final theses under their supervision. The fight for good students has already broken out in his field – and his good reputation, says Nestmann, is the main reason why many candidates opt for him and his programme.

Advanced technology: with two projectors, eChalk and online videos, complex course content can be broken down using resources that work well together



WRITING – BRITISH STYLE



To prepare young academics for international research careers, the University of Hildesheim teaches academic writing in English. Tutor Janet-Marie McLaughlin has an innovative approach

Janet-Marie McLaughlin recognizes that students have a problem with their writing: obscurely written English texts that often have been translated word-for-word from German constantly land on her desk. "It's not simply that the sentence structure is different in English essays; the entire flow is different, too," she explains to her students. Her course is entitled "Textual Composition", and she is leading the University of Hildesheim on new paths towards the internationalization of teaching.

Janet-Marie McLaughlin, who is Scottish, is a member of the English Language and Literature Faculty. This is where she teaches her courses, but her seminar on academic writing in English has become extremely popular outside the department. In the course, she provides students with the tools to accomplish tasks that are expected of budding academics, tasks for which they have usually received very little help.

"Scientists want to get published, of course, and more and more are striving for publication in English-language journals," says McLaughlin. What most of them underestimate, however, is the difference in style. "In English-language publications, it is assumed that a large proportion of the readers are not native speakers," she explains. Therefore, the goal of her course is to help students loosen up the tightly-bolted structure of many German technical papers and to present the complicated issues in a way that is easy to understand. In addition to her commitment to clear language, her priorities also include improving the organization of the text and sharpening the focus of the work. "You can't teach all aspects of writing; some things are simply a matter of talent. But much of it is also a craft that must be mastered."

Her teaching approach, for which she won the university's teaching award, places an emphasis on having all students actively involved in the writing process. It is designed for students who wish to become English teachers. For the most part, those who study English have better English language skills than students from other departments. McLaughlin

evaluates students based on a comparative system – she takes into account both the progress a student has made over the course of the semester, and the product of the final term produced for the course.

Her continuous assessment system is what makes this possible: two weeks into the semester, she assigns her students a 250-word essay. Students submit their essays online and McLaughlin corrects them electronically and sends them back. She highlights grammatical errors in a red font and provides comments on the structure and style of their work in blue. What follows over the coming weeks is a continuous revision and expansion of the text. The students reflect on their performance, thereby internalizing what really matters in English academic papers.

"This approach makes it clear that learning is a process and not a product – that's why marks are also given for the individual's progress, not only for the end result," says McLaughlin. In her opinion, this process is also fairer: if a student participates well over the whole semester and then has a bad day during exams, the grading system might not reflect their true ability. Furthermore, she explains, by using continuous assessment, teachers can be sure that the seminar participants will not simply learn everything quickly, as they might do for exams, and then forget it all equally quickly – a gradual learning progress is simply more robust.

Janet-Marie McLaughlin's teaching methods are in harmony with the philosophy of her department, where there is an effort to keep seminar groups as small as possible and to bring interactive elements into the classroom. And the link between theory and practice is also reflected in the details – emails within the department are normally exchanged in English to help the language become second nature to the students.

Janet-Marie McLaughlin willingly takes on the additional workload that comes with the time-consuming feedback process she uses in her seminars. Her experience has convinced her that the extra effort is justified.



Janet-Marie McLaughlin

Gradual steps toward success: students are not graded on their final exams alone, but also on their progress. This process-oriented system has proved a great success



Photo: Goethe-Universität



Professor Dr. Theodor Dingermann

SMALL CHANGE,
BIG IMPACT

Theodor Dingermann is proof of the fact that dedicated teaching does not necessarily have to come at the expense of research: thanks to a new organizational structure at the institute, he has made research more efficient – while allowing enough flexibility for more time for teaching

In the classroom, Professor Dr Theodor Dingermann is in his element: in front of the packed rows of spectators, he runs up and down energetically, lectures without using notes, and cleverly engages his students in order to involve them in his lesson. "People should see that teaching is fun for me," he says: "I want to convey not only knowledge, but also enthusiasm." Dingermann is a nationally renowned pharmacist; his institute at the Goethe University in Frankfurt has a strong track record in research. In order to combine both his joy of teaching and high research expectations, he has chosen an unusual method: in short, he has transformed the organizational structure of his institute and created entirely new space with what are seemingly minor changes. "In essence, my colleague Professor Dr Rolf Marschalek and I have combined the positions for doctoral students, staff and post-docs," says Theodor Dingermann. These young academics are no longer assigned an individual professor, but instead work with the entire institution across the board. In science this is somewhat unusual: human and financial resources are typically assigned to a specific professor, who uses those resources in conducting his or her own research, and is therefore ultimately in direct competition with his or her colleagues. In the academic world, breaking up this structure means a radical change. "I initially asked myself why we should artificially split up our research – and whether or not there is a chance to take on the big issues with a small institute like ours," recalls Dingermann. In the new structure, he found the answer to his questions. Since then, his Institute for Pharmaceutical Biology has worked as a unit on common issues and has even managed to create a diagnostic facil-

ity for certain types of leukaemia, which serves as a reference centre. "We are very efficient in output," Dingermann says, summing up his experience. A prerequisite for this model is, however, that the professors involved understand and trust each other – specifically, research results automatically become shared results that no professor can claim as his or her own. "We can all set our own priorities, but outwardly we act together," says Dingermann. Because his institute is relatively small, with a total of two professors, seven doctoral students and three post-docs, it has been easy to establish this new organizational structure.

The model affects teaching as much as it does research. Since professors can divide the work at the institute amongst themselves more flexibly, students benefit directly. If a professor needs more time for teaching duties at one point, he can give some of his responsibilities to a colleague in order to have the time he needs. This was how Dingermann temporarily handed the post of Managing Director of the Institute over to his colleague Rolf Marschalek so that he, freed from administrative duties, could be more involved in teaching. There are also mutually beneficial results that go beyond the flexible allocation of tasks: when several professors jointly supervise PhD students, for example, it saves time that can then be used to directly benefit their teaching. ■

STUDENTS ON THE BUTTON

Using modern technology, Professor Dr Theodor Dingermann gets his students to actively participate, even in large lectures: with the TED system (a kind of remote voting system), which has been featured on various television programmes, he keeps them directly involved. At the beginning of the lecture the students receive transmitters, which they can use to participate in the lecture. After that, Dingermann poses a multiple-choice question from the lectern and then has the students choose an answer. Without leaving their seats, students press the button on their transmitter that corresponds with their selected response – and after a minute Dingermann displays a bar graph on the front screen that shows the results. "Because the students are regularly asked questions, they listen more attentively," said Dingermann. The modern technology has an additional effect: "I get a clear idea of how well the students have actually understood the subject. Before, only students who were technically fit ever spoke up – now the picture is much broader because everyone is included." In his lecture Dingermann discusses the results of the open question and explains why a particular answer is correct. And if a large number of students chose incorrectly, Dingermann can use the results to find out which topics he needs to go over again. "I find out in real time whether the students understand my lecture, and I can react when necessary," he says. This expensive technology, which can easily be carried in its box from lecture hall to lecture hall, was purchased by Theodor Dingermann after he won the 2007 University Teaching Award. Thus, the prize money has come directly back to support good teaching. Amongst students, news of the voting system has spread like wildfire: he has been named Professor of the Year by the magazine *Umicum Beruf* – and his lectures are not only among the most highly attended, but also among the top-rated in the pharmacy department.



HELPING HANDS FOR GOOD TEACHING

Annette Seibt improves the student-teacher ratio in her Health Sciences degree programme through extensive tutorials – an approach she picked up in the USA early in her career

Self-reflective research in everyday life: in a “transformation project”, students get to know the power of habits – and the value of health

The issue of tutors was quite controversial from the very beginning: “You’ll spend far too much money on your idea,” Dr Annette Seibt heard from many sceptics. Meanwhile, the professor at the Life Sciences Faculty of the University of Applied Sciences Hamburg (HAW) is glad that she stuck to her guns back then. She bases her teaching on the multiplier effect and trains her own tutors at great expense, who then in turn pass on their knowledge. Fundamentally, her model is not new, but Annette Seibt has found new ways to incorporate it into her teaching. Her approach draws on her experiences from the beginning of her scientific career, when she worked at renowned universities in Denmark and later in the USA. Like so many scientists, she experienced the better student-teacher ratios and closer networking between researchers, their staff and their students on the other side of the Atlantic. “When I got back to the German education system, the difference in teaching practices was a shock initially,” says Seibt. The many students and large teaching load made it difficult for her to bring inspiration from abroad into her own teaching. But the public health expert did not

give up: “I’ve been thinking about how I can adopt what excited me there, in spite of different conditions,” she says. Her solution involves reliance upon student tutors. “I look for funding for this, wherever possible,” she says – and so she found herself with enough money for seven tutors for her introductory course in health science and public health, with 65 students. These tutoring positions are, as is usual at the HAW, funded by tuition fees, and the tutors are prepared centrally in the Hochschuldidaktischen Arbeitsstelle (Educational Theory Unit) for their new roles. There they learn the didactical and methodological foundations, and through their own studies they become familiar with the links to the subject matter. In a third step, Annette Seibt equips them with even more targeted training. She takes about 12 hours to prepare the tutors – all students from later semesters – for the tasks ahead: she discusses the goal of the course with them, explains connections, and prepares them for the most common questions that the students will ask. “Unfortunately, I can’t work this closely with all of my students,” Seibt says, “but by way of the tutorials they nevertheless get the chance to become very familiar with the course content. With these small



Photo: Dr. Annette C. Seibt

Strong team spirit Professor Dr Annette C. Seibt (4th from right) with students in the cafeteria

tutorial groups I create an environment in which students can also be well integrated and supported in substantive problems." She must take into account that turnover of the tutors is high. "Because the older students will move on to internships soon, I basically have to start from scratch each year to train new people," she says. Greater stability in the programme is one of the goals that they want to achieve over the medium term.

In teaching, Annette Seibt also places great emphasis on the link to practice – a goal achieved with tasks that seem unremarkable at first glance. Around the second semester there is a "transformation project": in this project, each student decides how he or she wants to make their own life healthier during the semester – Seibt has heard almost everything from quitting smoking and eating five servings of fruit and vegetables per day, to using dental floss every day or jogging three times per week. "This may sound trite," she says, "but those who do research on themselves for six months will notice how difficult a healthy lifestyle change can be." That is the learning effect that she is hoping for: the students will get to know the true

power of habit, a perspective that will be important when they recommend lifestyle changes to their patients or clients.

"I don't just want them to be as well trained as possible for practice; I want them to see the connections beyond that," says Annette Seibt. Seibt leads a social space analysis with her new students – a community-mapping project. "Look at your neighbourhood with your health-sensitive eyes and conquer it," was the motto of the project. In their immediate environment, the students should make a note of the locations of health facilities or parks, walking trails and playgrounds. At the same time they should also write down where they feel comfortable and where they do not. This way, students gain a feel for what gives a neighbourhood a high or low quality of life. The fact that those feel-good factors contribute to the concept of "public health" should be made tangible – as should a sense of how highly communities value good health. Tuning into their immediate environment and their own opportunities for change makes it tangible to the students how their field of study can be effective outside the university.

SUCCESS THROUGH TUTORS

To better support their students many universities are now using tutorials. In tutorials, students from higher semesters help their younger classmates. Such tutorials often take place as an accompaniment to a lecture, and give students the opportunity to have their questions answered; new content is supplemented by relevant examples. Guided exercises are one of the formats common in tutorials. The more advanced students are paid for their work, the funding for which often comes from tuition fees.



Students snooze as teachers drone – a classroom scene all too familiar

Retired historian Kersten Krüger explains how Karl Marx inspired him to strive for good teaching, highlights what has changed at universities, and recalls how students succeeded in convincing him to come to Rostock

“What is good teaching? First, expertise is important: a professor must have an absolutely solid grounding in the content. And the teacher has to get involved with the students; that’s also part of it”



You’ve been at the lectern for several decades now; at what point in your career did you discover the topic of teaching for yourself?

I can tell you that exactly: in fact, it was at the very beginning. I started teaching in 1968, after finishing my PhD in Marburg – and of course that was an explosive time. Because I worked as an assistant, my duties also included teaching. As for the students of that time, there were only two categories: you were either a Marxist or you were a bumbling idiot. I was never for Marx, so my only option was to try to better understand where those students were coming from. So I familiarized myself with Marx and then told the students: “What you’ve been saying about Marx is nonsense!” I had to be a good teacher in order to get that across; otherwise it wouldn’t have got through their heads.

In other words, good teaching as the result of missionary zeal.

Well, this was at least my direct motivation. Another part of it was this: at university it was invaluable for me to realise with greater and greater clarity that I knew nothing. With teachers, this leads to either arrogance or to what Luther called “genuine remorse” and thus to an increased concern for the students. And you must also understand that, at that time, all professors were truly engaged in teaching.

So what has changed at universities which has led this to no longer being the case?

We have a growing sense of selfish careerism at universities. Many professors are aiming for as many publications as possible; this is an unhealthy trend. And it is also totally unnecessary: if all professors measure themselves by the number of scientific publications, it brings them no further than if everyone had focused less on publication and more on their students.

But be honest now, in the 70s it was never quite as rosy as you describe.

If you are referring to the number of students, you’re right: mass numbers at universities already existed back then. But at the universities where I taught, there was a noticeable difference in the way that you dealt with students. In Hamburg, for example: we had an equal collaboration between students and professors, which was really great. It was a counter-trend to the hierarchical “university of professors” that had existed previously.

What characterizes good teaching in your opinion?

What is good teaching? First, there must be a certain level of expertise: a professor must have an absolutely solid grounding in the content, that’s a given. But the personal elements also matter; the teacher must get involved with the students. And if one speaks romantically of the concepts of university and of equal collaboration – which of course can never be completely equal because levels of knowledge differ – I have to take my students and their questions more seriously, respond to them, and accept their shortcomings.

That's all well and good, but let's be more specific. What does that mean for your own lectures, for example?

You know the old saying: "Wenn alles schläft und einer spricht, nennt man das den Unterricht" [literally: When everybody's asleep and one person is talking: that's what you call a "lesson"]? In principle, that's the exact opposite of what I want to do. I use texts that students can really sink their teeth into, and sometimes in the middle of my lectures I'll play music that fits the theme – be it an old political battle song or an excerpt from Mozart's opera "Abduction from the Seraglio", which delivers a really clear portrayal of the ruling class. Do you see what I mean? This is just one way of loosening up the whole business of teaching.

Currently, many people are talking about the link between research and teaching. That can't really work in the field of history, can it?

Why not? I run contemporary witness seminars with my students on a regular basis. We invite people who have something to contribute – be they professors from the old GDR times or a retired university rector. They sit in our classroom and respond to students' questions on topics they've never had the chance to discuss before. This represents a contribution to the university's history – and because the students get so heavily involved, it epitomizes the unity of research and teaching!

It's obvious that students like your approach – after all, it was students who lured you to Rostock.

The story is a bit crazy. I sat in my office in Hamburg, it was the beginning of 1990, and two students knocked on my door. They introduced themselves and said that they came from Rostock and would be over the moon if I would come teach for them there. I said no, of course, but they wouldn't give up. They came back and even organized a meeting for me with the Ministry of Education of Mecklenburg-Vorpommern. I eventually gave in.

Was it the involvement of the students you found so enticing?

Yes, otherwise I would have never done it. It was a wild time back then; when the students first came to see me, Germany had not yet been reunified. I had to do a lot of construction work here in Rostock. I even had to assemble the bookshelves myself at the beginning. I had to think very carefully about my priorities, and it was clear to me: I wanted to put a great amount of effort into my teaching, put little effort into tedious administrative duties, and even reduce my research commitments somewhat.

What do you think of whiteboards, e-learning and other modern methods?

If I use e-learning in the sense that I put a few historical source texts on the internet and say, "Okay everyone, look this over, next week there will be a test on this material" – that's nonsense. Technology is no substitute for teaching. But if I use e-learning to support my lectures and seminars, as supplementary material, then there is a huge gain. Consequently, as a professor I initially have to devote a greater level of commitment and effort to support my students, but it improves my teaching.

You have already mentioned your priorities: less research, and more time for teaching. Looking back, do you sometimes think about all of the potential research topics that you never explored because of your teaching commitments?

I have never made choices in favour of teaching and against research. I have done lots of research and have published quite a lot, but it was not my main job. Incidentally, yes, I still give seminars, although I've been retired since 2004. I just can't let university life go, and that's probably testimony to the fact that I've found a very good balance. You know, people will one day say of some professors: he wrote many long books, that's his legacy. But I'll leave another part of me behind, too.



Photos: Dr. Kersten Krüger

PROFILE

The historian *Professor Dr Kersten Krüger*, born in 1939, has taught in Marburg, Kassel, Giessen, Münster, Oldenburg and Hamburg. In 1993, students recruited him to the University of Rostock, where Krüger held the professorship in early modern history until his retirement in 2004. Since then he has held lectures and seminars on a voluntary basis several times a week at the university. To this day, his lectures are amongst the best attended in the department.



REDISCOVERING MATHEMATICS

To inspire them with a passion for the subject, Professor Dagmar Bönig uses techniques with her students that they will later use in their own teaching – an approach that doubles the learning effect

High standards: even elementary school teachers need a deep understanding of mathematics in order to support and challenge their students

At first, very few students believe that they need any sort of in-depth specialist classes: many think that to teach elementary school mathematics you need know nothing more advanced than one-times-one. Professor Dr Dagmar Bönig of the University of Bremen just smiles and says: "In my seminars it doesn't take long before they realize that the information will be useful later."

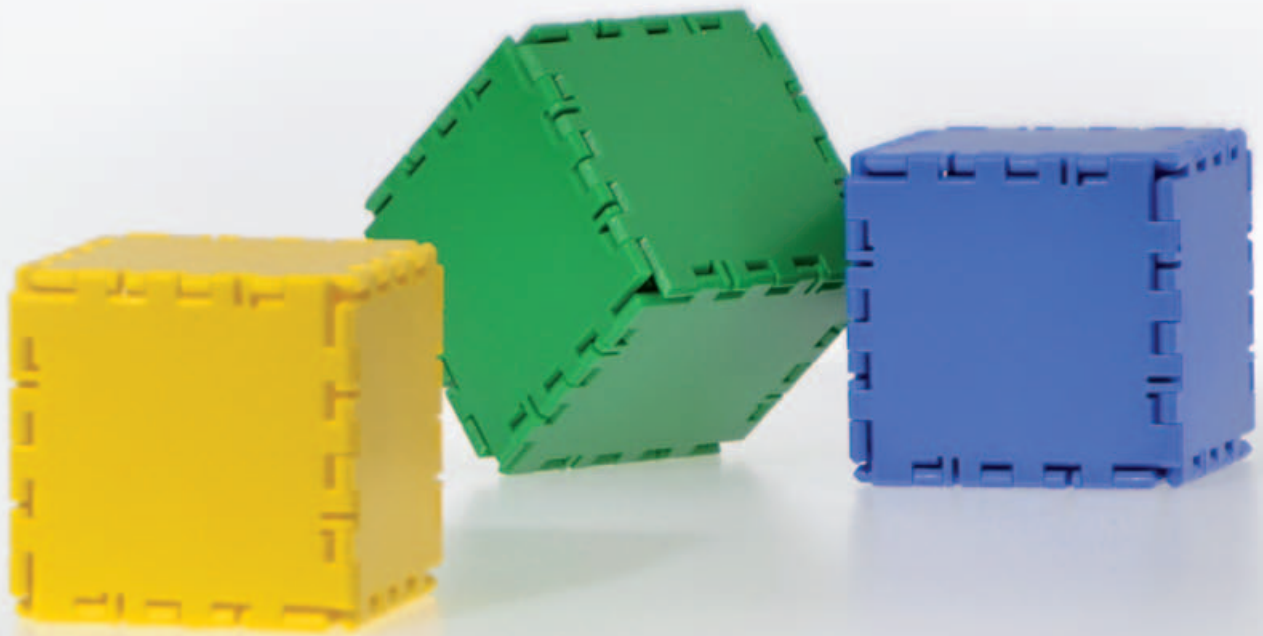
This is characteristic of Dagmar Bönig and her teaching methods: she always stresses the practical relevance without neglecting theory. And as a specialist in teaching methods, she uses the exact same techniques in her seminars that will help her students later during their own teaching careers. For her skills in bridge-building, Dagmar Bönig was awarded the university's Berninghausen Award for Outstanding Teaching and Innovation – at the recommendation of her students.

A key issue for the professor is what she calls "natural differentiation", in educational research terms. Some elementary school children are more adept at solving problems, while others need more time or cannot find solutions to tricky tasks on their own. Whereas previously the teacher would hand out several different worksheets, today there is a different pattern: everyone starts with the same problem which can be solved at varying levels of difficulty, and the quicker students work on a more difficult task related to the same assignment. "Of

course, this means that teachers must have an in-depth knowledge of the subject material," says Dagmar Bönig.

She experiences the same problems in her own seminars: at the University of Bremen up to 120 students a year prepare to become primary school teachers, and some of them have a fully fledged maths phobia. Nevertheless, they still need to be able to teach children the very things that sometimes cause their own stomachs to sink. For Dagmar Bönig, this is the biggest challenge. "You have to act sensitively and wait until they catch on," says the expert in the teaching of mathematics. She achieves this through intensive individual support: she voluntarily offers tutoring sessions, where students apply course material to specific lesson examples and deepen their understanding. She also regularly invites students to her office hours and helps them clear up any problems they might have. This also means that she advises not only the weaker students, but also the stronger ones in order to get them even more excited about mathematics. She calls these "competence-orientated feedback talks", and this kind of personal support from the faculty is highly appreciated amongst the students.

There is another connection between Bönig's teaching methods and what the prospective teachers can later apply in their own teaching. "We should be thinking about maths problems in terms of how children can use them to discover as much



as possible. In the beginning they need basic arithmetic skills, and after building on these for a little while they start to discover natural mathematical rules and regularities," says Dagmar Bönig. This concept is relatively new, so most of her students have very different memories of their elementary school years – and they initially responded to these new approaches with scepticism. But after they have tried these methods of discovery learning with children from within their own families, they quickly see how effective the methods are. "That's always an enlightening experience that gives the students a greater desire to delve into the topic," says Bönig.

Trying out new things on a regular basis is one of her key principles. This is especially true of tests and exams. The examination regulations in Bremen give her, as a professor, leeway to determine the form learning assessments will take. "Of course I use exams," says Bönig, "but I always look for other possibilities." She even looks at the exams of fellow professors from different disciplines and considers the extent to which their ideas can be used in mathematics teacher education. Are computerized tests, portfolios, student seminar formats, or other forms suited to her field? Bönig herself is continually searching for answers to these questions. "This kind of thing can generate new momentum," she asserts – and such innovations, despite her decades of teaching experience, are always helpful. ■



Photo: Dr. Dagmar Bönig

Learning by playing: Professor Dr Dagmar Bönig (in red) prepares her trainee teachers for the real world – here, with Lokon Cubes



Photo: Sabine Nagel-Horn / Oberhessischer Presse

RETHINKING CAREERS IN ECONOMICS

Professor Dr Evelyn Korn

Economics professor Evelyn Korn wants her students to really stop and think – about what they would like to do and what they are good at. Through this approach, she helps them decide on a specialization and opens their minds to possible alternatives to traditional careers in consulting and banking

Professor Dr Evelyn Korn recalls the conversations she used to have again and again with her students: “Why are you studying business?” she would ask when they came to her office hours. The question, which was meant as harmless small talk, sent many students into a tailspin. “Many of them couldn’t give me an answer,” says Korn. “They simply enrolled because their families thought that studying economics or business would offer a secure future.”

That was the economics professor’s initial motivation to launch the project Ecoskills. The abbreviation stands for Economic and Business Soft Skills, an intricate programme of seminars and courses in which students can develop their skills far beyond their discipline’s horizons. Unlike the elective fields that now exist at many universities, Ecoskills does not emphasise additional economic expertise. “Above all else, we want to give guidance and help everyone to find focus,” says Professor Korn.

Many of the courses deal with skills-assessment and self-analysis, communication within a team, or self-coaching. Students are repeatedly asked to address their own priorities. “When you consider what you are particularly good at, and what distinguishes you from the classmate sitting next to you, you take a clear step in the right direction,” Evelyn Korn observes. Many secondary school graduates hardly take any time before starting their studies to think about what they actually like to do. “As professors, we then face the dilemma that we are supposed to prepare students for professional careers, even though the students themselves don’t know what they really want to do.”

The Ecoskills project is meant to help resolve this conflict. Thanks to the guidance it provides, students can select their seminars in a more targeted fashion and highlight certain areas – and they can better overcome motivation lows if they know what they are working towards. “I was truly shocked when I learned how many students had problems with depression,” says Korn. As the long-time Chair of the Faculty’s Examination Board, she found herself faced again and again with candidates who

were just about to hit rock bottom. Orientation support can help them early in their studies.

The project supports not only the weaker students. “The top ten per cent of a class can also make good use of structural assistance,” Korn observed. In the first semester, many of them identify career goals such as becoming managers, investment bankers or management consultants – “but the question of what one actually does in the job, and whether they’d be happy doing that, is not something they ask themselves. They often feel a lot of external pressure, so they get the wrong ideas about success.”

Introducing new ideas to the students is a practical part of the Ecoskills programme. Experts from companies come to the university and talk about their everyday lives. The Bundesverband Deutscher Volkswirtschaftswissenschaftler (Association of German Business and Economics Professionals) as well as Phlink (a student consulting firm at Marburg University) have developed their own range. And students have the opportunity to gain first-hand experience of what it means to be a consultant in the real world. For Evelyn Korn, the broad base of Ecoskills is a great success: “The willingness from outside the university to assist us in a practical manner is strong – previously we were just missing a platform that would make this possible.”

Sometimes the professor thinks back to her own student days, when she came up with the idea of Ecoskills. She is a mathematician by training, and early in her career worked as a student research assistant. “The coffeemaker was in my office, and the professors and staff often met there and chatted informally.” Creating such an atmosphere became her goal – to focus on the shared interest in knowledge without paying much attention to the hierarchy, so that students and professors could finally connect. Such an exchange could also help orient students better within their study programmes. In this way, Korn is convinced, the Ecoskills programme can serve as a bridge to the classic ideals of a university – even in a large department such as business administration and economics. ■

ECOSKILLS – THE PROGRAMME AT A GLANCE

The Ecoskills (“Economic and Business Soft Skills”) programme serves to convey key soft skills and improve self-awareness. The lectures are divided into three modules:

1. Self-reflective module: establishing competencies
 2. Areas of expertise
 3. Self-reflective module: establishing goals and outcomes
- In this structure, existing courses such as those in rhetoric and presenting are combined and supplemented by seminars, in which students learn about self-coaching and work out their strengths and priorities with professional guidance. For the participants, there are several certificate options, ranging from confirmation of course attendance or a qualification certificate for finishing multiple seminar sessions from one of the modules, right through to a full certificate as proof of having engaged intensively with the content. Most seminars do not provide credit points that count towards a degree. Institutionally, the Ecoskills programme is based in the Faculty of Business Administration and Economics, though the courses are open to students from other disciplines. The courses are held by external trainers. In most cases, there is a participation fee of € 25-30. The majority of the costs are recovered through grants, which come mostly from the European Social Fund. The project costs amount to around € 500,000 in the initial phase.



A close-up photograph of a student's hands holding a piece of white paper. The student is wearing a dark-colored long-sleeved shirt. The background is a blurred classroom with other students and wooden desks. The lighting is soft and focused on the hands and paper.

SPOTLIGHT ON

STUDENTS

These are the real experts in learning – every day they are faced with new knowledge that they are expected to assimilate and retain as efficiently as possible. They also need to be able remember what they have learned after the upcoming exam; to relate and apply existing knowledge to new subject matter and in unfamiliar contexts.

The way knowledge and skills are taught is vitally important to students. And so, when it comes to good teaching many students have valuable contributions to make, both as experts in the field and as sources of innovative ideas.



THE SELF-HELP APPROACH TO GOOD TEACHING

The computer science student association at the TU Dortmund use their Lehrer-Lämpel award to identify with rigour the classes that inspire and the classes that confound. The students reward their best teachers in a public ceremony

Success, but still frustration: “Why”, impatient students sometimes ask, “has there still been no improvement to the lecture?”

A few years ago, the prize was used as a punishment. If a lecturer at TU Dortmund’s Faculty of Computer Science was nominated for the Lehrer-Lämpel award, this was considered a public denunciation. In those days, students would give this award to the worst class of the semester.

Fabian Schlenz can’t help but smile when he reflects on the award’s past. The budding computer scientist is active in the student association of his faculty and is one of the current coordinators of the Lehrer-Lämpel award. The award has since lost its fearsome reputation. “Whoever wins the award today”, says Schlenz, “can be proud and displays the award in their office for all to see.” At some point the Dortmund students decided that the award should no longer be used to daunt their professors, but rather to encourage them and, so transformed the prize into a positive acknowledgement to reward the most engaging class of the year. And yet the underlying purpose of the award has remained the same – the students want to ensure good teaching in their department.

Although sophisticated student evaluations are by now practically the norm, Dortmund students broke new ground in the early days of their award. This was in 1980, when teaching quality had yet to figure in the key debates concerning education. “It’s likely that some lectures were so bad that the students felt they had to do something about it,” says

Fabian Schlenz, the current student representative – who had not even been born when the original Lehrer-Lämpel award was established. Back then, computer science students resorted to self-help and distributed questionnaires amongst their fellow students each semester. The lecturer with the worst scores had the dubious honour of winning the prize. At the time, such student involvement was considered remarkable and, in 1993, even prompted the German magazine Der Spiegel to report on the “revolutionary” roots of the Dortmund award. “The scourge of Dortmund computer science lecturers is a metal cup akin to an amateur league trophy,” the news magazine wrote, and quoted the department’s dean at that time: “It’s not exactly a joy to receive this thing – it’s a matter of pride.” Even the title of the article was noteworthy: “Lengths to which students will go to spur on their lazy professors.”

In the Dortmund department the award has long since enjoyed legendary status. “I found out about the award at the very beginning of my studies,” says Fabian Schlenz. Nowadays, the extensive questionnaire used to collect data for the award has become more professional. Participants in the various classes are presented with around 50 questions, while a computer programme carries out the processing of data and generates a fully automated evaluation of the answers. Just as before, the students themselves come up with the questions and distribute the questionnaires in class. However, the



The inspiration for the award: Lämpel the teacher, Wilhelm Busch's famous caricature

dean's office has meanwhile become involved in the background. "They need to conduct their own quality assurance," says Schlenz, "and because it wouldn't make any sense to have two parallel evaluations, the dean's office came to us one day and suggested that we cooperate." In practice, this means the students collect the data and forward the most significant findings to the dean's office. The detailed evaluation used to decide the winner of the Lehrer-Lämpel award is, however, compiled by the students themselves. The prize is awarded to whoever achieves the best average across all the questions. As such, the award is based on a quantitative measurement – the students do not carry out a comprehensive evaluation of the underlying teaching concepts.

Despite these successes, the coordinators repeatedly question the aim of their involvement. According to a self-critical piece written by the Lehrer-Lämpel team in the Dortmund student association newspaper, "Some students who had taken part in the survey in earlier semesters and then later returned to what had been poorly rated lectures were disappointed – because nothing had changed. Nevertheless, there have also been positive experiences. With some lectures that performed outstandingly well in early surveys there was still room for improvement, and they have been able to improve even more this semester."

The student association newspaper is the most im-

portant instrument for the students. This is where they publish the survey results and photos from the award ceremony – and is also where they pull no punches when it comes to criticizing poor-quality classes. Here, the Lehrer-Lämpel award's fearsome tradition is alive and kicking. "What would be better?" wonders one sarcastic comment under a photograph of illegible writing on a board: "A slide like this or no slide at all?" The comments in the newspaper generate a stimulating sense of self-awareness and motivation that is fuelled by the desire for improved teaching. "How on earth can a lecture such as Probability Calculation and Mathematical Statistics be given poor grades every semester? How is it that each semester, practically the same areas are singled out for criticism, and yet nothing changes? You can't dismiss it when umpteen students make the same comment – 'You might as well spare yourself this lecture'." And elsewhere it was put quite simply, "What a pity that, after a professor has been given poor marks for their lecture three times, they don't have to stay behind and do a 'principles of teaching for computer science' course."

Fabian Schlenz is convinced that the students' involvement is worthwhile. He has noticed that most teaching staff make an effort in their classes – and this is precisely the aim of the award. "When I look and see that the winner has proudly added the photo of the award ceremony to their website, then I realize – it was worth all the effort!"

THE STUDENT CHALLENGE

On their website, the Dortmund computer science students unequivocally lay out the goals of their Lehrer-Lämpel award. Below is an extract:

1. To motivate teachers to a greater level of commitment in their teaching
2. To support teachers in the improvement of their classes. The survey should provide teachers with suggestions for improvement and identify their weaknesses. This is done using the following instruments:
 - The survey questions, which implicitly define the criteria for good-quality lectures
 - The survey results (i.e. the values in the results table)
 - The student comments on the reverse of the questionnaire
3. To motivate students (as the teachers of tomorrow) to a high level of commitment in teaching in the future
4. To confront students (as the teachers of tomorrow) with the issue of "quality in teaching" and also support them in the improvement of their future lectures (giving assistance and tips through the questions in the survey)
5. To support advanced students – using the results from surveys in earlier semesters – in their choice of elective/core lecture courses

Source: <http://fsinfo.cs.tu-dortmund.de/lags/lp/lp>



THE STUDENT MANAGER

Heiko Marski is the first student in Germany to also be a pro-vice chancellor. He holds a position at the very top of the University of Rostock administrative hierarchy from where he campaigns for the interests of his fellow students





The university library in Rostock: full-time job campaigning for good study conditions

“Some people imagine that I’m a permanent opposition figure in the rectorate. But that’s not the case – I’m a pro-vice chancellor just like any other”

It was the middle of the night when the students pulled the pro-vice chancellor from the meeting. “Come on, we’re off to the beach!” they shouted, and escorted the bewildered university official to their car. The clock read 3 a.m., it was a warm summer night, and there wasn’t a soul to be seen in the Baltic Sea off the coast of Warnemünde.

Even today, Heiko Marski has to smile when he thinks back to his nocturnal kidnapping. “These are exactly the kind of friends you need in this job,” he says. “Otherwise I would never get away from meetings or from my desk.” Marski is sitting in his office at the University of Rostock. Its cylindrical form stretches towards the window – below, students stroll by after their lectures. Yet again, his body is feeling the effects of the previous night. “We had a meeting of the Student Parliament. It was half past three before I made it to bed,” he says, and smiles wearily. After the meeting this time there was nobody waiting to take him on a trip to the beach.

Such scenes are typical of Heiko Marski’s job: he sits in the rectorate, the home of the university’s senior management, working through files to the point of exhaustion, and yet occasionally a trace of student exuberance shines through. The pro-vice chancellor is a high-ranking university official and, at the same time, also a student. At just 27 years of age, Marski is the youngest pro-vice chancellor ever at a German university. Elected from within the ranks of the students, he has officially become part of the university’s executive management.

In his new role Marski, who before his full-time ap-

pointment was a trainee teacher, learnt the ropes extremely quickly. “I had no choice,” he says, pointing to the computer. From the very outset, he received dozens of emails each day and the telephone never stopped ringing. It is a routine that continues for Marski to this day: up to 400 emails a week land in his inbox, and during peak periods he puts in a 90-hour week. The sign on his door says “Pro-vice Chancellor for Student Affairs”. Unique in Germany, the position is occupied by a candidate elected from within the student ranks. For the university this clearly goes beyond paying mere lip service to student participation in key decision-making.

“It’s a sign that within the university we genuinely all pull together,” says Marski. However, he points out that he is not a student representative but a fully fledged pro-vice chancellor who should not lose sight of the student perspective. “Some people imagine that I’m a permanent opposition figure in the rectorate. But that’s not the case – I’m a pro-vice chancellor just like any other,” says Heiko Marski. He has an appointed post, not a political mandate. When tasks are assigned in the rectorate, just as much work lands on his desk as it does for the other pro-vice chancellors. However, he says his student background enables him to function as a mediator between students and the rectorate, and to help both sides to avoid misunderstandings. Heiko Marski’s path to his high-ranking position followed a number of years’ involvement in student affairs. He sat on committees, wrote proposals and sought majorities. And at the beginning he was a rather frustrated student. “I was on the verge of switching universities, because I was just so incredibly angry about some things,” he says. Then one day, just before his official withdrawal from the university, a secretary told him that nothing would ever change for the better if everyone with a grievance simply left. “That motivated me to stay here,” says Heiko Marski – and to following the path leading right up to a position in the management of his university.

When he took up his new post, he had clear ideas of what he wanted to change. Social issues were the most important, ranging from childcare and the successful integration of international students through to the seamless transition of graduates into the job market, which, in the area surrounding the University of Rostock, does not always look rosy. He also

had his own thoughts on the university: "We need a new consensus on education. There are now several differing views on what we actually want to achieve in higher education," says Heiko Marski. What has superseded the ideas of the educated middle class, and what role should the university play in the life of a student? That these questions sometimes remain unanswered is evident in a number of courses that lack clear structure and focus, according to Marski. In his work, Heiko Marski attempts to bring his ideas into the debate – he is also concerned with the concrete interests of students. As a result, he has established a close relationship with the BAföG Office for student grants, where frequently there had been problems over difficult decisions. Now the office has a representative who is in regular contact with the university. If a dispute arises, both seek to achieve clarification. The goal is for students to be able to forego lengthy and tedious appeal procedures or even lawsuits, and for the office to re-examine the documents readily and speak directly with the university about disputed cases. "Now it takes us a five-minute phone call to clear up what in the past might have led to a prolonged court case," says Heiko Marski. He has established a similar approach to conflict management within the university itself. If there are clashes between students and faculties, he occasionally takes on the role of negotiator between the two parties – as in a recent case of the threatened expulsion of a fellow student who had been ill for a number of semesters.

Sometimes, Marski stumbles upon an unexpected solution to problems that have been simmering for years. One example involving the issue of child-care saw him link up with a local kindergarten that agreed to accept students' children – something that had been sought by the student association as well as his own predecessor. The university, for its part, assisted the kindergarten with the continuing education of its teachers and its pedagogical approaches. When the agreement was reached – after seven years of searching for a solution – Heiko Marski received countless emails thanking him. One student who had approached him about the matter wrote, "You said you'd take care of it, but so many before you said exactly the same. I never thought that you would actually solve the problem!"

Heiko Marski describes himself as a mixture between a conflict mediator and a manager with an eye for the bigger picture. Extending far beyond individual cases is, for example, his advocacy for international students. Since initiating a cooperative relationship with the Migrants Council in the city of

Rostock, he has sat on the Council's committee. And to build close contacts with future employers Marski also participates in roundtable meetings with representatives from the city administration and the local chambers of trade and commerce. "It's quite normal for me to go there as the representative of the university," says Marski. In these committees he is no longer "Marski the student", but the pro-vice chancellor acting on behalf of the university.

His work contributes towards a student-friendly university in which the interests of his fellow students are taken seriously. And he explicitly champions good teaching. Thus, the evaluation of classes is the job of every single department at Rostock, and involves not only the deans but also the student associations. Heiko Marski campaigns for a uniform, valid questionnaire design: although the differences between the subject areas should be taken into account, Marski also works on a commission together with the university's Centre for Quality Assurance and the students to ensure there is a common core to all evaluation questionnaires.

"Since I've had this post, my impression of the university has really changed," says Heiko Marski. As a regular student he wrote proposals and followed their progress through the student committees until the moment they were officially submitted. These days, he sees what happens with the proposals. "I was completely, but also pleasantly surprised at how committed the university staff are, and how well people work together. I never expected that they would be so committed to their work," says Marski. "Now I have the feeling that everybody is trying to achieve the best for the university. When I was on the student committees, this didn't always come across."

Heiko Marski hasn't had any problems with being taken seriously in his position as pro-vice chancellor. Sometimes he even receives letters addressed to "Professor Marski" – "After all", he smiles, "it is unusual for someone who hasn't yet graduated" to be in this position. His secret is good preparation. If he has familiarized himself meticulously with the matter at hand and knows what he is talking about, then the professors perceive him as a partner on an equal footing. Only occasionally does Heiko Marski have to take a defensive stance. "Some people just take it for granted that I'm a pro-vice chancellor, so they confront me with the most complicated tasks and questions," he says, shaking his head. "Then sometimes I have to say, 'Hold on a minute, that's over my head. I'm only 27 years old and actually still a student!'"

AT THE HEAD OF THE UNIVERSITY – BY STATUTE

In Mecklenburg-Vorpommern student involvement in the rectorate is possible thanks to the Higher Education Act. According to section 82, in addition to the head of the university, Chancellor and professors, "up to two additional members of the university" are admitted to executive offices. The University of Rostock has incorporated this discretionary provision into its constitution, with "an enrolled student" intended as a member of the rectorate. The term of office is one year. The Student Council recommends the student member who is then, like the rest of the university management, elected by the Academic Senate.



UNIVERSITY FROM THE GROUND UP

Students have an important say – this is a set rule at the Leuphana University of Lüneburg. And everyone benefits: time and time again, inspiration from the bottom up gives a fresh impetus to teaching

Open dialogue: at Lüneburg good teaching is everyone's responsibility







Teaching award, ombudsman, Quality Circles: student participation has proven itself at all levels

The invitation came as something of a surprise. As Christian Cohrs was reading his email, he found the message from his dean of studies referring to the first meeting of a new Quality Circle. The programme director of the Economics faculty wanted to sit down with the students for an afternoon to discuss improvements. "Needless to say, I went along," says Christian Cohrs, currently in the middle of completing his Bachelor's degree at the Leuphana University of Lüneburg.

The group met in a non-descript seminar room. There was a good turnout: a number of students had come, as well as a handful of teaching staff, the faculty programme director and the dean. Even the seating plan was deeply symbolic. The tables were arranged in a circle – the talks were to be held on a level playing field. As a student, Christian Cohrs made use of his opportunity to voice criticism: "Certain aspects of the degree course didn't seem coherent to us, so that's what we wanted to ask about," he says. And then there were the aspects of curriculum that proved practical sticking points: some of the Internal Accounting content overlapped with that of Company Taxation; some professors failed to answer questions via email; some confusion had arisen over the transition from the Bachelor's to the Master's degree – these were the core issues, similar to those at almost any university. For nearly three hours, the students sat alongside teachers and tried to work out quick solutions.

Each faculty has its own designated Quality Circle, which meets once a year. It is an effective instrument, since it allows for the direct enhancement of teaching. This is not mere lip service, as Christian Cohrs has discovered for himself – he has seen improvements in the areas he singled out for criticism. As such, the Quality Circles have sent a clear message: at Leuphana, the door is open to students' suggestions, no matter how unconventional these might sometimes be. In addition to regular meetings within each faculty, the university has established a number of accompanying measures enabling students to contribute their good ideas. The message at Leuphana is: "Quality development shouldn't just be a departmental matter, but a task for everyone involved."

Contact between students and teachers is also close in other ways. For instance, the Economics Student Association is located on the second floor of the faculty building, and its representatives only have to go to the next door along the long corridor to reach the Office of the Dean of Studies. Creating these close connections is also the mission of Thies Reinck. He is the university ombudsman and is therefore, in a way, the very embodiment of this idea. His room is in the Leuphana administration building, just a couple of doors down from the president's office – and his door, also an expression of his function, is made of glass. "Anyone with something on their mind can come to me any time," says Reinck. He has a youthful look about him, with his stubbly beard and loose pullover; just



FROM THE SEMINAR TO THE DANCEFLOOR

At first it was the wild idea of a handful of students: they wanted to hold a festival at the Lüneburg campus and invite both well-known bands and experimental newcomers from the surrounding area. On the night of the event, thousands of enthusiastic visitors gathered in front of the stage – this moment in 2004 was the birth of the Lunatic Festival, which has gone on to become an annual event. Since then, the student initiative has grown into a taught seminar: the festival is no longer organized by a few diehard fans in their spare time, but by students as part of their seminar programme. The Lunatic Festival is now a part of the curriculum – anyone who enrolls shares responsibility for the event's preparation and thus learns about project management in a practical setting.



Openness as a strategy: ombudsman Thies Reinck in conversation with a student

a couple of years ago he himself was a student at Leuphana. This helps him in his current role: in terms of organization, he is affiliated to the executive board, but at the same time he needs the trust of the students. He wins this easily with his youthful energy. When students have ideas or suggestions for good teaching or if they are unhappy with something, he is their first point of contact. "I'm not in an all-powerful position that allows me to solve every single problem," he says, "But I can help with mediation and clarifying misunderstandings." Thies Reinck intercedes in case of difficulties transferring from another university, problems with the study regulations, or annoyance with lecturers who have not corrected homework assignments for weeks and react dismissively to questions. During the course of his daily work, he builds a contact network both within and outside the university that he can make use of in difficult situations.

His aim is to bring a steady stream of information to all parts of the university. He has often seen how students contribute innovative ideas about good teaching. "We want to integrate this initiative, otherwise we'll be frittering away a lot of potential," says Thies Reinck. At the same time, students should understand more about the objectives of the executive board and about the direction in which the university is developing. According to the ombudsman, the usual committee structure should be supplemented in order to create new and more open forums. One such forum is the workshop that he recently held: the executive board, the faculty deans and university staff sat together with student association representatives, delegates from the General Students' Committee and student parliament, as well as some students at an early stage of their studies – and

exchanged their ideas and visions in small groups. Reinck is convinced that this type of activity contributes to an improvement in teaching: the invitation to the exchange made it clear to everyone that they would have to put their collective shoulders to the wheel for this very purpose.

This is also the motivation for Johanna Flügge. She came to Lüneburg to complete her doctoral thesis in musicology, and had already recognized the importance of teachers' personal commitment while at her previous university. As a result, Flügge became a student juror – once a year, the university awards its teaching prize to outstanding lecturers as voted by their colleagues, students and administration staff. "I think it's important we have this prize," says Johanna Flügge. "The teachers bend over backwards to come up with new ideas for us – we should acknowledge that."

This critical acclaim is also catching. When jury members talk to each other about the teaching approaches most deserving of an award, this in turn gives rise to new ideas. The prize has thus become a kind of incubator for good teaching – and the students contribute important momentum. Like Johanna Flügge, every juror is able to add a personal touch – the evaluation form, however, has a set design.

The teaching prizes are awarded on a symbolic date. Every summer the Dies Academicus is held and reflects on events that have touched the university over the past year. One of the highlights is the award ceremony, and recently Johanna Flügge even gave the award speech. If students are given a voice, she says, then they should also speak up.

THE ENTIRE UNIVERSITY AT A CLICK

Like other universities, Leuphana University is striving to digitize all aspects of campus life: myStudy is the name of the system used in Lüneburg, and it is automatically accessible to all students. The entire lecture schedule is available on the university's intranet, and personalized pages allow students to create individual study plans. Registration for classes also takes place via the portal. For every seminar, there is a complete online literature list and a detailed description of the content. To keep track of progress through the degree programme, there is also a list of the compulsory modules that have already been completed and the credits still required for graduation. The myStudy portal is also helpful for everyday student life. Anyone interested can subscribe to newsletters on particular topics – for instance, cultural events, guest speakers or the university's development. Even making appointments for a professor's office hours is done via the online system: all it takes is a single click to reserve the preferred slot. Thanks to this electronic support, students and teachers alike have more time to concentrate on their actual work.



Photo: Benedikt Waelder / iStock



THE GRASSROOTS EXPERTS

Whenever a new degree course is developed, students are involved from the very beginning. As members of the accreditation commission, they examine proposals with a critical eye – a task for which the student reviewers undergo meticulous preparation

For the duration of the evening, Benedikt Waerder takes on the role of university president. He stands in his casual pull-over, his blond hair pulled back in a ponytail, and talks to the commission about his favourite degree course – “Creative Cooking”. The course is up for accreditation, and the review panel members are eagerly awaiting Waerder’s presentation. The president is in top spirits – in relaxed and jovial manner, he introduces the planned modules and the didactic approach.

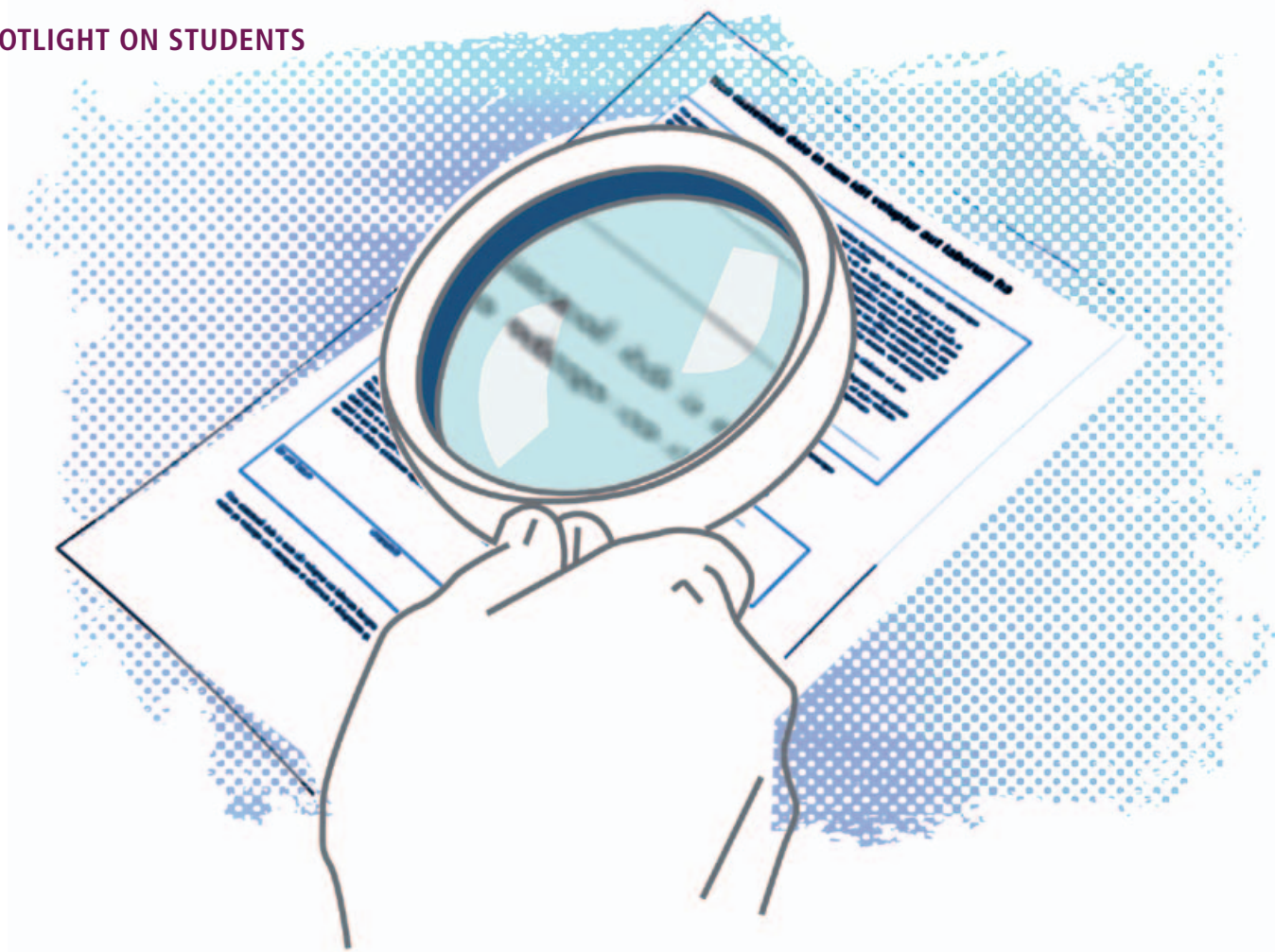
For most of the audience, Benedikt Waerder’s “Creative Cooking” is their first exposure to accreditation procedures. Eagerly, they take notes and leaf through the lengthy module description that Waerder has handed out beforehand. “I’m curious”, the president says grinning, “as to whether you’ll also manage to find all of the problems and mistakes!” After his presentation, he transforms back into the chemistry student that he really is. His role as the head of the university is for training purposes only, and the prospective members of a real accreditation commission are being confronted with a crisis for the first time. The course is, unsurprisingly, also a complete fabrication. “We deliberately came up with an example far removed from reality, so that

all the participants could distance themselves from their own specialist backgrounds,” says Benedikt Waerder.

The simulation has become something of a routine for him in the meantime. He has done half a dozen similar seminars over the last few years and sat as a review committee member on several genuine accreditation hearings. Waerder is also a member of what is known as the student pool, the group of all students appointed as reviewers in accreditation processes. As a prerequisite, the students participate in seminars to learn the tools of the trade. They take part in simulations and attend theory classes as preparation for their responsibilities, and focus on the background to curriculum planning and higher education development.

“We hold our seminars in different university cities throughout Germany, so that the participants need to make as short a journey as possible,” says Benedikt Waerder. This time, the student pool is meeting in Dortmund. Waerder and one of his colleagues are leading the event, and two guests will be familiarising themselves with the role of group leader. Eight participants have come along – a budding political scientist, as well as prospective

The students appoint their own experts for each subject. During the review procedure they work on an equal footing with professors



An eye for detail: in seminars held over several days (left) the future reviewers are introduced to the intricacies of accreditation

“For us, the students’ reality is not an abstract concept but an everyday experience – and we make an active contribution.”

educationalists, mechanical engineers and biologists. For the weekend they have hired space in a Kolpinghaus hotel located just behind the railway station. The meeting room is lined with dark panelling and at one end hangs the carved image of muscular labourers in their workshop.

Times have changed. Today, the work carried out in these rustic surroundings is done using the head, rather than the hands. In a PowerPoint presentation Waerder and his colleague explain the accreditation system in detail; in small groups the participants compile the aspects that are of particular relevance for their specific subjects. “I don’t want education to become a commodity,” says Maximilian Jacobi, who has travelled from Passau to take part in the seminar. He studies governance and public policy and wants to participate in the accreditation process for two reasons: on the one hand, he is keen to help shape his degree course and thus to support good study conditions. “And I believe that it’s also an opportunity for me to implement the theories from my studies in a practical environment,” he says. From good rhetorical skills in a presentation through to group work – here in the accreditation process he can try out anything that may be important for his work in future.

The student pool holds seminars for participants from all subject areas. The main teaching focus is on the fundamentals of the accreditation process – the content-related insights, however, come

from each student for his or her own area of study, since the reviewers are involved in processes within their respective specialization. “Most of those interested have already been actively involved in their university and at some point thought they could also participate in accreditation,” says Benedikt Waerder. In terms of his own university career he is typical of the student reviewers. He was first involved in the chemistry student association at his university and then, at a later point, in the national student association’s conference, which is where he heard about the opportunity to help influence the accreditation process. He was actively involved in this for a couple years; now he is a doctoral candidate and concentrates solely on in-depth seminar training for the next generation of accreditation experts. The participants come from all subject areas, so there is no shortage of new blood. Nonetheless, the student pool has to deal with fluctuations: it takes one or two semesters just to prepare for the first accreditation process, after which there is not much time left before the students complete their degrees. “We’re constantly busy training people to make sure the next generation of reviewers is ready,” says Benedikt Waerder.

Waerder can clearly remember his own accreditation debut. It was at a private university, and he had to evaluate a new chemistry course. “At the beginning my knees were shaking because I didn’t really know what to expect,” he says. Usually, an accreditation process lasts two days – in



Photo: Benedikt Waerder

addition to the presentation by the university management, the schedule also includes joint conferences amongst the students and subject specialists. In the intervals, the reviewers withdraw for discussion. "I've realized the importance of good preparation when going into these accreditation processes," says Benedikt Waerder. This makes it possible to identify the critical points beforehand – and thereby be well positioned for an informed discussion with partners. According to Waerder, he needs at least a long weekend ahead of every process to immerse himself in the documentation, which often fills a whole binder.

Over the years, he has developed into something of an accreditation specialist, and knows the process inside out. And there are certain aspects he pays particular attention to during the process: "For example, it's important to me that the students have room for choice in their curriculum," says Waerder. If a natural sciences student is also able to take science ethics, then he or she sees this as a major plus. And that is exactly the objective of student participation in accreditation processes: it is not merely something that looks good on paper – it is about gaining the specific perspective of the students. "For us, the students' reality is not an abstract concept, but an everyday experience," says Waerder. If, for instance, the issue at hand is workload, or the sequencing of content in the curriculum, he and his fellow students are able to give valuable feedback. And then he

smiles: in almost every accreditation process there a classic statement when it comes to the subject of workload: "Please," the professor will say, "there is absolutely no way we can manage a 40-hour week in our discipline!" This response can be heard across each and every department, from mechanical engineering through to English studies. Benedikt Waerder goes on: "Then it's our job to make it clear that, 'Yes, there are certain limits for this subject, as well!'"

The student seminar in Dortmund also deals with such practical issues. During the evening, when Waerder slips into the role of the university president with his Creative Cooking course, and his fellow students share out the reviewer posts amongst themselves, he tries out the statement for himself. He braces himself, and then chimes across the wood-panelled hall: "Forty hours is utterly unrealistic – especially for Creative Cooking, as you all very well know!" Some mistakes and stumbling blocks are also included in the realistic module handbooks distributed to the reviewers. For a couple hours, the prospective accreditation experts immerse themselves in the details and cross-examine Waerder, the "university president": the more critical the questions, the greater his satisfaction. If the students put him through his paces it ultimately shows that the seminar has been successful: "We want to show that the planned courses can sometimes be improved – and likewise how to identify the starting points from which to do it!"

ACCREDITATION – THE BACKGROUND

Since the shift to Bachelor's and Master's programmes, many degree courses at German universities have been accredited. Behind this term lies a process that ensures that planned curricula can actually function properly: Do the classes really disseminate the necessary specialized knowledge? Has the student workload been realistically calculated? Are the assessments sensibly distributed? These are the questions clarified during the course of an accreditation process. The reviewers scrutinising the plans include teachers from other universities, representatives from the field of professional practice – and students. They prepare for this task in special training seminars and then become part of the student pool. From there they are appointed as reviewers when a process takes place. Their role is to represent the student body and evaluate the prospective curriculum from the student perspective, and their voice carries just as much weight as that of the other reviewers. The work is done on a voluntary basis – although expenses are reimbursed.



The background of the page is a blurred photograph of a red book with several papers or documents resting on top of it. The papers have some text and a colorful striped pattern. The overall lighting is warm and focused on the book and papers.

SPOTLIGHT ON

UNIVERSITIES

Universities have been generating knowledge for centuries – and for just as long, this knowledge has been passed on from generation to generation. This has always been the case, and always will be.

What will change, however, are the conditions in which teaching takes place: the number of students is constantly growing and, thanks to modern technology, knowledge is becoming increasingly accessible. This presents universities with new challenges. They need to cultivate conditions in which good teaching can thrive and develop new incentives for motivating teachers – those that succeed in this stand to make profound gains. Good teaching has become a make-or-break issue for universities.



“Excellence in teaching and research”: Professor Dr Peter Gritzmann

NO RESEARCH WITHOUT TEACHING

Intermittent changes can quickly fizzle out, as is well known at the Technical University of Munich – therefore, the university is keen to have good teaching firmly rooted at all levels. An innovative appointment policy, specialized committees, and even a newly-founded faculty all help to achieve this goal

Rejections are not something one is accustomed to in Munich: on the whole, whenever the Technical University (TU) of Munich offers a professorship to someone, he or she usually accepts because the university has a well-established reputation as one of the top destinations in Europe for research. However, the TU Munich has now set clear guidelines: it will not appoint anybody who intends to focus purely on research while categorically rejecting any involvement in teaching. "We are explicitly committed to excellence in research and teaching, even if this means an appointment falls through," says Professor Dr Peter Gritzmann.

A trace of pride can be detected in Gritzmann's voice. The mathematician is Vice President for Studies and Teaching, and was at the forefront of the fight to implement the new appointment guidelines. Those who want to concentrate solely on research do not fit the profile of the TU Mu-

nich – this is the message he wants to get across. In the science and engineering in particular, it is common for many universities to attract world-renowned researchers by absolving them completely of teaching. "There is no place here for anyone who stipulates this as a condition," explains Gritzmann.

This strict appointment policy is part of a wide-ranging initiative for teaching – not in opposition to research, but rather as its logical development. Having proscribed poor teaching, the TU Munich is keen to establish a new value system, explains the Vice President, himself recipient of a Max-Planck award. Therefore, motivation systems for teachers are all broadly orientated. "If we appoint a Nobel Prize winner, their excellent research shines across the entire faculty. An outstanding teacher, however, benefits only those students who attend his or her classes," says Gritzmann. As such, the aim is to have a unified focus on teaching. This approach is reflected in

A COURSE IN FUNDAMENTALS

With its studium naturale, the TU Munich has created a classical general studies programme within the natural sciences. It is intended as a two-semester foundation certificate course available to students before commencement of their actual bachelor degree programme. The target group is prospective students who, in light of the sheer variety of natural science courses, would prefer an initial orientation period. Some participants come from a secondary school ("Gymnasium") specialising in the humanities or in music and are seeking a broader education prior to taking up their studies. The prerequisite for admission is a university entrance qualification with an average grade of 2.5 or higher. Participants in the studium naturale enjoy full student status and are, therefore, eligible to apply for BAföG (student financial assistance programme). The TU Munich regards its new course as a "broad, multi-disciplinary foundation course". All seminars have been specially conceptualized for the studium naturale, with the content spread across five modules: there are individual modules focusing on mathematics, physics, and the life sciences (chemistry and biology), as well as a preparatory module for interdisciplinary core competences. The fifth module offers the student the opportunity to participate in classes he or she has selected from among all the university's courses and thus, depending on his or her particular inclination, to try out a different subject, such as engineering. Students can even have their credits from the studium naturale counted towards their subsequent bachelor degree. Another of the university's objectives with this preparatory foundation course is to reduce student drop-out rates. In the medium term, the course will offer an expected 100 slots; the first cohort, for which there was no additional advertising, already had 25 participants. Currently, planning is underway to launch a similar programme for engineering.



Photo: Uli Benz

1



Photo: Uli Benz

2



Photo: Heidegott

3



Photo: Albert Schaefer

4

- 1 *Hands-on learning encouraged: practical exercises are included from the very first semester*
- 2 *In a basic lab course students learn to work in this new environment*
- 3 *Advanced mathematics in practice: tutorial for civil engineers*
- 4 *The sculpture by Fritz Koenig in the courtyard is a TU Munich landmark*

Innovative “Free Semester for Teaching”: six months for teachers to perfect new and sophisticated lessons

the university’s own Ernst-Otto-Fischer teaching prize. The award is aimed at post-docs, who are still at an early stage of their career. For them, receiving such an award is valuable for the development of their academic biography, and thus from the very outset they are attuned to the idea of good teaching. Furthermore, lack of comparability across the diverse approaches to good teaching means it is not an individual course but an outstanding innovative approach that is singled out for recognition. This demonstrates that, far from being the reserve of charismatic individuals, teaching presents an opportunity for every teacher to shine.

Teachers are able to devote considerable time to developing new ideas. The university has introduced a “Free Semester for Teaching”. Teachers can, on request, spend half a year away from teaching in order to have extra time to perfect new and sophisticated lessons. In the subsequent semester, teachers then put these concepts into practice, refine the details – and, finally, in a third phase, they compile their notes for publication as a book with which to inspire their colleagues’ teaching.

The university also gathers valuable ideas through the appointment process for professors. Applicants are asked what they would do with a hypothetical million euros, if the money were earmarked for teaching purposes. “Most are taken aback at first,” says Vice President Peter Gritzmann, “but once they’ve thought about it, they come up with great ideas which can add new impetus to our own considerations.” One result of this brainstorming is, for example, the mentor office hours for

electrical engineering. Anyone attending the core lecture who is encountering difficulties with mathematics can visit a dedicated office during designated hours and speak to someone able who can help solve the problem and review any unclear content. Such seemingly modest improvements can now be found throughout the university.

The drive to improve teaching has also found expression within the university’s structures. For instance, a recent introduction is the university’s own “teaching board”, a small committee in which a student, a research associate and three deans of studies sit alongside the vice president to discuss possible innovations. Gritzmann sees this group, which passes on its suggestions to the relevant departments for further development, as an incubator of ideas. If a new idea emerges from the rector’s office, it is referred to the newly created parliament for teaching, attended by students as well as all deans of studies. This assures that communication functions successfully across hierarchies and subject areas.

“In the Bavarian Higher Education Act, there is actually no provision for a teaching parliament or a board of teaching,” says Peter Gritzmann. “But we find that a useful structural change can first be implemented on a purely pragmatic level and then later be anchored in legislation.” The result is that, currently, the committees are limited to an advisory role and have no legal authority. Yet Vice President Gritzmann does not even consider this necessary. “By now everybody understands the significance of teaching. There’s nobody still left to convince!”

NEW PATHWAYS FOR PROSPECTIVE TEACHERS

The TU Munich has responded to increasing demands on mathematics and science teachers by founding a stand-alone faculty: all teacher training has been brought together under the roof of the School of Education. Instead of enrolling at individual faculties according to their future teaching subject, approximately 1,000 prospective teachers have found their academic home in this multidisciplinary faculty. “Educational science, educational psychology, and teaching methodology are all taught here,” explains Professor Dr Kristina Reiss, Vice Dean of the School of Education. The content is, as before, taught within the respective faculties – but responsibility for guidelines and directives lies with the new education faculty. This ensures the best possible integration of the entirely new curricula, which have been adapted to reflect the changing needs. An important aspect of this is close cooperation. Kristina Reiss, herself a mathematician, explains using an example from her own field: if a mathematics student attends a lecture, the professor uploads his or her board notes online. Reiss can then, in the same week, orientate her subject-related educational theory class to exactly fit this content – and in turn make her board notes available to her colleagues. And, it would seem, it has not taken long for the results to become apparent: “Recently, a student in his first semester actually said that he feels completely at home with mathematics,” marvels Kristina Reiss. “I’d never heard anything like it before in my career!”



Photo: Ralf Schuster (Multimedia-Zentrum, 2010)



Experimental teaching: students measure the strength of materials in what is known as a "shear" test

NEW OPPORTUNITIES THROUGH COOPERATION



A close collaboration has been established between BTU Cottbus and Lausitz University of Applied Sciences on two innovative courses for prospective civil engineers. The cooperative project will be launched this winter semester – and has already become an example of what can be achieved by overcoming the fear of contact

At Cottbus, they would never have believed they would one day develop a completely new educational model: for several years the state ministry had encouraged the Brandenburg University of Technology (BTU) Cottbus and the neighbouring university of applied sciences in Lausitz to engage in closer cooperation in their civil engineering programmes. However, the idea was not overly popular at the beginning. "But then we realized that this didn't only mean a lot of hard work for us; it was also a tremendous opportunity," says Professor Dr Werner Lorenz of BTU.

Today, whenever Lorenz meets with his colleague Professor Dr Claus König from Lausitz University of Applied Sciences, the mood is a positive one. The joint project unites the colleagues on a personal level, too, as the experienced teachers have quickly realized. It has also become evident that students benefit when universities combine their know-how. As such, the Cottbus cooperation has become something of a role model for ways in which universities and universities of applied sciences can tap into new potential when they overcome their fear of contact.

The Cottbus plan is an experiment in scarcity value: BTU continues to offer its Bachelor of Science, while the Lausitz University of Applied Sciences retains its Bachelor of Engineering. However, both degree programmes are so closely interrelated that some teaching components are offered jointly. "The specific emphases of a university and a university of applied science education are preserved," says Lausitz's Claus König. Future graduates of the BTU will continue to have strong skills in structural engineering; therefore, structural

Practical experience from the very first semester: prospective civil engineers study "their" building, from the supporting structure through to materials



THE DAVID GILLY INSTITUTE

The David Gilly Institute functions as a bridge between the Brandenburg University of Technology (BTU) and the Lausitz University of Applied Sciences. Here, teaching is centrally organized for the newly conceptualized programmes in order to optimize the synergy between the two universities. Such collective academic institutions are explicitly provided for in Brandenburg's Higher Education Act. The presidiums of both universities have charged the David Gilly Institute with responsibility for teaching the civil engineering degree programmes. The institute is named after the architect David Gilly (1748-1808), whose Huguenot family found refuge in Prussia. He was responsible for several spectacular buildings and was co-founder of the Berlin Bauakademie (Building Academy). "He represents the integration of theory and practice," explains Professor Werner Lorenz, "and this is the very principle that guides us here at Cottbus."

design and mathematical models still play a significant role in the course, as does research into construction materials. Meanwhile, graduates of the university of applied sciences retain their infrastructural speciality – they will continue to be the future experts in transport engineering, water management and construction. "But along the way, there are several basic principles that are of equal importance across both civil engineering programmes, and it is these that we will teach jointly," says Claus König. Roughly 30 per cent of classes will be taught jointly in the new model.

It is the students, however, who stand to benefit the most from the cooperation. They retain their individual specializations but also gain an exceptional level of flexibility. The two programmes interlock so closely that the universities have developed what is known as an X-model. Thus, even in the bachelor phase of study, it is still possible to transfer from the technical university to the university of applied sciences, and vice versa. "The foundation phase is distinct; then in the middle the content is brought together," explains Werner Lorenz, "and at this point anyone who realizes they might be suited to a different specialisation can switch without any problem." A few semesters before graduation, the course contents once again diverge, in order to preserve the distinct profile of each qualification.

The advantages of the Cottbus X-model are obvious: its initiators hope that the drop-out rate will rapidly decrease, thanks to the opportunity for students to switch programmes. "Up to now, many first-semester students haven't had a clear idea of the direction they want to take," says Claus König. In future, as soon as they do know, they will still have time to make a change. An additional advantage concerns the permeability of higher education. In the university of applied sciences programme, up to 70 per cent of students enrolled have practical experience as a journeyman or master craftsman in the construction sector. For them, transferring from the university of applied sciences to the university is far easier than in the traditional structure. The new concept is rounded off by a wide-ranging initiative for good teaching. The curriculum is designed as a consistent project-based programme through which students are able to directly acquire and further develop practical skills. BTU is already experienced in this approach and now the new programmes can build upon this accumulated knowledge. "As early as the second week of the course, we leave the lecture hall," says Werner Lorenz. BTU works closely with a local housing construction company,

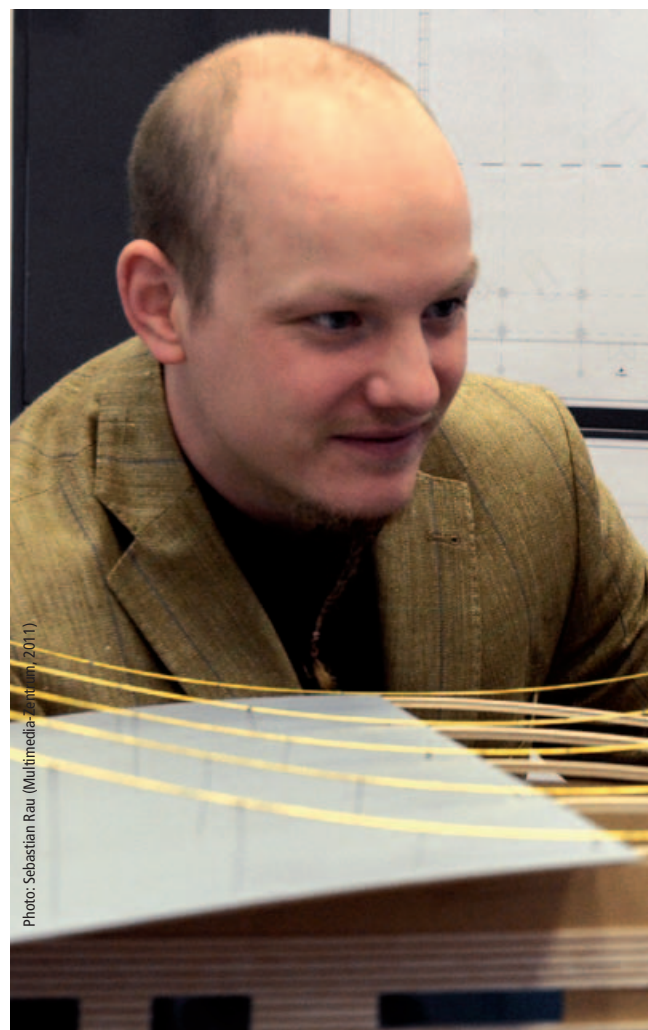
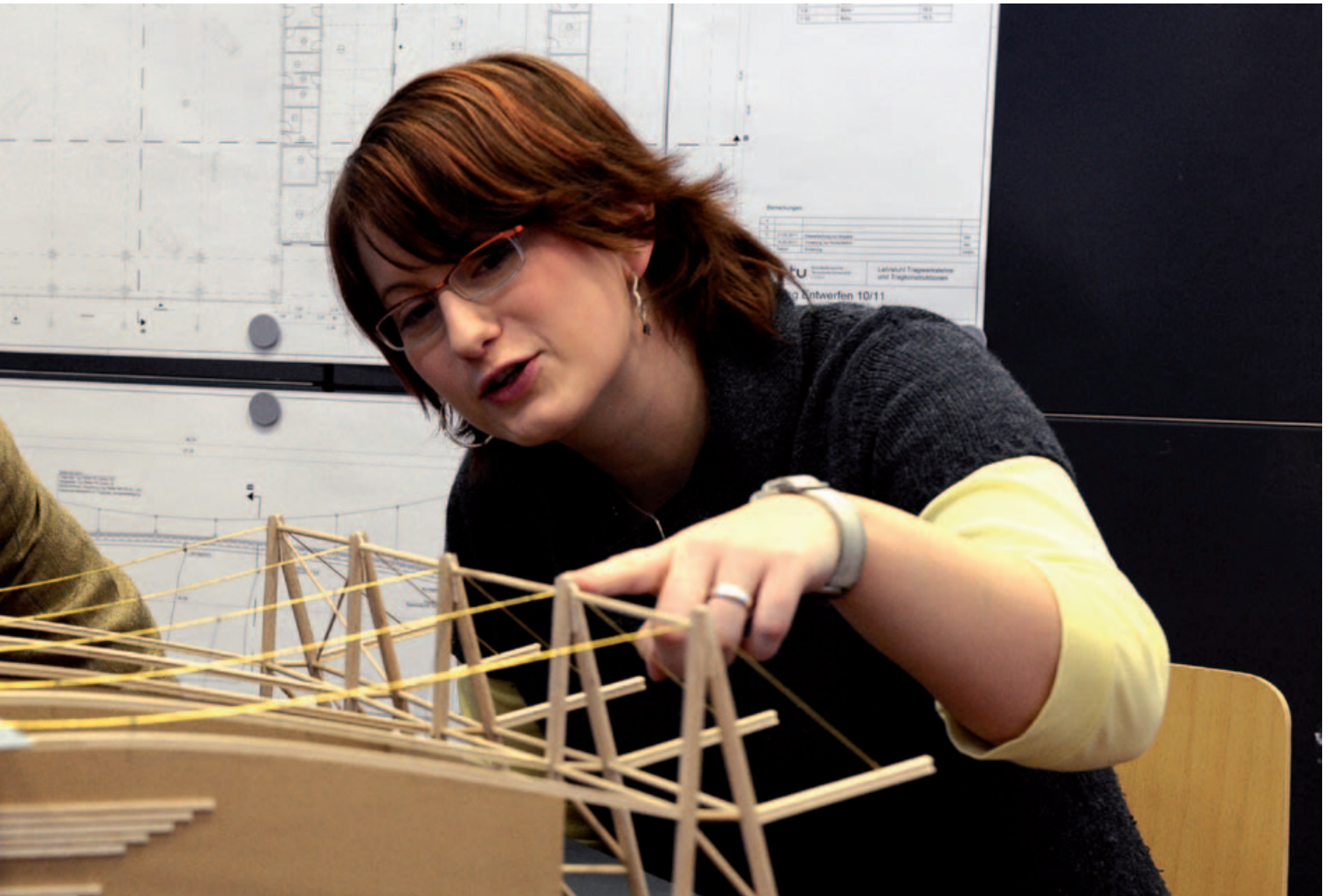


Photo: Sebastian Rau (Multimedia-Forum, 2011)

which opens up empty buildings for the prospective engineers. "For instance, we have a 50-year-old block of flats available for the students. For one semester it becomes 'their' building," explains Lorenz. First, they record the structure of the building; back in the classroom, they identify the supporting structure. This forms the basis for the subsequent course content, such as model building, graphic representation and the fundamentals of mechanics. Following this theoretical background, the students then return to the block of flats some weeks later, this time armed with endoscopes and reinforcement detectors. Thus, the theoretical and practical tools of civil engineering are learned step by step. In the third semester, for example, the students draft a supporting structure for a hall. This is then designed for the use of various materials. "In this way, in one task we combine knowledge from across four or five specialist fields," says Werner Lorenz. For their master's thesis, his students even travel regularly to the Hermitage in St Petersburg, where they carry out analysis within the framework of a DFG (German Research Foundation) research project. In Cottbus, everyone agrees that this level of intensity within project-based learning in civil engineering is one of a kind in Germany.



In terms of organization, the joint development of the programmes has demanded a degree of change. This is particularly evident in the assignment of professors: whereas before there would have been a professorship at each university for a subject such as solid construction, in future this area is to be entirely integrated at BTU. Conversely, subjects under the professorship of transport engineering are to be concentrated at Lausitz. In other fields, both professorships are to remain, though each with a more distinct and focused profile in terms of content. For example, foundation engineering will be taught with a practical focus at Lausitz, while the university will concentrate on specialist fields within this discipline, such as geotechnical engineering.

Lorenz and König make no bones about the fact that the spirit of optimism during the development of the joint programme was accompanied by some initial difficulties. "You mustn't forget that we are bringing together two academic cultures here," says Claus König, referring to the respective professors at the university and university of applied science. "At the beginning there were one or two issues concerning mindset." Some colleagues from the technical university initially feared that the cooper-

ation would amount to an overall decline in quality, while professors at the university of applied sciences feared that they would lose their own independent identity. After the first contact and extensive discussions, many of these concerns gave way to curiosity. What remains is above all a problem of organization: while the professors at the university of applied sciences have a teaching commitment of 18 hours per week, their colleagues at the university teach only eight hours – and this difference is difficult to accommodate in a joint programme. The professors' proposed compromise of 12 teaching hours for everyone has yet to be approved.

In the winter semester 2011/2012 the first students will be enrolled in the new programmes. There are 100 places available, and in Cottbus it is estimated that the innovative format will attract applications from across the whole of Germany. The outlook is promising: thanks to their commitment to good teaching, both universities recently achieved outstanding positions in the CHE (Centre for Higher Education) rankings. Claus König and Werner Lorenz are both sure that their efforts will be rewarded: "We have developed something that really is innovative here."

*Tomorrow's car showroom:
prospective civil engineers practise
model building*

Different foci, common goal: prospective civil engineers benefit from close cooperation



FLEXIBILITY AND FREEDOM THROUGH PROFESSIONALIZATION

As part of its approach to good teaching, the University of Hamburg grants its individual faculties a large amount of freedom – as intended by the Hamburg Higher Education Act. Commands “from above” are therefore few and far between. Instead, plenty of support is provided: through efficient administration, for example

It was clear to the legal scholars at the University of Hamburg that something would have to change. They had already realized this in 2006, when tuition fees were introduced. The objective and the political mandate – there, as in other federal states – was “improved teaching”. But what should actually be improved? “Suddenly, there were so many ideas flying around the faculty, that we said to ourselves, ‘we have to put this to use’,” says Maija Siepelmeyer of the Law Faculty’s Study Management team.

What emerged from this early momentum in Hamburg is unique in Germany. They founded a “teaching think tank”, into which all the possible approaches and suggestions could flow. “Every two to three weeks we get together and discuss ideas,” says Siepelmeyer. She herself is the coordinator of the think tank, and prepares the meetings and moderates the discussions. “This is to keep the workload for others involved to a minimum,” she says. For alongside her at the table are representatives of all stakeholder groups across the faculty – busy professors as well as students and administrative staff. The objective of the nine-strong group is clearly defined: it should serve as a sounding board for ideas about good teaching and should examine in detail any particularly promising suggestions. The





A seedbed for good ideas: the Law Faculty's teaching think tank has institutionalized the concept of good teaching



Easy access: the CampusCenter at the University of Hamburg provides a central point of contact for students



Photos 64-65: UHH/Schell

Freedom as a guiding principle: the presidium offers support and concrete suggestions. Each faculty decides which ideas to implement, allowing room for different disciplinary cultures

end result is a series of guidelines for good teaching initiatives that take into account the perspectives of students and teachers on an equal basis. "We can't actually make decisions ourselves," says Siepelmeyer, "we're merely an advisory committee for the dean."

However, feedback from the think tank is welcome, and a good number of ideas have been implemented. As such, the Law Faculty has expanded its examination courses to compete with commercial revision courses and to simultaneously integrate legal practice with academia. There is also something known as a dovetailing project, which serves to better align the main lectures with the accompanying working groups. The theoretical content taught in lectures and the legal case studies handled in working groups is intended to build upon each other – a concept that had previously proved difficult due to the sheer size of the Law Faculty.

"We have quite a few good initiatives here at the university," says Professor Dr Holger Fischer. "It's a real pleasure to see it!" Fischer is Vice President for Studies and Teaching, and his office is located in the main building, not far from the Dammtor railway station. His window overlooks the campus, and stretching out beyond the university buildings are the stucco facades of a Hanseatic-bourgeois resi-

dential district. Fischer, himself a Finno-Ugric specialist, is one of the people spearheading the reform of studies and teaching at the university. His position is not an easy one: the Hamburg Higher Education Act is relatively strict, and deliberately restricts the influence of the university presidium over the individual faculties. Hence, for organizational reasons, the lack of scope for action precludes a general and binding common plan for teaching. "We only have a say concerning our own responsibilities," he says. Then there is the ambitious goal to be achieved within the next few years: 70 per cent of new students to complete their degree programmes successfully, a quota which is to apply across all faculties. Currently, it is around 60 per cent. Vice President Fischer calculates that good teaching can significantly improve student success rates.

He believes that primarily organizational improvements are the key to achieving this. "We have also positioned ourselves better in terms of personnel," says Fischer. He has transformed the previous law office into a centre for intensive quality management, which advises on the development and accreditation of new programmes of study. He has also formed an expert group for course evaluation. "We want a meaningful evaluation, rather than one consisting of a questionnaire distributed in every seminar once a semester," he says. For him,



A DEGREE PROGRAMME IN GOOD TEACHING

With its Master's of Higher Education, the University of Hamburg is the first in Germany to offer a degree programme specializing in higher education didactics. It is designed as a supplementary qualification for academics; the programme focuses on professionalising teaching at universities and institutes of further education. It also focuses on learning, including the use of digital media. It is primarily members of the non-professional teaching staff who have enrolled in the supplementary Master's degree programme in preparation for their teaching duties. The programme is already bearing fruit: many recipients of the university's teaching award are alumni of the Master's of Higher Education programme.

the issue is less about determining whether or not each and every single graph used in a lecture is brilliant, and more about the meaningful development of programmes. How do the various classes within the modules – and the modules themselves – relate to each other? What are the interconnections and what choices are available? These are questions he wants to evaluate from a central perspective; the configuration of the details should be a matter for the faculties. Furthermore, this clear division of competences is closely aligned to the Hamburg Higher Education Act.

Autonomy amongst the faculties is matched by the organizational support provided by the university's presidium. Underpinning this strategy is the far-reaching professional transformation of the university: teachers should have more time for their primary tasks and, as far as possible, be freed from administrative obligations. Therefore, in each faculty there is now a Dean of Studies with a full-time staff; the offices for academic affairs, academic organizational planning, examination administration and student advisory services are all located here, thereby relieving the teachers. Christoph Heumann sits in one of the offices that came into being as part of the quest for good teaching. The windows are floor length, and outside the traffic streams past on one of Hamburg's through roads. This is the

newly created Department for Studies and Teaching, where Heumann works. "It's part of university culture that we don't come along with quantitative targets – instead, everybody keeps their freedom," he says. "If we forced people into doing something, we'd simply be creating false facades to fulfil official targets."

The aim of the department is to make a whole package available, from support in accreditation through to the evaluation of classes. "Whether to take advantage of these services or not is a decision for the individual faculty." With its voluntary approach, the University of Hamburg has clearly touched on a sensitive matter. Teaching can be improved through organizational simplification, a professionalized administration and the stimulation of creativity within the faculties – Holger Fischer is convinced that this eliminates the alleged contradiction between academic freedom and the development of the university's profile. Researchers can continue to pursue their own areas of interest and yet, when it comes to good teaching, everyone at the university is still working together towards the same goal. Sometimes, even Fischer himself is amazed at the progress that has been made across the university since his appointment in 2003: "Back then, such a transformation was something that I could never have imagined for the life of me!"



From basic to senior-level training: the HDZ tailors its courses to meet the exact needs of each target group



Photos 66-67: HDZ Baden-Württemberg

NETWORKED UNIVERSITIES

Baden-Württemberg is taking an unprecedented path in university-level educational development. All the universities in the state have joined forces – offering a tremendous variety of seminars, the likes of which would be unthinkable for an individual university

A NETWORK IN THE AGE OF PROFILE BUILDING

In Baden-Württemberg they have already asked themselves the fundamental question: what is the significance of an inter-university network when each of the universities is attempting to raise its own – distinct – profile? Are common institutions such as the HDZ anachronistic or even counterproductive? “Cooperation doesn’t get any easier if everyone involved is focused on heightened competition,” admits Regine Richter of the HDZ.

Continued on page 67 ▶

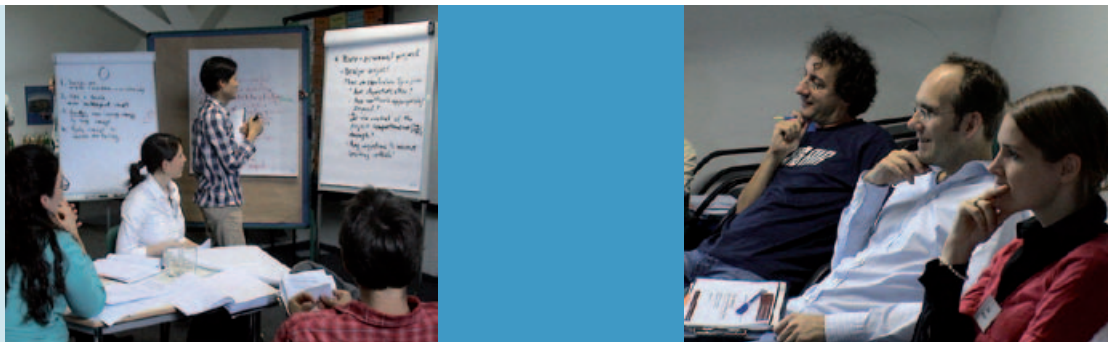
The network stretches across the federal state of Baden-Württemberg, and is a tightly knit one: the Hochschuldidaktik-Zentrum (HDZ – Centre for Educational Development) has an office at each of the universities in the state, and experienced staff offer support to teachers from Konstanz to Mannheim. While the universities of applied sciences in many states have already discovered the value of joining forces, the HDZ is the only network of which all universities across the state are members.

Even more remarkable is the history of the HDZ: when it was founded in 2001, the issue of good teaching had yet to play a decisive role in higher education policy debates. The HDZ, jointly initiated by the Baden-Württemberg Ministry of Science and the state’s universities, has since filled that gap. The objective was to reduce dropout rates and, above all, provide better support to students who were taking longer than average to complete their studies. “The question was why they needed so much time at university,” recalls Regine Richter, a univer-

sity teacher in Tübingen and spokesperson for the HDZ. “And it wasn’t a case of putting all the blame on the students; rather, it meant asking, entirely self-critically, what could be done to improve conditions.”

The approach introduced at that time retains many of its original features to this day. At each university there is at least one part-time position for an educational development specialist; the experts – currently an all-female team – cooperate closely. Together, they put in place a continuing education programme; the seminars take place at all the participating universities and are open to all university teachers in the state. And, as a kind of “crowning achievement”, teachers can earn what is known as the Baden-Württemberg Certificate – through a combination of workshops, practice consultations and lesson observations, they develop into experts in good teaching.

The courses offered by the HDZ are deliberately designed to include flexibility: all academic fields are



addressed, from engineering to arts, and from social sciences through to medicine. "Ultimately, there are certain topics which are relevant for all disciplines," says Regine Richter.

Despite the organizational continuity, the thematic focal points of the HDZ have changed over the years. They can be adapted to meet the most pressing challenges at each respective university. "We notice the pressure on many teachers to take action," says Richter. Demands are constantly growing regarding time management and professional presentation of content, as well as concerning exams. For the HDZ, this translates into high participation rates in workshops that address these issues.

One hot topic for the educational development specialists is the integration of teachers from all levels of the academic hierarchy. The aspiration of the centre is to reach out to the new research associate before his or her first seminar, as well as to the established professor with decades of professional experience. This is not without its problems, as practice has shown in Baden-Württemberg: often, professors simply do not have the time to participate in a two-day seminar, and they are not always enthusiastic about certain forms of group work. "On top of that," Regine Richter has observed, "many professors simply don't want to sit in the same course as their own assistants."

In order to ensure that professors are nevertheless integrated, the HDZ has launched a project called "Senior Level". The corresponding course is specially tailored to professors' needs: the scheduling is different, the groups are smaller and the lecturers have sufficient teaching experience so that interaction can take place on an equal footing. "This significantly reduces fear of contact," says the HDZ. And, of course, the topics covered are aligned to the particular demands of professors. Thus, in addition

to subjects such as sustainable teaching, consideration is also given to lectures, the structure of oral exams and quality improvement in teaching.

Meanwhile, educational development seminars support the next generation of teachers from the very beginning of their careers. Some universities are considering whether to make educational development training a prerequisite for "Habilitation" (the post-doctoral qualification needed to become a university professor); this is already the case in some places. The HDZ seminars are, therefore, becoming an important factor in career success.

Prospective professors who take advantage of the full spectrum of courses and intend to complete the Baden-Württemberg Certificate are familiarized with diverse modern teaching methodologies as they progress. Candidates must complete 200 course units, each lasting 45 minutes. The content is organized into three sections, from the fundamentals of teaching through to setting individual priorities. Topics include, for instance, methods for efficient seminar preparation, the meaningful evaluation of courses, and valuable tips when advising or examining students. To complete this continuing education cycle, participants develop and hold an experimental class within their own discipline – and receive comprehensive feedback from experienced educational development specialists. In this special teacher training programme, participants can even gain experience in developing their own curricula.

"Anyone who has completed this programme," says Regine Richter of the HDZ, "is well prepared for a career in scientific teaching and can therefore spare themselves the many painful experiences of the trial and error approach they would otherwise have had to endure." Moreover, the students who attend the seminars led by these specially trained teachers will be able to reap major benefits down the road. ■

▷ *Continued from page 66*

In Baden-Württemberg, however, they have found a way of maintaining a balance between common interest and independence. The interdisciplinary educational development workshops take advantage of the network's mutually beneficial effects. Furthermore, the established Baden-Württemberg Certificate for experienced teachers is retained as a mandatory, interdisciplinary, and recognized benchmark. However, in terms of organization, the universities are able to maintain some autonomy: the educational development specialists – currently all women – who are integrated into various structures depending on the university, devote their time not only to the network, but also to projects within the individual universities. If members of a faculty decide on a form of continuing education, they can approach "their" educational development specialist exclusively. And if, for instance, a university wants to provide targeted individual coaching for its teachers, then it can also work together with its in-house expert, without having to call upon the network.

In addition, the HDZ is able to assist with profile building. This has increased the significance of workshops offered for the development of teaching portfolios. In these workshops, participants learn to identify and present their main areas of research more effectively. The teachers are often motivated by a clear rationale: with a more defined teaching focus they are able to enhance their own profiles – and thereby the profile of their university.



Students first: Charité supports patient contact from the very start

BEDSIDE MANNERS FROM THE BEGINNING

In its new model degree programme, the Charité in Berlin has combined decades of experience with innovative teaching. Special emphasis is being given to a new content structure and the interconnection of the clinical and preclinical phases

If Markus were to look out of the window, he would see all of Berlin stretched out before him. The Chancellery glistens in the midday sun; the Reichstag, Gendarmenmarkt – from the 18th floor they all seem so close. But Markus's view is focussed elsewhere: "Open your mouth wide, please," he says, and shines the light from his small torch into the patient's throat, here in a ward high above the rooftops of Berlin. Over his jeans he wears a white coat, a name badge fastened to the lapel: "Markus, Medical Student, 1st semester".

This is daily routine in the Berlin Charité: here, in the imposing tower block of the University Hospital, future doctors are gaining their first experiences dealing with real patients. Up until just a few years ago, they would have had to wait until at least the fifth semester before coming into contact with real-life hospital scenarios. The model degree programme has changed all that: the concept includes not only a complete restructuring of the entire curriculum, but also bedside learning starting from the second week of the course.

In the beginning nothing too complicated is expected of the students. This week, for example, the focus is on examinations of the head and neck area. "First

of all, we carry out a visual check," Dr Jens Gaedeke explains to his group of eight students. "Is there any swelling? Is the face symmetrical? Are there any abnormalities in the eyes or while swallowing?" He gives his audience a whole catalogue of questions, which they will internalize during the course of their studies. Following Gaedeke's introduction, the students put on their white coats and try their hands at carrying out the examination: one of them assumes the role of the patient while the others examine him, looking into the eyes and mouth and feeling for the lymph nodes. Only after this stage has been completed do they come into contact with a real patient: a young man, already on his way to recovery, has agreed to volunteer for the students. The prospective physicians gather around his bed on the 18th floor of the Charité tower block. "You did that very well," says Dr Jens Gaedeke after the exercise.

By now he has come to terms with the fact that today's students are considerably younger than those who came to him on the ward in the past. Another feature of the approach is the small group size: the students are divided into several small groups to work at various locations of the Charité in order to learn directly from medical practice.

NEW MODELS BUILT ON STANDARDS AND REFORMS

The Charité is no stranger to innovative curricula: it had already reformed its initial standard programme of study in 1999, thereby taking on the role of pioneer amongst medicine faculties in Germany. In the reformed programme, the established course of study was interspersed with what were called cross-section modules. In these modules, students were encouraged to think on a larger scale; the integration of theory and practice also played an important role. However, the reformed programme had capacity for only a few dozen applicants per year, so most students completed the regular programme of study. This has changed with the newly introduced model programme. "It combines the strengths of both the regular and the reformed studies," says Professor Dr Manfred Gross, the dean of student affairs. Furthermore, it is in the process of replacing the previous course of studies; new students enrolling in Berlin will automatically follow the model curriculum. In Berlin they see their new degree programme as a platform that can easily accommodate further reforms as required by medical advances or social demands.



Testing the diagnosis: students apply their newly-acquired knowledge from the very start

Motivation through real-world practice: “Finally, you see the reason why you’re putting yourself through the pain of studying medicine!”



Sitting in his office at the other end of the sprawling Charité campus in Berlin-Mitte is the dean of student affairs, Professor Dr Manfred Gross. He, along with his colleagues, initiated the model programme and he observes with pride the first steps taken by his future medical colleagues: “When I was studying medicine, students would cram anatomy, chemistry, biochemistry and physics for years without any recognizable practical relevance,” he recalls. “The whole time I asked myself, ‘When do we actually start with medical training?’” For him and his generation, the time spent at university meant an unparalleled exercise in hard work: for years, they had to learn material by heart and had no contact with patients whatsoever – even contact with the professors was an exception. This is what Gross and his colleagues at the Charité wanted to change. “The new programme has resulted in greater student satisfaction, and for us teachers there is no greater motivation than eager students,” says Professor Gross.

Professor Dr Harm Peters prefers to use a diagram to show the most significant changes in the model

programme. He is a member of the planning team that worked on the new curriculum. “Look at this,” he says and holds up a sheet of paper listing all the semesters in the degree programme. For the fourth semester there is a picture of a kidney, Peters’ own specialization. “The students learn everything to do with the kidney in this semester. The focus isn’t limited to nephrology, it also takes account of other disciplines in which the kidneys play a role.” He then pulls out a second sheet – this shows several small sections of a kidney, which are distributed across the entire curriculum, from the first semester to the ninth. “This is how it looked before: in each semester, the kidneys were mentioned in completely different contexts and the students were expected to piece together the picture for themselves,” says Peters. This example is characteristic of the new programme as a whole: the focus is on large elements, which are then taught using an interdisciplinary approach.

Within a subject area such as “Nutrition, Digestion and Metabolism” the students spend one week learning the physiological and pathophysiological



Photo: Freie Universität Berlin / Melanie Hansen

cal relationships involved in the control of gastric fluids, and in physical reflexes such as belching, as well. They also learn how a patient with stomach ulcers or heartburn can be treated. "By the end of the week, the students have acquired certain medical skills," says Harm Peters. Thus, little by little, they compose the complete picture of medical science.

At a higher level, the course content itself has not changed as a result of the new approach to conveying knowledge. "It's not about having fun all the time," says student Agata Mossakowski. "But, finally, you see the reason why you're putting yourself through the pain of studying medicine!" Mossakowski is in her ninth semester and is part of the commission that designed the model programme. She is fully satisfied with the results so far: "Students don't just memorize their biochemistry book from cover to cover any more; instead they also see the clinical relevance," she says. The concept also means that students are just as involved as the professors in the development of the new curriculum. In order to avoid badly designed courses, the Charité attaches great importance to students'

ideas. The professors would often view the curriculum from the perspective of their own specialization, and it took the students' point of view to dislodge their often-rigid positions. "When we're all sitting at the table, we don't even notice who's a student, who's a research associate and who's a professor. The hierarchy doesn't play a role at all," declare Mossakowski and Gross in unison. Professor Gross adds that this informality also owes something to the way of life in Berlin: "Here things are often a bit less complicated," he smiles.

For the Charité, the model programme represents a logistical challenge. Providing support is clearly more demanding if medical training no longer takes place in large lecture halls but instead, like Dr Jens Gaedeke's students on the 18th floor of the tower block, out and about in small groups across the hospital. Designing the curriculum was also an organizational marathon and required several semesters of planning. However, the dean of student affairs, Manfred Gross, is convinced the outcome will be worthwhile: good teaching ultimately produces good and motivated doctors. ■

THINK TANK FOR THE FUTURE OF MEDICINE

In its education centre, the Berlin Charité pools teaching activities and also furthers their interdisciplinary development. The facility is called the Dieter Scheffner Center, after the late dean of the Medical Faculty, who created the reformed programme of study in 1999. The central theme of the centre, the first of its kind in Germany, is professionalized medical training at a world-class level. Several fields of activity designed to support teaching are brought together under one roof, from assessment and evaluation through to the skills in e-learning. The multi-professional team supports teachers and develops instruments for quality improvement. Other institutions can take advantage of the Dieter Scheffner Center, conceived for the sharing of collective knowledge and expertise.



FIGHTING A FEAR OF MATHS

In a new centre, academics are researching innovative ideas for improved mathematics teaching at universities. Ensuring an early sense of achievement and preventing frustration from setting in are some of their stated objectives



Professors Reinhard Hochmuth and Rolf Biehler (from left) direct the competence centre; on the right is Professor Alexander Roßnagel, Vice President of the University of Kassel

Actually", says Professor Dr Reinhard Hochmuth, "in mathematics we rather like unsolved problems." He smiles briefly, then becomes serious: "But that doesn't apply to the problem we've been carrying around for years – namely mathematics teaching." Hochmuth currently works at the University of Kassel, and from the very beginning of his academic career the way mathematics is taught has been a thorn in his side. "If students are enrolled in a different programme but are also required to take some maths lectures or seminars, they often recoil in horror at our subject," he observes.

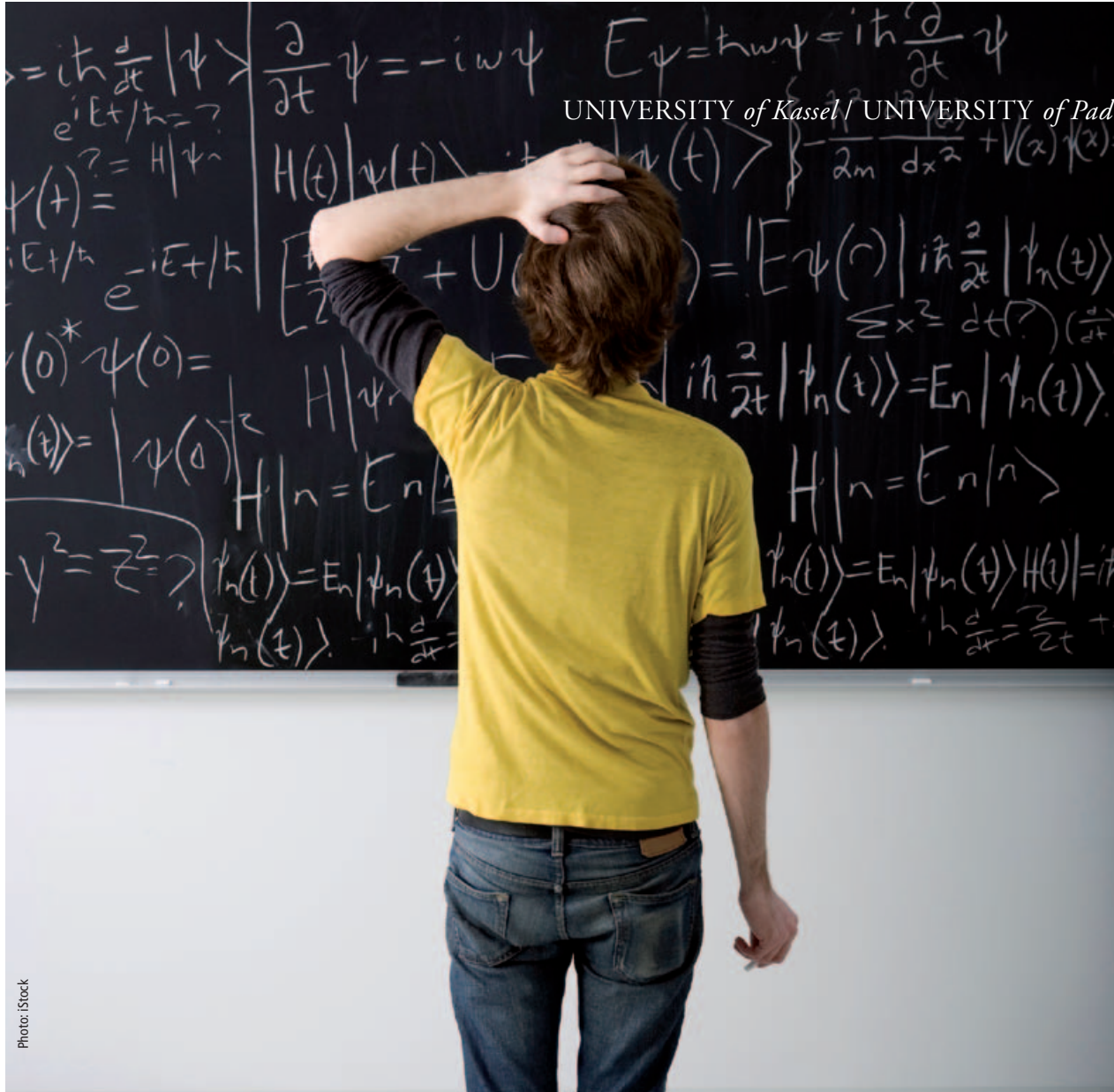
Reinhard Hochmuth has found his personal mission: he wants to improve mathematics teaching at German universities. This is the long-term objective of the competence centre "University Teaching of Mathematics" (KHDM), which has been established as a joint facility of the universities of Kassel and Paderborn. The KHDM sees itself as a think tank whose output is intended to benefit mathematics teaching at all universities. In terms of content, the focus is on teaching methodology within mathematics as a subject, as well as those aspects of mathematics that are required components for other degree programmes. Spearheading the efforts alongside Hochmuth is educational development specialist Professor Dr Rolf Biehler; together, they are responsible for directing the institute. Funding for the project comes chiefly from the Volkswagen Foundation and the Stiftung Mercator, with investment amounting to more than a million euros over a three-year period.

The problems have been well-known for some time: the recently created centre is now charged with the systematic identification of new solutions. "Let's take psychology as an example," says Reinhard Hochmuth. "The statistics course built into the cur-

riculum often presents students with the biggest hurdle in the whole programme." Students want to focus on something entirely different, but mathematics is an important prerequisite – and many fail their examinations or even give up university due to their fear of mathematics. Other subject areas face similar problems: economics, for example, engineering and, quite often, studies preparing for a teaching profession. "The key question here is whether society can afford for so many to discontinue their studies because of mathematics," says Reinhard Hochmuth.

In the competence centre he and his colleagues are keen to turn this situation around. The aims are indeed ambitious: they seek to build an "institutional crystallization point" for a "newly developed academic domain", according to the project description. Through this approach, the participants from Kassel and Paderborn aim to bridge the gap in academic development. Mathematics teaching methodologies have developed well over the past three decades, says Professor Hochmuth. However, the primary focus has been on teaching the subject in primary and secondary schools. Educational development of mathematics in universities, on the other hand, needs to make up considerable ground. Most notably in Great Britain and the USA, research has progressed significantly further. The KHDM is therefore striving for international cooperation so it can build on the work being done abroad.

One of the central project aims is to discover appropriate learning strategies and practical methods for university-level mathematics education that help students overcome fear of the subject. "Many students have no idea how they should tackle the tasks and worksheets they're given at university," says Reinhard Hochmuth: "Based on their experience of



lessons in grade school, they're often unable to imagine that mathematics can require them to spend four hours immersed in a single question." The 15 researchers currently involved in the KHDM hope to combat this situation with strategies for improved mathematics education.

The project is to begin with a thorough analysis of the current situation. However, the researchers lament the ongoing lack of reliable information. Therefore, the first task is to examine the students' background competence: what is the extent of their mathematical knowledge, which learning strategies do they bring with them, what reservations do they have about mathematics, and why have they chosen to study their respective subject? These questions also help paint a picture of societal change: the students come to the university with a variety of formal admission prerequisites, whether Abitur (high school diploma) or Fachabitur (technical school diploma) or as a graduate of another discipline. The varying levels of prior knowledge clearly present serious challenges for the teaching of mathematical content.

Based on the insight gained from this data, the

academics at the KHDM want to develop concrete teaching intervention strategies and ultimately build up a service facility so that the teaching methods they develop, such as introductory courses and e-learning modules, can then be utilized at all universities. Participants in a remedial bridging course can address gaps in their knowledge before the semester has even begun and, ideally, can thus overcome their fear of mathematics. Carefully prepared computer-based teaching units can also help students later on in their studies, so they are not held back by a weakness in mathematics. "One idea is to create individual learning opportunities through targeted use of e-learning," explains Professor Hochmuth, who will soon take up a professorship at Leuphana University of Lüneburg. With interactive visualization and diagnostic self-testing, these electronic supplementary seminars can become important foundations for improved mathematics teaching. The KHDM researchers place particular importance on the initial phase of study. "Those who gain a sense of achievement at this stage will most likely stay committed later on," says Reinhard Hochmuth. If he manages to succeed, the avid mathematician will have achieved his goal. ■

Keeping a cool head in a jumble of numbers: experts from Kassel and Paderborn are developing new mathematics teaching approaches



Campus of the Cologne University of Applied Sciences: where diversity is an advantage



**THE INNOVATION
FACTORY ON THE RHINE**



Photos 75-77: Fachhochschule Köln / Thilo Schmüngen

An unwieldy beast? Far from it. The Cologne University of Applied Sciences, the largest in Germany, is taking a new approach to teaching. Step by step, it is responding to the learning habits of its students – a mammoth project in terms of organization alone

Describing what her typical student looks like is something Professor Dr Sylvia Heuchemer finds almost impossible. “When I began teaching, some of the people sitting in the lecture hall were older than I was,” she says. That was a few years ago. In the meantime, the 40-year-old economist has become Vice President for Teaching and Studies at Cologne University of Applied Sciences. She still carries with her those initial experiences from her first lectures and is currently spearheading the Educational Diversity project, designed to help the university respond to the diverse educational backgrounds of its students.

What at first glance appears to be a minor reform of teaching is in fact a mammoth undertaking: with 17,000 students, the Cologne institution is the largest university of applied sciences in Germany, which makes such a process infinitely more complicated than at smaller, more flexible universities. However, behind it all is a fundamental reorientation of teaching. “We have so many different students that it is impossible to stick to just one teaching method,” explains Sylvia Heuchemer. “Instead, we have to accommodate as many diverse learning habits and approaches as possible.” The 18-year-old secondary school graduate has a different way of learning from that of a 34-year-old lateral entrant who has already completed an apprenticeship and built up several years’ professional experience. Similarly, the son of a German family of

Consistent strategy: the new methodology is first tested and refined before going on to benefit the entire university



Seminar at the Cologne University of Applied Sciences: the right teaching method for each student

lawyers brings with him a different level of previous knowledge to that of someone with an immigrant background who is the first in her family to enter higher education. The university aims to respond to this with its "Educational Diversity" project.

How deeply the concept will cut across university traditions can already be seen in the presidium at Cologne. In the administration building, two floors below Vice President Heuchemer, a working group is busy with the fine-tuning of the project. Leading the Educational Diversity project is Dr Birgit Szczyrba. "At the beginning, we carried out a study in which we examined the concrete educational differences in our university," explains Szczyrba. At least 100 interviews with students were included in the research – each of the open conversations lasted up to an hour. Students from all disciplines and backgrounds contributed information about their academic experiences. They were interviewed not by external experts, but by specially trained fellow students. "They can approach the participants on an equal footing, so the exchange of information is more open," says Szczyrba. If the questions were asked by established experts, many participants would most probably be inclined to report positive experiences – but the main issue is precisely those aspects which don't function so well. In addition to the students, professors, and tutors also had the opportunity to participate in the study. According to Szczyrba, "such an exten-

sive qualitative and intra-institutional investigation is the first of its kind."

The goal is personalized learning. Based on the results, tried-and-tested models are refined, and new teaching approaches are formulated. This knowledge is then accessible to all of the university's professors via a central Good Practice hub. "Each teacher must process the material differently. One is inspired by a film, another feels more comfortable with a multiple-choice process and another needs a practical example," says Vice President Sylvia Heuchemer. The considerable additional burden on professors has been calculated into the project: each teacher can request additional resources in order to appoint new assistants. Therefore, the additional workload remains manageable. Furthermore, the Educational Diversity project is being implemented cautiously: the changes are being initially limited to courses in the first two semesters. The professors receive close support from tutors and educational experts – if the methods from this initial implementation phase work well and initial successes are confirmed, then the scope of the project can be expanded. The advantage is clear: the teachers are familiarized step by step with a new teaching method and can see the success for themselves. Further, by concentrating on the elementary courses, it is possible to prevent students from accumulating early deficits that gather and remain with them for the rest of their time at university.

As far as the course standards are concerned, however, there is no change. At any rate, there will be no covert drop in academic standards, contrary to the fears of some critics: "We definitely want to maintain our standards, there's absolutely no question about that," says Sylvia Heuchemer. "But this is also precisely why we need to change things; we wouldn't be able to maintain our standards if we carried on as before." Ultimately, the problem is not a lack of perceptive ability amongst students; rather it is simply a mismatch between the courses and students' approach to acquisition of the material. Consequently, the vice president is canvassing for a change of perspective amongst her professorial colleagues. "We have all had the experience that feedback comes – if at all – only from the best students," she says. There is, therefore, often little understanding of the difficulties encountered by the other students. Further: "Most professors, during their own time as students, were amongst the highest achievers. Perhaps they lack an awareness of the problems today's 'weak' students encounter and how they can be addressed – how would they know?"

Nonetheless, there is considerable will to change: many professors have found out the hard way that some of their students will slip behind in class. It is for this reason too that Educational Diversity enjoys such wide support; the deans of all eleven faculties have unanimously spoken in favour of the project and the university management is also on board alongside representatives of the student bodies. Still, the venture presents a massive task in terms of organization. The Cologne University of Applied Sciences is committed to cooperative management structures in which every faculty participates. The basis is a university-wide development plan that outlines clear targets and a binding schedule and, in turn, provides the orientation for the respective faculty's own development plan. In order to avoid any pitfalls, the university management works closely with the deans. Thus, the faculties can be better supported where needed.

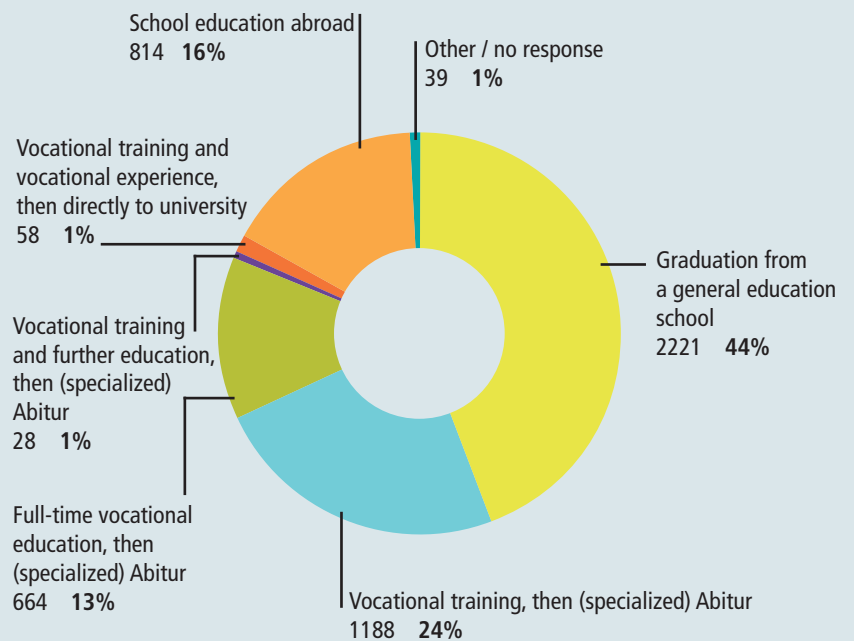
"Nonetheless, there will still be some teachers, especially at the beginning, who aren't fully on board," says Professor Heuchemer: "But we're counting on a critical mass of active supporters." After the first evaluation, once word of the project's success has spread, then there will be even greater acceptance. In particular, newly-appointed professors are enthusiastically committed to diversity – in the past year alone the university has appointed 30 new professors, all convinced by this new approach to teaching.

PRAISE FOR THE DIVERSITY STRATEGY

With its Educational Diversity project, the Cologne University of Applied Sciences has joined the front-runners in higher education. The concept, which includes planning everything down to the most detailed level, has also convinced the Stifterverband (German association for the development of science foundations) – it has honoured the university for teaching within the framework of the Initiative for Excellence and awarded just under a million € for the implementation of the ideas. This enables the appointment of educational experts and other academics to advise and support the professors in the implementation of their teaching. Cologne's aspiration has also met with approval at the Bertelsmann Foundation's Centrum für Hochschulentwicklung (Centre for Higher Education Development, or CHE): the Cologne University of Applied Sciences is also an associate partner of the large-scale project "Diversity as Opportunity".

STUDENT ROUTES TO UNIVERSITY

Cologne University of Applied Sciences, winter semester 2010/2011



It has become the norm at almost all universities that new enrolments are characterized by increasingly diverse educational backgrounds. A glance at the students entering the Cologne University of Applied Sciences in the winter semester 2010/2011 makes clear the need to differentiate teaching methods. However, the Cologne approach focuses less on the formal admission entitlement of its students and far more on the various learning principles and practices.



Photos 78-81: Guido Weimer



MUSIC AND CAREER IN PERFECT HARMONY

Individual instruction and preparation for an orchestral career are a must for budding musicians. But today they also need to be equipped for professional life outside the concert hall. The Liszt School of Music in Weimar strikes this balance with its commitment to multilateral teaching



Up there, beneath the roof, is a chamber in which Beethoven is still very much alive. “The Kreutzer Sonata”, whispers Professor Dr Friedemann Eichhorn from his well-worn chair. He glances at his student, who is positioned behind the music stand with his violin. The sonata’s triplets ring through the room, crystal clear and blissfully light. With each bar, Eichhorn relaxes; he is satisfied with his student, who has a major performance coming up.

His office under the eaves is a refuge, soundproofed by double doors and, above all, far removed from the conditions associated with a major university. “In terms of teacher-student ratio, hardly anything has changed for centuries,” says Eichhorn, himself an acclaimed violinist with an international reputation. It is not out of the ordinary for a student to rehearse with two professors in this couple of square metres located above the roofs of Weimar – in fact, it is the norm. One professor accompanies on piano, while the student plays violin and, under Eichhorn’s guidance, works on the subtleties of the great work. This close supervision still forms the core of training at a music school, and can never be replaced by e-learning or sophisticated presentations in the lecture hall. “With my

students, a lack of motivation is something I rarely have to deal with,” says Eichhorn “Those who are to become musicians naturally have a great inner drive!”

Two floors below Eichhorn’s attic office in the Fürstenhaus, the former ducal palace, sits Christoph Stölzl, President of the Liszt School of Music. “The quality of our training is evident in our students’ auditions,” he says. When music students perform well in competitions, orchestra auditions and festivals, the training has been successful – such clear and verifiable indicators are rarely found in any other discipline. And yet, even in music schools, good teaching does not stop with the musical perfection of its graduates. “We want to establish holistic training,” says Stölzl. He wants every graduate to have dual opportunities on the job market – as an outstanding musician on the one hand, but also with a supplementary qualification from within the field. “Exactly what that shape that will take depends on the personality of each individual student,” according to Stölzl. Conceivable professions include music teaching, musicology or arts management.

The switch to Bachelor’s and Master’s degrees gave the Weimar professors the opportunity to

Students in the limelight – in an individual cello lesson with Professor Tim Stolzenburg (left) or together in the jazz department

The objective is holistic training for musicians: “We’re using the know-how we had all along, just much more effectively than before!”



Theory also plays a part: Professor of Singing, Siegfried Gohritz, teaching students

orientate the programmes to these new principles. The three-way split into Bachelor, Master, and graduate recital offers a more finely-tuned structuring of the programmes than had been possible with the previous dual system of diploma and graduate recital. In the master's programme the emphasis is still on perfecting technique in the main instrument, within the classic master-and-student relationship. However, there is now an obligatory specialization: the pianist can focus on contemporary or early music; the budding conductor may study with the woodwind section and thus experience first-hand the specific characteristics of these instruments, or learn bowing techniques amongst the string section. "The Bologna Process has created new momentum for the employment of such synergies," says Stölzl: "We're using the know-how we had all along, just much more effectively than before!"

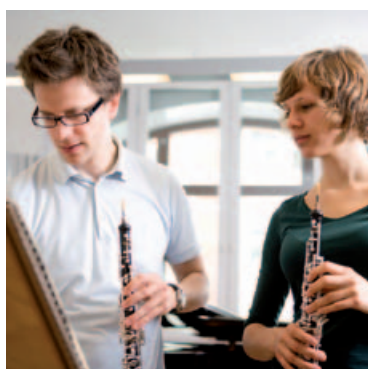
How this takes shape in practice is the responsibility of Professor Helmut Well, Vice President for Teaching at the music school. "The younger students have completely different questions than the previous generation," he observes. He talks about a "definition of artistic personality" that begins early on – those who specialize in a particular era or composer have better professional prospects. Far deeper insights into musical repertoire are in demand these days; anyone putting together a programme for their concert must ensure their selection stands out from the crowd. "In the past, musicians never had to think about such things," says Well. The classical place of employment was, for decades, in the orchestras and ensembles of the German philharmonics and opera houses. However, with tight constraints on the public purse, competition for these seats has become increasingly intense. The "dual opportunity" that Weimar seeks to offer is one of the responses to this transformation. "I notice in some of my own lectures on music history how naturally the students deal with this situation," says Well. "Sometimes they come to me and ask about the background of particular pieces. 'We're holding a concert and want to talk about the pieces afterwards', they often say." Musicians no longer define themselves by their technical perfection alone, but also enhance their employment opportunities through an accompanying programme – and this is something to which the teachers need to respond.

Such a broad approach is clearly fun for the students, as the experience of Professor Dr Detlef

Altenburg, musicologist and renowned Liszt researcher, has shown. "Today, it's expected that musicians come up with an original programme and, where appropriate, also unearth and perform a forgotten piece by a composer," says Altenburg. The tools and the background knowledge for this originate in his discipline, in musicology. Altenburg is sure that through the combination of the traditional master-and-student relationship with additional training, the school is on the right path towards better teaching. As a musicologist he is often confronted with the same prejudices: "Sometimes concerned parents come to us, and would much rather their son or daughter had become a lawyer or doctor," he smiles. "The very same people are later amazed at how easily our graduates transfer to the job market." Whether in publishing houses, music archives, in academia or arts management, the programme's graduates are in demand. The new combination of theory and practice appears to have proven its worth – incidentally, in complete harmony with Franz Liszt himself, the subject of Altenburg's research: Liszt constantly proclaimed that a good musician must be highly educated in every way in order to be able to interpret works properly.

In Weimar, this challenge is met with great determination. "Here we have everything necessary to train the musician as an individual," enthuses Christoph Stölzl. The city's intellectual and cultural tradition is physically evident: the Anna-Amalia library is just a few steps away from the music school, most students pass by Goethe's residence on Frauenplan on their way to class, and the former workshops of the Bauhaus are just a short walk away. "Our curriculum needs to support opening up to Weimar," says Stölzl – music school students learn not only in the classroom, but from their environment as well.

"In our teaching we have to take into account that the world has changed," says Professor Gero Schmidt-Oberländer. He cites the musical bon mot of the "sea of grey in the concert hall", referring to the largely silver-haired audience which has come to dominate the audience in classical concert halls. In contrast to this is the constant availability of all kinds of music imaginable via the internet and the completely different listening habits of a younger generation that has grown up with portable mp3 players. "In Germany, we've been standing quietly still for too long, confident that here, in the birthplace of classical music, we're doing every-



"Continuous honing and improvement": an individual oboe lesson with Professor Matthias Bäcker



thing right,” says Schmidt-Oberländer. “And then we find out that in music education we’re being overtaken from all directions by other countries.”

He does not say this because of some nostalgic notion. After all, there are great opportunities for classical music; what needs to change is simply the way in which it is conveyed. How that can happen is something Schmidt-Oberländer himself teaches the Weimar students: his discipline is school-level piano techniques, which trains the music teachers of tomorrow. “Isn’t it curious that music is regularly singled out as the least popular school subject?” he asks. And that is exactly his point: those who study with him and his colleagues should awaken enthusiasm for the great works amongst a young audience for whom classical music is something distant and irrelevant. They themselves will be able to play piano, improvise on classical melodies, and use the instrument to establish the connection between classical music and pop and rock music. They should provoke enthusiasm and curiosity – and thus introduce classical music to the many young people who would otherwise never give it a chance.

For school-level piano techniques, too, teaching is based on time-consuming individual training. A master, a student; the old relationships have endured. It is the content that changes. The new self-image that has entered the music school, despite the classical forms of teaching, is best expressed by a sticker the violinist Friedemann Eichhorn has stuck on a cupboard up in his attic office: “Spaß by Saite” it says – a pun with deep meaning [a word-play on the expression “Spaß beiseite”, meaning “all joking aside”, which alludes to the musical enjoyment (“Spaß”) of strings (“Saite”)]. The sticker points to a newfound sense of seriousness and a previously unimaginable versatility that together form the essence of teaching at the music school today. But it also tells us that centre stage still belongs to the joy of music. ■

Musical theatre rehearsal at the Weimar Studiotheater Belvedere

Openness as a guiding principle: music school students learn not only in the classroom, but from their environment as well – a concept that works exceptionally well in Weimar



UPGRADE FOR FIRST SEMESTERS

Photo: Fachhochschule Jena



In (Jena's) Paradise: inspiring surroundings for learning

The University of Applied Sciences Jena is launching an initiative designed to simultaneously ease students into their studies and increase the number of applicants. The result? An innovation-friendly climate for good teaching

The barbeque evening in Paradise park is a resounding success: sausages sizzle over an open fire, a group of students who are about to graduate secondary school relax on the grass, and all around there is a cheerful summer mood in Jena's old town. Paradise is a particularly sumptuous park, and the evening here is very enticing for the young people – "This is where life is really happening," promises the University of Applied Sciences Jena (UAS Jena). With this message it attracts prospective students from all neighbouring federal states to Thuringia.

The advertising for the location is part of the university's root-and-branch initiative to reform the teaching content and its organization. The university's goal is to provide good teaching and particularly intensive student support. "Upgrade" is the name of this initiative, which combines various measures for improvement within the university, with particular attention focused on the entry phase of study.

"This means, for instance, that any information about their studies relevant to incoming students is communicated in the most appropriate way,"

says Professor Dr Burkhard Schmager. He is the Vice President for Education, and his office is located on the fourth floor of the distinctive main building. From his window, he overlooks the angular tower with its oversized clock, which has become a symbol of UAS Jena while at the same time reflecting its history. In the past, the campus belonged to a factory of the Carl Zeiss Company, which, to this day, maintains one of its production plants close by. After Germany's reunification, the university emerged from what had been the Zeiss engineering school, and the former company premises were completely gutted and rebuilt. The huge old factory building has been transformed into state-of-the-art lecture halls, and the building where the renowned optics manufacturer once managed its imports and exports is now the home of the university Rector's Office. It is from here that Vice President Schmager plans the future of his university.

"Several problems emerged simultaneously, which we wanted to solve in one go," he says. Following the change from the diploma to Bachelor's and Master's degrees, the drop-out rate grew significantly. And a glance at the demographic development in Jena's greater metropolitan area was similarly alarming; the number of potential new students has been decreasing steadily. In order to close this gap, prospective first-year students from all over the country were targeted for recruitment – so far, about 40 per cent of new students come from federal states outside Thuringia or from abroad. The aim is for this quota to reach 50 per cent. UAS Jena takes particular pride in its programmes specializing in laser and optical technologies as well as in ophthalmic optics: these build on the Jena tradition of glass production and processing and enjoy high demand nationwide.

The UAS Jena is seeking the key to both challenges – reducing the drop-out rate and attracting more applicants – through an initiative for good teaching, which combines motivating seminars with close and intensive support of students. The Upgrade programme is the hub for all university initiatives, including established approaches such as a mentoring programme, early studies for Abitur students and a variety of bridging courses, all augmented by numerous innovations. "We've divided our ideas into two main focus areas," explains Anja Hartmann, head of the programme. The Starter Upgrade bundles all the projects for the initial study phase, while the Study Upgrade builds on this for subsequent, advanced semesters.

At the heart of each programme focus area is an internet portal where all the information assimilated and is accessible to prospective students. The special website for incoming students is called Go Study. The purpose of this site is to spark interest in the student-friendly city of Jena; it also gives insight into academic specializations, as well as accommodation options and nightlife. In addition, the site allows its visitors to contact three students whom the university has appointed as campus specialists. "Applicants are more likely to feel comfortable asking students questions," Anja Hartmann has observed. From formalities such as registration to insider information on finding accommodation in Jena, information on just about every aspect of student life is made available in an informal format. The campus specialists' initial results have been so promising that the UAS Jena wants to expand the model: "We want to appoint a student expert for each degree programme so that he or she can also answer questions about subject-related issues in detail," says Anja Hartmann. These specialists will also be reachable via the university's main website.

The website for the Study Upgrade programme serves as a central information access point for current students at the university. There are plans to significantly expand e-learning over the coming years with full access to the courses offered available directly via the central homepage. A telephone hotline and a central service desk on campus are designed to complement these virtual activities and improve contact between students and the university.

"In addition, we are setting targeted incentives for direct improvement in teaching," says Vice President Schmager. For instance, there is a competition for innovative teaching and learning approaches and every year a jury selects approximately a dozen projects to receive grants. On average, approximately € 25,000 is available for each award winner. With this money, it is possible to implement ideas that really go the extra mile in the quest for good teaching. Schmager summarizes the objective of the programme: "Colleagues should contribute ideas that extend beyond their own subject area and help create interdisciplinary connections within the university." He has seen the advantages it has brought to the entire university. "Of course, the most committed teachers are the ones who are most actively engaged. But with these ideas we are creating a climate that has a contagious effect and spreads across the whole university!"

Proactive campaign for good teaching: advice for applicants, top support for students, and innovative courses are designed to have a contagious effect



DISCOVERING THE WORLD WITH THE CAPTAIN'S CLUB

Wismar University of Applied Sciences: Technology, Business and Design aims to stimulate its students' creativity – and help them find the courage to start up their own businesses. The entire university is becoming a foundry of ideas on the Baltic coast

Janis Herrmann first realized the university was actually serious when he rolled up to the car park of the luxurious hotel in Schwerin. Soon, he would move into his room and enjoy good food and drink for a week with a few professors and a handful of selected fellow students. "Idea Camp" is the name Wismar has given the project, which is designed to give its students a space in which to experiment, ponder, brainstorm, and develop.

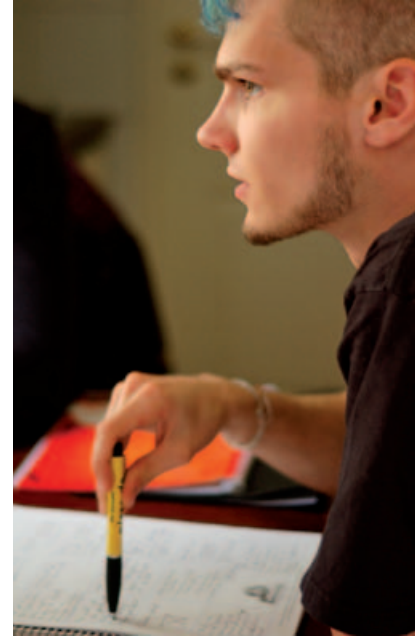
For Herrmann and his small team the atmosphere was nothing less than electrifying: "We had a small room for ourselves and right away we began discussing ideas," he recalls. His team consisted of three colleagues, each from a different faculty. Only the general theme was predefined – the rest was up to the group. "Wismar, young and entrepreneurial" was the motto – abstract enough to stimulate good ideas.

Even today, Professor Dr Norbert Grünwald beams when he thinks back to the Idea Camp. Three days later he sat amongst the audience while Herrmann's team and other groups held their closing presentations in the conference room of the exclu-

sive hotel. He knew that, once again, it had been a success. Grünwald is the rector of the Wismar University of Applied Sciences: Technology, Business and Design and sums up his vision in a nutshell: "We want to be an entrepreneurial university!" Within just a few years he has committed Wismar to this goal, which is also reflected in the curriculum, the administration and the seminar programme: Grünwald has made entrepreneurship the number one priority. "These things come about by chance and then gain their own momentum," he says.

Standing in front of the doors to the Rector's Office, he can see the exact direction he wants to take. On the campus of his university of 6,000 students, stands the antiquated building of the old technical university that served Wismar until Germany's reunification, positioned right next to the state-of-the-art faculty buildings built in more recent years. Some of the views from the lecture halls stretch as far as the imposing towers of the St Mary's Church in Wismar's old town centre, a UNESCO World Heritage Site. The university's vision is to partner the tradition of the old Hanseatic city on the Baltic Sea with modern innovation. Professor Grünwald first

Entrepreneurship at the heart: students bring new life to the structurally weak region – and are encouraged to discover their own enterprising spirit



“Three days. Five teams. One challenge.” The Idea Camp follows unconventional routes to the goal

RESEARCH AND DEVELOPMENT TEAMS

The task sounds complicated: the students need to think about how ultra-fine carbon structures (carbon nanotubes) can be linked with sensor technology. The impetus came from a high-tech company near Wismar that posed the problem directly to the student research and development teams at the university – knowing that its question would inspire the committed researchers.

This idea was the force behind establishing the research and development teams. Students wanting to acquire practical experience can apply to join the teams, while local companies set up complex assignments and assist in their implementation. Support also comes from the university: professors contribute their expertise, and the young researchers are allocated their own workspaces

Continued on page 87 ▶

had the idea of an entrepreneurial university while he was abroad. The mathematician is a member of the UNESCO International Committee on Engineering Education and is often away travelling. “Time after time, I saw that in many Asian and American universities topics such as entrepreneurship and setting up businesses played a completely different role than they do here,” he says. Then he thought about Wismar, about its position in the middle of Mecklenburg-Vorpommern – with a dwindling population and dearth of jobs – and made the connection. If an entrepreneurial university makes sense anywhere, thought Grünwald, then surely it would here, where the involvement of students is so urgently needed.

Naturally, his ideas also polarized opinions. Some of his fellow professors were outraged, because they believed the rector wanted to turn the university into an enterprise. Many of those who were involved in Wismar at the time recall that it took a lot of convincing to clear up this misunderstanding: it was not the university itself that should become an enterprise; rather, the university should encourage its students towards entrepreneurship and an enterprising spirit. Moreover, it was not about profit maximization at the cost of all else, as sceptics initially suspected: the emphasis was as much on ethical and social principles as it was on business tools.

“The next step for us was to think about how we could get this entrepreneurial attitude ingrained in the university,” says Grünwald. He was clear that it should not be a mere facade with optional seminars. “Entrepreneurship should be a theme that touches all areas of the university.” In fact, the uni-

versity already has the ideal components for the vision: it consists of three faculties, namely technology, business, and design – the very fields that need to mesh together in a successful enterprise. The professors therefore defined a set of skills that every graduate would need at some point in his or her professional career – and that would become part of every degree programme. For instance, engineering students such as Janis Herrmann, who participated in the Idea Camp, automatically learn project management, rhetorical skills, time management as well as cost and performance accounting. By the same measure, business programmes would focus on creativity and technical understanding. In this way, students from all faculties profit from the wealth of knowledge that has been accumulated at Wismar. “These are skills necessary not only for future entrepreneurs, but also for anyone employed by a company,” says Rector Grünwald.

At the core of his vision, however, is interconnectivity within the university itself. “I’m always amazed to see what students can achieve without any help if they combine their strengths,” says Grünwald. One of these opportunities to cooperate across faculty boundaries is the Idea Camp. Every year, 15 places are allocated to students who have been selected through an application process. The organizers then build five teams of three, in which as many different talents as possible should come together. “The bachelor’s and master’s programmes are strongly goal-oriented. Here, there’s a bit more room for manoeuvre,” says Oana Dumitrascu. She has transferred to Wismar from a partner university in Sibiu, Romania, and has worked alongside Herrmann in of the groups at Ideas Camp. The



Hear, see, and speak no evil? Not in Wismar: creativity in action as part of a photography project

concept her team developed is currently in the process of being implemented: they came up with the idea of a "Captain's Club" that would meet on campus every couple of weeks. Membership is open to all students with an interest in entrepreneurship. The interdisciplinary teams charged with implementing ideas meet regularly at a bar for informal discussions.

The basic entrepreneurial training services at Wismar are supplemented by concrete support for those who are actively striving to found a new company. A 60-page booklet lists the various entrepreneurship courses taking place in a given semester – from the Introductory Seminar for Prospective Entrepreneurs to fireside talks with experienced professionals. The university's very own start-up office centralizes the various offers that, in the past, were scattered far and wide, so that students have a single point of contact that provides them with further connections, from legal advice to financial start-up assistance. "It was necessary to establish this central contact point simply because too many external providers came with uncoordinated offers and threw our students off track," says Grünwald. "It ended up becoming a jungle of offers, and students weren't the only ones losing momentum and interest in entrepreneurship."

Several important currents flow together a couple of hundred metres from the university campus, directly on the premises of the Wismar's former timber harbour. Regina Krause's office sits a couple of metres over the soft waves of the Baltic Sea. The massive glass surfaces of the modern architec-

ture face towards the Baltic Sea, and from her desk Krause has a view of the mighty harbour cranes reaching up to the sky. On her shelves are souvenirs and certificates from all over the world: a small wooden tea chest from China sits next to an illustrated book from Cape Town. Regina Krause is the project coordinator in the European Centre for Engineering and Business Education (ECEBE). The centre is directly affiliated with the Rector's Office at the university, and it initiates international projects and supports the entrepreneurial strategy at Wismar. Even its location serves as an example: the office, with its inspiring view, is situated in one of the technology and business park buildings designed to support innovative start-ups. This is yet another example of Rector Grünwald's envisioned interconnectivity of the university and external institutions. The success of this interconnectivity is evident just by glancing at the company nameplates at Wismar's old timber harbour: hardly any of the offices lie empty, and the most successful new companies have even set up their own offices here, in sight of the enterprise incubator. Just a few years ago, the heads of most of these young companies were still studying at Wismar.

Maybe one day Janis Herrmann, the student from Wismar's Idea Camp, will also work here at the old timber harbour. In any case, he has well and truly caught the entrepreneurial bug, and has recently hit upon the right idea, together with a couple of friends and a lecturer: they want to develop a kind of sunscreen for plastics and varnishes that will make such surfaces weather resistant. Herrmann is convinced: "There would definitely be a market for it!"

▷ *Continued from page 86*

and generous subsidies for supplies and travel costs. Depending on the results, the cooperation between students and companies can become highly fruitful; the team that researched the carbon nanotubes, for example, has since been working on a hydrogen sulphide sensor and won prizes in national ideas competitions. The research and development teams are open to students from all faculties; economists and design specialists have assessed market opportunities for new ideas, created marketing campaigns and websites for innovative products, and targeted potential customers at major trade fairs.

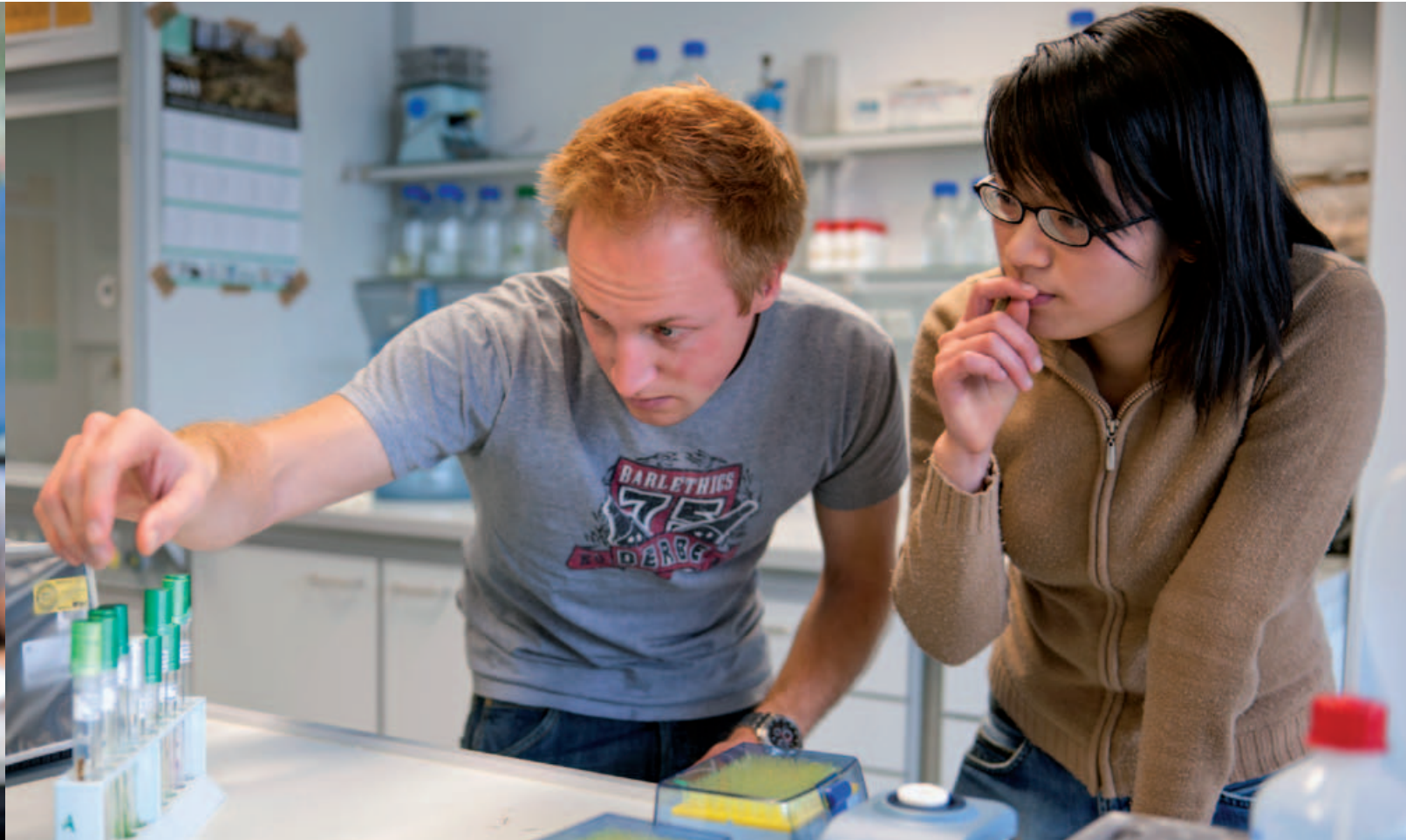
In the first two years, four research and development teams have completed their projects. The potential of two of the ideas was so great that companies have formed around them as a direct result. Rector Norbert Grünwald is visibly proud: "It's a fantastic success rate!"



Photos 88-90: Dr. Gabriele Witter

CREATIVE TEACHING **AS A GUIDING PRINCIPLE**

Bremen University of Applied Sciences deliberately allows professors space for their own ideas, even if these appear unconventional at first. The courage of this conviction is already paying dividends: the number of applicants is climbing – as is enthusiasm for good teaching



In autumn, Gerd Klöck's room at the faculty is transformed into a CEO's office. From his desk, the biologist gazes through the full-length window across to the trees in the park; a red and white striped model of a lighthouse rises up from one corner of the room and on the wall hangs an image of microscopic cell structures, magnified a million-fold. At this time, while Klöck holds discussions in his room, the upholstered chairs in the meeting area are filled with colleagues rather than students.

This transformation has become a tradition at Bremen University of Applied Sciences. Klöck's company is called Tiger Biotec – it deals in biotechnology products, and now has between 15 and 20 employees, all of them students specializing in biotechnology. Since the company is a virtual one, they do not really need to prove themselves on the actual job market, – however, the working conditions and job descriptions are absolutely real.

One of Tiger Biotec's products is bioethanol. "What could we do with the old bread that is left over at the end of the day in Bremen's bakeries?" – is what Professor Dr Klöck in his role as

the company boss wanted his employees to find out. The project took place over the course of a semester, culminating in a detailed feasibility analysis. The students themselves decided which team members would take on which roles within the company. And they were bursting with enthusiasm for the research: they soon discovered that it was possible to obtain bioethanol from old bread. They developed their own process to enable successful and reliable fermentation, contacted wholesalers to find out the market price of bioethanol, and researched the legal aspects of applying for a patent for their process, as well as of the sale of bioethanol; they also ventured into marketing for this fuel made from old bread. "The paper they finally submitted to me contained all the information you could ever need on this topic," says Klöck with satisfaction. And he is pleased that his company is only a virtual one – in their business plan the students discovered that the fermentation of old bread would not, in fact, be economically viable. In Bremen there are simply too many small bakeries, meaning the logistical burden would be considerably higher than in cities where the market is controlled by a few large firms with central warehouses.

Students as entrepreneurs: Tiger Biotec in Bremen makes it possible

“We are not particularly well funded. If we want something done, we have to rely greatly on our own creativity”



Culture in the curriculum – just one of Bremen’s many projects

THE BREMEN MODEL

Bremen University of Applied Sciences committed itself from the very beginning to a unified implementation of the Bologna Process. Using the framework guidelines, they created the “Bremen model”, which continues to contribute to the success of the university’s development. At the core is a holistic modular concept that provides for a balance of classroom and self-guided learning, across all the various faculties. Consequently, thanks to the similarity of structures, there is perfect compatibility amongst the courses. Currently, the university is implementing an advanced approach called the “Bremen model plus”, a concept which focuses on two main areas: excellent teaching and life-long learning.

Klöck and his colleagues placed this semester-long virtual company project at the end of the Bachelor’s programme. “After we changed over to Bachelor’s and Master’s degrees, we initially thought that we’d have to pack a lot more content into the Bachelor’s programme; it was always about more content,” he says. Then he discovered that this final phase of the programme was actually about something quite different: his students had spent the previous semester abroad, a compulsory part of the curriculum. During this semester, students focused on their main subjects and gained practical experience for the first time. “Then they come back to us here in Bremen from Iceland or Australia, and I’m supposed to stand in front of them and say, ‘So, people, where did we leave off in the last lecture?’” says Klöck. “The idea seemed absurd to me.” So instead he set up Tiger Biotec. In terms of content, the tasks are as demanding as those found in normal seminars, but everybody can work on their own speciality. “The students have learnt how they can acquire knowledge for themselves – here they have already learnt the interconnections and relationships within our discipline. And if we just let them get on with it, they can learn much more in this phase than they

would in structured lectures.” Klöck is convinced of this. He provides support to the students: if they have questions, they can come to him in his office, and once a week there is a regular meeting for everyone involved.

Unlike pre-set cooperation projects with companies, which are the norm at many universities, Tiger Biotec does not focus on a pre-determined outcome. Students control the direction the assignment takes, as well as what ultimately comes of it. “It takes three or four weeks for them to realize that we actually trust them to do it,” says Professor Klöck. The situation reminds him of a bird that has been caged its whole life and is suddenly set free: “At first they don’t trust themselves to take flight, even though they have the natural ability to fly.”

Incidentally, Klöck reveals that the name Tiger was decided after sharing a bottle of wine with his colleague. He and Professor Tilman Achstetter, a co-founder of the student biotech company, were mulling over the concept. “Suddenly we had this idea,” he says, smiling – from their respective first names Tilman and Gerd, they created Tiger Biotec.

Such dynamism is typical at Bremen University of Applied Sciences. Good teaching has been elevated to the university's official overarching goal, and practically all the faculties are producing innovative ideas such as that of the student company. "We have little financial support," says Professor Dr Uwe Apel, referring to the cash-strapped federal state of Bremen. "So if we want to implement an idea, then we can only do it through our own creativity." Apel is Deputy Rector for Research; his office is a hub for ideas from across the entire university. The Bologna Process reforms have had a catalysing effect, says Apel, himself a professor of engineering. The decision was made to convert the degree programmes early on and, in many cases, to also shake them up a bit. This complete overhaul of the degree programmes has clearly paid off: academic quality is as high as ever, graduates remain attractive to employers – and students come not only from Bremen and the surrounding area but from across the whole of Germany, specifically attracted by the innovative programmes this northern German Hanseatic city offers.

Apel places particular value on exploratory learning, an area in which Bremen University of Applied Sciences has built an outstanding reputation. It is one of the most renowned universities of applied science in Germany when it comes to research, and ranks amongst the strongest for securing third-party research funding. "Every euro we receive for research from the state we add to tenfold through external funding," says Professor Apel. Such successes also benefit students. Even in at an early stage in degree programmes, teaching is automatically integrated with research – and in a recent development, students who later opt for an academic career can do this at the university itself: as a university of applied sciences, Bremen has established cooperation agreements with both domestic and international universities enabling it to offer research associate positions which can lead to a doctoral degree. There are already around 20 such research associates, and the number is rapidly growing. Thus, mid-level academic staff, usually the reserve of the traditional universities, can also take up posts at Bremen University of Applied Sciences.

Amongst the university's basic prerequisites for successful teaching is freedom: there are rarely substantial guidelines for the design of courses. Consequently, some faculties have opted to use a block schedule. Instead of having the lecture for one subject every Monday and the seminar for another subject every Tuesday, the semester is divided into four-week sections. Each four-week block focuses on an individual subject – this allows a deeper im-

mersion in the subject than would often be possible in the classical structure.

One of Bremen's hallmarks is its internationality. For over two decades most degree programmes have featured an obligatory semester abroad: currently three quarters of the programmes include this international element. This is possible thanks to the flexible recognition of academic achievements outside Bremen. There are no formal partnerships with other universities; instead there are flexible target agreements that each student compiles with his or her professor. Dr Gabriele Witter is behind many of these initiatives. She is head of University Development Planning, with an office on the second floor above the cafeteria. "For us, teaching is a strategic instrument," she says. She is always open to good ideas, regardless of their origin. A few years ago, for example, she was contacted by students who had experienced a particular model whilst abroad and now wanted to implement it at Bremen: the model focused on integrating social engagement into the curriculum. The idea was that anyone who volunteers with the Red Cross, or works as a trainer for fellow students on one of the university sport teams, or is becomes actively involved in other organizations should receive the backing of the university. The model has since become established: a staff member sets up placements in appropriate partner organizations, and several courses even award credit points for students' involvement.

Gabriele Witter takes particular pride in "Modern Art and Perception", a short course which gives students the opportunity to go to museums or the opera, meet and have discussions with experts and, essentially, take time out for art. Every semester there is a visit to a concert and a museum, and students prepare and follow up the visits with the help of experts. "At the age of twenty, some students have never set foot in the opera," says Witter. Her aim is to open out this disciplinary tunnel vision: students should not only discuss issues within their own respective discipline but also those concerning culture. "As anyone involved in the arts recognizes, art can help one get a better handle on complexity," she says. In the meantime, the course has become permanent at the university. Witter was recently able to measure its success in the few days following a performance. In the university's corridors, snippets of Weber's *Der Freischütz* could be heard all around: "The students were whistling the themes from the opera over and over." For Witter, there is no more fitting validation for the direction taken by Bremen University of Applied Sciences. ■

SELF-GUIDED LEARNING: A DIFFERENT TAKE ON DIVERSITY

Diversity is a fixed component of the university's mission statement. Interaction with students from diverse biographical and familial backgrounds has become increasingly important. Bremen University of Applied Sciences has assembled a range of instruments to take up this issue – which include some unconventional strategies. One example is the approach taken by Professor Dr Gerd Klöck: the biologist is committed to forms of learning which allow each person to discover his or her own role. If the subject matter is complex, he divides his seminars into small groups, who then each produce a video on the topic within the following couple of days. "At first I didn't think it would work so well," says Klöck. In each group there is someone who knows their way around technology, someone else who's able to clearly explain the topic, whilst another can contribute to the animations. "Anyone who has learnt about a subject in this way," says Klöck, "won't forget it in a hurry."



CREATIVE COLLISIONS

Dancers meet painters, designers meet engineers – the Berlin University of the Arts uses such encounters to evoke students' creativity. By deliberately interconnecting its disciplines, it has been able to unlock unimagined potential

Fine-tuning: design students have created a hat with a built-in radio



Design as an innovative discipline: Professor Dr Gesche Joost

Creative chaos: the Design Reactor project thrives on exchange and shifting perspectives (right)

Learning under pressure: for future artists, interdisciplinary connectivity is just as important as a nurturing environment for personal development

When Professor Dr Gesche Joost walks into her teaching rooms, it is as though she had stepped straight into the secret workshop of Q, the ultimate James Bond gadget designer: large flat-screen monitors and telephones stand on the students' desks, and the surrounding cabinets display the products they are working on. A bobble hat, for example, with earphones built into the earflaps – a tug on the bobble will switch on the radio, as well as adjust the volume. Or a rug invisibly studded with magnets: if it is folded in a particular way, a mini speaker will play a secret message. Or perhaps the soft cushion with its very own built-in, fully functional telephone.

"Design Research Lab" is the name of the working group headed by Gesche Joost, who has a professorship endowed by Deutsche Telekom. "Today, questions of design are at the heart of technological innovation processes, or even determine them from the very beginning," says the young professor. Her work with her students is concerned not merely with the attractive design of new technology; instead, she works explicitly in partnership with research from the very beginning.

In parallel to this new image of the designer, a development is unfolding across the entire Berlin University of the Arts (UdK Berlin): it wants to open up – on the one hand to greater internal interconnectivity between its own colleges, and on the other hand, to closer external cooperation, for example with the neighbouring technical university and with other institutions that at first glance appear to have little to do with the arts. For the UdK Berlin

and its 4,000 students – it is the largest university of the arts in Europe, and unique in unifying all disciplines, from music to design – it is a fundamental transformation, and one which has been taking place for some time.

"For me, good teaching means developing new perspectives with the students," says Professor Axel Kufus, a professor and internationally renowned designer. "In our work we often create very unusual constellations of situations, processes and content, and thereby launch experiments with extremely surprising outcomes. It's always about coming up with a format in which something is put together differently, resulting in something new." Kufus is one of people who helped initiate the opening up of the UdK Berlin. Design, he says, is ultimately interdisciplinary scholarship in its purest form: "I have to be proficient in my own craft, but also develop the ability to link my own competence with other disciplines – including those completely unfamiliar to me." If a prospective engineer and budding designer take a glimpse into each other's worlds and begin to develop a general feeling for what the other does, an incredible dynamic emerges. What can come of this can be seen in Professor Joost's Design Research Lab, or in projects such as the Design Reactor, in which Axel Kufus has brought his students together with small companies and craft enterprises from Berlin. A mozzarella cheese dairy, a lamp maker, a car mechanic shop, even a dildo manufacturer have been involved in the project, along with countless other firms. Without being given concrete guidelines, the students were out and about in the companies for two weeks – the result after just 10 working days



was 57 new products and six registered patents. "That's exactly what I mean," exclaims Axel Kufus: "Certain ideas only come about when you approach something from different perspectives and recognize new interpretations of its potential!"

Good teaching in the arts can, however, also take a quite different shape that involves striking a difficult balance between external inspiration and one's own maturity. "My job is to put the students in closer touch with themselves," says Professor Pia Fries. She teaches painting and is keen to guide her protégés carefully towards finding their own style. The 15 students in her class work in two large studios with ceilings five or six metres high and with one wall made entirely of glass. Each student has his or her own workspace, and it is here that the future painters create their work, in full view of each other. Students also gather once a week with Professor Fries to benefit from peer critiques. This week, it is the turn of a young curly-haired man wearing a casual pullover: he projects a video installation onto a painted screen on the wall. The images play in an infinite loop. The video shows a close-up of a person's stomach smeared with dried clay, and with each breath, cracks open up in the material. The young artist explains how the work was created – and his colleagues cross-examine him with critical questions. Together, they discuss the combination of video installation and painting and debate the various levels of the work.

"The dialogue, the verbal debate the students have amongst themselves about their work is important to me," says Professor Fries. "By discussing the results, we develop the criteria for our own working

methods and for effective art." In this phase she prefers to keep her students in the nurturing environment of the studio. While some of her colleagues believe in quickly establishing links to galleries and encourage the early exhibition of students' work, Fries considers this to be counter-productive: "Artists should be motivated by an inner drive and not by supposed success on the market." For her, good teaching is tantamount to a gentle, meticulously guided ripening process in which there is space for trial and error.

Despite the individuality of these teaching approaches, a curiosity for what is happening behind the doors of other studios is the unifying element at the Berlin University of Arts, says designer Axel Kufus. Consequently, he has initiated an innovative project called Udk Berlin Collisions: together with some of his professorial colleagues he chooses a week in January and declares it a teaching-free period. There are just two rules: every student has to participate – and nobody is allowed to remain in their own college. The result saw dancers studying a performance with fellow students who had never danced, and musicians getting together with designers to create new instruments. Even a felled fir tree was transformed into a soundbox, Kufus recalls. It is this understanding of the bigger picture that is so valuable: students experience working processes in other disciplines, gain inspiration from contact with new peers, and enhance their understanding of their own discipline when they have to explain it. "Everybody can learn from this kind of format – students as well as professors." ■

THE ARTS IN POSTGRADUATE STUDY

The Central Institute for Continuing Education draws upon the broad expertise of the Berlin University of the Arts: it offers several Master's degree programmes and certificate courses, specially tailored to the needs of artists. The programme in Sound Studies, for example, concentrates on sound research; in the areas of Cultural Journalism or Theatre in Education/Performing Art, participants can build on their existing knowledge and gain an additional qualification. The certificate courses, on the other hand, are regarded as further education enabling the university to support its artists beyond their degree programmes. Specializations include stage presence, curating or music therapy. The Central Institute for Continuing Education, which was established just a few years ago, exemplifies the Udk's approach in connecting its four colleges – College of Fine Arts, College of Architecture, Media and Design, College of Music and College of Performing Arts – thus opening up new pathways for the students.



THE UNITY OF RESEARCH AND TEACHING AS EVERYDAY REALITY

Such lively discussion in Germany about teaching is a very welcome sign. Thanks to this openness, worthwhile innovations are increasingly finding their way into universities. *By Dr Peter A. Zervakis*



Dr Peter A. Zervakis is head of the HRK's Project nexus

Right: nexus kick-off event in Hildesheim. (l-r) Lower Saxony Minister for Science and Culture, Professor Johanna Wanka; President of the University of Hildesheim Foundation, Professor Wolfgang-Uwe Friedrich; and President of the HRK, Professor Margret Wintermantel

The challenge: understanding teaching not as a beacon but in terms of its broader impact

The examples shown here provide stark evidence of the fact that teaching loses much of its potential impact if thought of purely in terms of knowledge transfer. Students need to be challenged and supported to a far greater extent, and also given more opportunities to apply their knowledge actively. Current educational research confirms the idea that dynamic teaching methods and strategies, such as those showcased in this magazine, are more effective than information merely presented for passive consumption. This insight has provoked a transformation in the culture of teaching and learning at our universities. For the HRK, this forms the very crux of the current debate about skills and competence-orientation: we need to foster the kind of learning which, through processes of education and insight, helps graduates mature into well-rounded individuals. Education in this context involves learning to act in an objectively rational and socially responsible manner – and to shape one's own life in a meaningful way. Naturally, this requires specialist knowledge, but it also involves the ability to apply this knowledge to real-world problems and an awareness of the particular attitudes and values that underlie all academic scholarship.

When responding to the current demand that good teaching equip graduates with the necessary professional skills, the primary question for both university teachers and students concerns the balance between theoretical knowledge and skills. How much basic knowledge is desired or, indeed, required and how much time should be spent on developing competencies?

We first need to consider the general conditions. Today, universities attended by mass numbers of students are an indisputable reality: whereas in the past, five per cent of school-leavers would enrol at university, today that figure is over 40 per cent.

Those five per cent common in the past would usually remain faithful to academia and research in their professional careers, whereas the priority for today's graduates is the ability to apply their academic knowledge in the workplace. As part of this transformation, there is growing pressure on universities to steer students towards socially responsible behaviour, and to enable graduates to develop their own ideas and convey these to others, to lead others, to identify connections and express their own opinions. All of these skills are described by the term "competencies".

But what does this mean for the teaching of basic theory and specialist knowledge? Of course, this will continue to represent the core of an academic degree programme. However, the way in which this knowledge is taught is changing. In response to the steadily expanding knowledge base, there is a clear need to place renewed emphasis on students' ability to develop, connect and apply their existing knowledge, as well as to acquire and communicate new knowledge.

Directly related to the question of what students should be learning is the question of how they should learn. Studies consistently identify the characteristics of good teaching: it facilitates active student learning and contributes to a greater quality of learning (in other words, students genuinely internalize knowledge, rather than merely memorizing information). This magazine illustrates the multiplicity of paths that can lead to this goal: the spectrum of approaches ranges from "time to reflect", to personal interaction and regular feedback, through to gaining inspiration from outside one's own discipline. Naturally, you need the right conditions to achieve all of these objectives; this means good student/teacher ratios, sufficient financing and, not least, active support for teachers.

German universities are taking a proactive ap-



proach to this debate, and that's a very good sign. I recall how a similar issue in medicine led to a change process that soon became widespread, and had a lasting impact on teaching: the decision was to adapt the degree programme in medicine to include medical professional competence. This gave rise to a lively discussion about precisely what skills a qualified medical professional should have. Today, hundreds of people are involved in the Nationalen Kompetenzorientierten Lernzielkatalog (NKLM, National Competence-Oriented Catalogue of Learning Objectives), and the conceptual work of this group provides new inspiration and motivation for medical schools and departments throughout Germany.

And the idea really seems to be catching on: in

more and more departments, the question as to what qualifies as good teaching is being discussed. For universities, this represents an immense opportunity to break with traditional models that have been in place for decades. However, the goal is not simply to throw outdated approaches overboard, but to think about the potential for improvement and the possibilities for implementing worthwhile innovations.

It's the students who benefit directly from this – they are, after all, the focus of good teaching. But research will benefit as well, since these new winds also bring new ideas into laboratories and think tanks. At this point, the unity of research and teaching, a concept often evoked these days, becomes a living, breathing reality. ■

PATHWAYS TO GOOD TEACHING

- Student-centred approaches (learning outcome/skills orientation, integration of student diversity, recognition of students as partners and experts in their educational experience, introduction of mandatory self-assessments, shift from teaching to learning)
- Professionalization (utilising diverse teaching and examination forms, expanding advising and support structures, developing advanced training opportunities for teachers, creating learning and teaching communities, establishing cross-university specialist and competency centres, expanding research in teaching/learning and using it to support the university's internal quality development in teaching)
- Greater freedom for teachers and students in legal, curricular and time scheduling matters (reduced regulations, sabbaticals for teaching, flexibility)
- Research orientation (research-based learning, evidence-based approaches)
- Transparency and publication of data (student surveys, teaching evaluations, online forums, graduate surveys, dissemination of good-practice examples)
- Appropriate incentives (Quality of Teaching Pact, Forum for Teaching, teaching awards like Ars Legendi, competitions based on excellence in teaching, more emphasis on teaching skills in professorship appointment procedures)
- Centrally-supported structures promoting teaching at universities (greater accountability of student representatives, quality circles, external advisory boards)
- Promotion of individual and institutional appreciation for teachers and learners (methods and approaches for good teaching and learning)

Source: HRK-Beschluss der Mitgliederversammlung of 22.4.2008 "Für eine Reform der Lehre in den Hochschulen", Stifterverband für die Deutsche Wissenschaft: "Was macht exzellente Lehre aus? Eine Synopse", March 2011.

HUB FOR PROGRESS AND DEVELOPMENT IN TEACHING

The HRK's Project nexus supports universities in the continued development of courses and in the promotion of quality in education. "Concepts and good practice for study and teaching" is both the nexus motto and a summary of the programme itself. The term "nexus" alludes to connections or bridges; in the context of this HRK project, which is due to run until 2014, the nexus functions as a hub for gathering, systematizing and disseminating information, approaches and good practices from one university to many others. Project nexus focuses on the following action areas:

- Increased modularization appropriate to subject; degree programmes structured according to learning outcomes and skills
- Definition and differentiation of master's degree programmes
- Integration of subject-specific professional skills into the curriculum
- Diversity management in learning and teaching
- Increased permeability between academic education and vocational training
- Development of procedures for recognizing international academic achievement

By offering roundtable discussions and workshops with experts, and through surveys and professional publications, Project nexus gives new momentum to debates in these key areas. Project nexus is funded by the German Federal Ministry of Education and Research (BMBF).

Good Teaching

Fresh Wind in the Sails of German Higher Education

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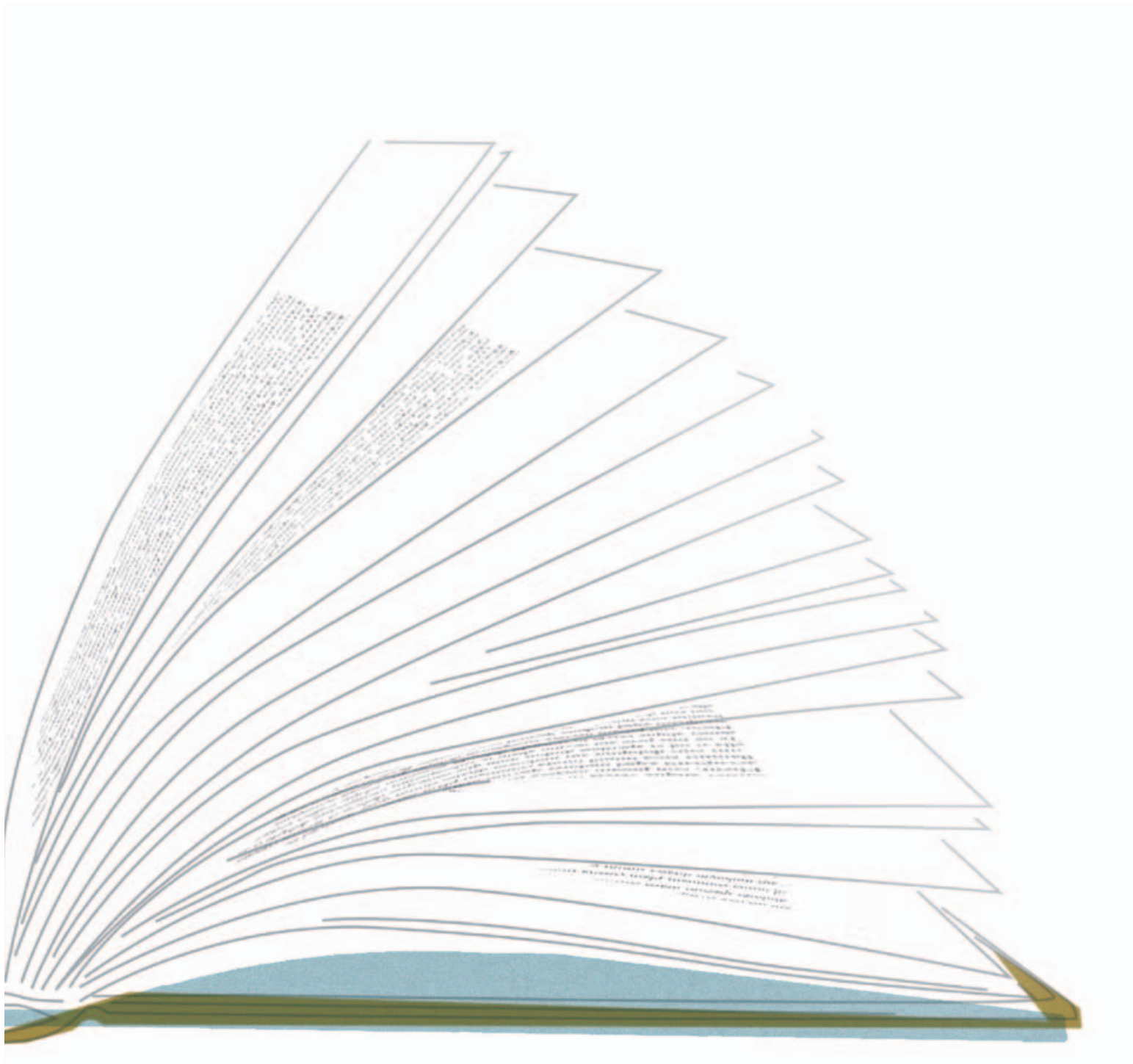
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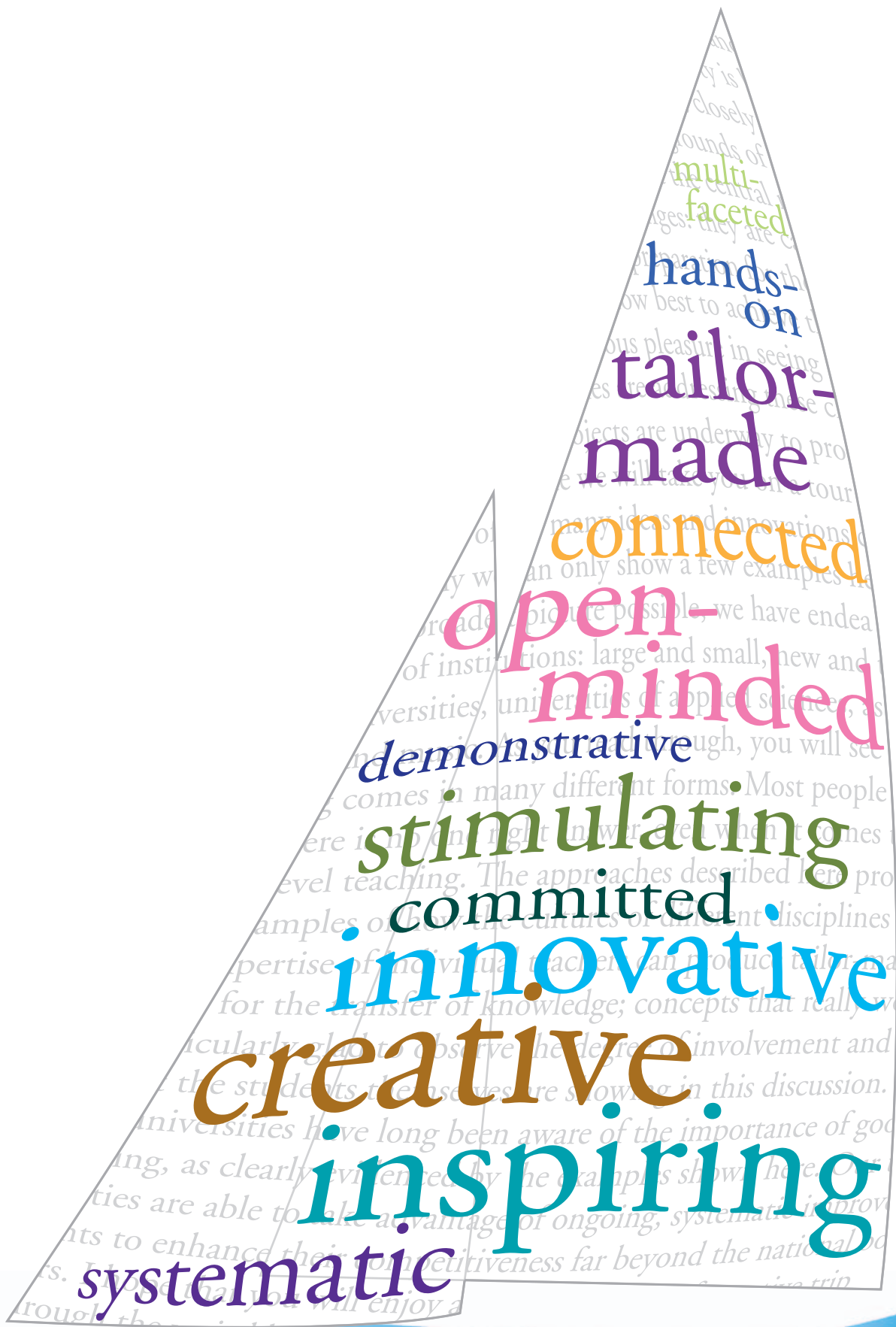
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