Discussing honesty, diligence and education

An interview with Ulrike Beisiegel, President of Göttingen University and former chairperson of the ombudsman for science in Germany

EMBO reports: You became President of Göttingen University in January this year and retired from the German ombudsman for science. Do you still keep track of cases of research misconduct?

Ulrike Beisiegel: It's hard to keep track. If you take over a task as President of a university, you have so much on your hands that you cannot do much else. In any case, my successor Brigitte Jockusch, and my former colleagues Wolfgang Löwer and Siegfried Hunklinger now constitute the ombudsman for research and they can still ask me if necessary. I am pleased to help if possible.

My time as ombudsman actually required a lot of energy dealing with cases and pursuing them, to educating scientists and organizing ombuds-conferences—all in addition to my normal job as university professor. There is no reward for being ombudsman, but you are criticized and confronted from all corners; it's not really a dream job, although I enjoyed doing it. Actually, the ombudsman should be one of the most respected persons at a university, and I'll try to establish this here.

EMBO reports: The ombudsman for science was created in 1999 in response to the Hermann/Brach fraud case, which was highly publicized in Germany and internationally. Do you think that the situation has improved during the past decade?

Beisiegel: Things have changed, but it is a very slow process. We celebrated our 10-year anniversary in 2009, but it took a long time until the system of the ombudsman really became known among scientists.

“Actually, the ombudsman should be one of the most respected persons at a university...”

There is still the problem that, in the public's perception, the ombudsman only deals with misconduct, which gives it a negative, sleazy connotation. In fact, the basic idea behind creating the ombudsman, which the DFG [German Research Foundation; which established and finances the ombudsman] formulated very early on, is to prevent research misconduct in the first place. Of course people do come to us if they think that there is a problem, but our main aim should be to train young students and graduate students about the rules of proper scientific research. Gerlinde Spohnholz [at the Institute for Medical and Organization Ethics, University Ulm] wrote a curriculum with the ombudsman at the end of my term. It is now available online, so there is no excuse for anyone to lack information about what is good scientific practice. We propose that every student takes a seminar in good research practice; some universities have already implemented this. I have given many talks on good practice, which were well received, and we see that there is growing awareness, not least because of prominent cases of fraud and misconduct, such as the Hwang case or another one that involved an SFB [a major 'special research project' funded by the DFG] in Göttingen, in which the university had rigorously pursued all allegations. It is important that such major cases are widely discussed in public so that others learn from them.

EMBO reports: The Office of Research Integrity (ORI) in the USA publicizes all cases of serious misconduct on their website. Do you think that this should be done generally, in order to raise the awareness of scientists and the public?

Beisiegel: Many colleagues have asked me for details of ongoing cases, but I don't think that this is helpful. The ombudsman publishes an annual report to highlight trends and problems in the academic system, such as the number of cases of plagiarism or whether particular violations of the rules are getting more frequent, demonstrating where the problems are. I think that this is the right information, instead of publicizing all cases of misconduct, which often leads to sensational media reporting. If we made everything public out of principle, the system would not work because it is based on confidentiality: people would not contact us to report misconduct because their careers would be jeopardized. If, however, misconduct created real damage to society, it must be made public because scientists have a responsibility to society.

“...the basic idea behind creating the ombudsman [...] is to prevent research misconduct in the first place”

EMBO reports: A current fraud case that is being covered in the media concerns the research group of Professor Bulfone-Paus at the research centre in Borstel, Germany. Do you think that the research institute investigated the case properly?

Beisiegel: Yes, they have set up commissions to investigate it and, since I followed this case, I think they are doing so in a timely manner and with the appropriate diligence. The president of the Leibnitz society [which funds the research institute in Borstel] is not personally involved in the investigation, but is aware of it. The universities in Lübeck and Berlin that are affected coordinate with each other and inform the DFG; I think that this has been handled very well.

EMBO reports: The US government regards research misconduct that affects public grant money as misappropriation of public funds, and can impose sanctions such as barring researchers from receiving federal grants or even pursuing criminal prosecutions against them. Do you think that the public authorities in Europe should also have more legal teeth to punish cases of severe misconduct?

Beisiegel: The German ombudsman only deals with problems to assess the extent and severity of misconduct. If there is a serious suspicion of misconduct or fraud, the case is handed over to the institution, which is in charge of applying sanctions. Still, in Germany, we don't have much experience with sanctioning. Universities are still quite reluctant to sanction scientists—after all, you are imposing sanctions on your colleagues. But, I do think that we need serious sanctions, otherwise the system won't work—but this is not the task of the ombudsman.

There are actually two views on sanctions: on the one hand, if we don't educate scientists about proper conduct of research, we cannot impose drastic sanctions; although I would argue that it is a general principle of ethics not to lie or to falsify data. On the other hand, we should really impose severe sanctions if scientists are found guilty of deliberate, serious misconduct to make clear that they won't get away with this. On many occasions, we have seen that plagiarism by professors was not properly punished. I think professors are role models and should not plagiarise, full stop. Yes, universities and research institutions should be more willing to and more forthcoming in applying sanctions against those who performed misconduct.

EMBO reports: The ombudsman is responsible for all scientific research in Germany. In contrast, the ORI in the USA is only responsible for research funded

“If we made everything public out of principle, the system would not work because it is based on confidentiality...”

by the Department for Human Health Services. Is it better to have one general ombudsman or one for each institution?

Beisiegel: I think one advantage of the German system is that it has both: local ombudsmen in all research institutions and a national ombudsman. The local experts deal with questions about whether certain performance are acceptable or not and with prevention and education. The really serious cases often end up with the national ombudsman for two reasons: the national ombudsman is a team who have more experience and they are neutral. Many universities only have one person acting as ombudsman, which makes it more difficult to rigorously pursue cases of misconduct.

The national ombudsman was implemented by the DFG but is accessible for all scientists and scholars in Germany—the DFG just finances the bureau. It doesn't matter if you work at the German Center for Air and Space or at a Max Planck Institute; even employees from industry can contact the bureau, although it is more difficult to investigate such cases.

EMBO reports: Various studies from the USA show that severe misconduct—fraud, falsification and plagiarism—are only the tip of the iceberg and that questionable or improper research practices are much more common. Do you agree?

Beisiegel: There are only a few cases of severe fraud and falsification that are identified each year, but, yes, there is more dishonesty than we see or hear about. I think this is an inevitable result of the system. There are two important aspects of the German university system: its hierarchical structure and the strong competition for positions. Both of these create economic pressure to compete for funding, as well as pressure to publish in high impact factor journals. Of course, this acceleration is not only a problem for science, but also in many other areas of social life and business.

If quantity becomes more important than quality, quality suffers. Under such pressure, one is more prone to plagiarise, there

is no time to repeat an experiment and it is tempting to make someone a co-author who shouldn't be included as author. Too much competition diminishes honesty, and if we don't explicitly educate young scientists about proper practices, it will get worse. However, from my experience of giving talks about research ethics—for medical students, at Hamburg University and across the country to many graduate students—I can say that young people have a very strong sense of honesty, which is lost during their careers. This is of course unfortunate and is clearly an error of the system and an error of accelerating science, of needing more grants, starting more projects, writing more papers and so on. We need to decelerate the pace of science to preserve quality and honesty. The DFG with its 'quality, not quantity' initiative has actually started the right trend.

“But, I do think that we need serious sanctions, otherwise the system won't work—but this is not the task of the ombudsman”

EMBO reports: Brian Martinson, an American sociologist, and many commentators on the recent Guttenberg case in Germany think that we produce too many PhDs. This is good for the universities because they receive additional money, but do you agree that it creates unhealthy competition and diminishes the value of the PhD?

Beisiegel: Yes, I also think that this is a critical factor. We have just discussed in Lower Saxony [the state in which Göttingen University is located] that the number of PhD students should be a measure of success, but I believe that this is a wrong measure. If a university trains 10 PhDs who all become fellows at Harvard or other elite universities, then it's clearly an excellent university; but if it trains 100 PhDs, of whom one half commit fraud and the other half are mediocre scientists, then that's not good. I think training PhDs is a very important task that we have to take very seriously. We need to improve the quality of mentoring and not the number of PhD students.

EMBO reports: As President of Göttingen University, how will you create or reinforce the awareness among your colleagues that quality is more important than quantity?

Ulrike Beisiegel was born 1952 in Mühlheim/Ruhr (Germany) and studied biology in Münster and biochemistry in Marburg. In 1996, she received a tenured professorship at the University of Hamburg and was Director of the Institute for Biochemistry and Molecular Biology at the University Medical Center in Hamburg-Eppendorf. In January 2011, she was appointed President of Göttingen University. From 2000 to 2005, Beisiegel was a member of the ombudsman at Hamburg University; from 2005 to 2010, she was speaker of the DFG ombudsman. She retired from this position when she moved to Göttingen; her successor in the ombudsman is Brigitte Jockusch at Braunschweig University. The German ombudsman for research was created in 1999 by the DFG; the bureau advises and negotiates, but it does not investigate misconduct cases itself, nor imposes sanctions.

© Göttingen University

Beisiegel: I've only been president for 5 months but I already have given a clear message that we need to improve quality by reducing the pace. Now that we are entering the second round of the excellence initiative [by the German government to identify and financially support 'excellent' universities], everyone thinks that we have to reinvent the wheel. The first round created a lot of excitement at many universities and triggered many improvements. But we need to take the time and consolidate and nourish all the crops that we've newly planted instead of going faster and faster. I often hear that 'we need to create another SFB', but it should be 'we must conduct good research' and only then we are ready to apply for a SFB. Scientists are too busy writing grant applications and publications nowadays that they have no time to do research. Don't get me wrong; we do need grants and extra money to do research, but we must be careful that it doesn't get out of control.

"We need to decelerate the pace of science to preserve quality and honesty"

EMBO reports: Do you think it is an advantage if the university provides scientists with a basic budget to employ staff and conduct research, so as to make them less dependant on grants?

Beisiegel: Yes, I think it is extremely important that universities—which are research institutions after all—are provided with basic

funding for research. Long-term research projects and original research projects that generate new knowledge need time. It may easily take a year or more until you get publishable results because you first have to establish elaborate cell cultures or animal models and you need a long-term budget for this. This doesn't mean that scientists should not try to get grants, but it is also the kind of grant that matters. Many colleagues now feel obliged to apply for large network grants, but a small grant is often enough to test an idea. We have gone the way of 'the bigger, the better', but if you look at the large EU networks, what goes in and what comes out, it is not particularly efficient. And if you compare this to what a young scientist can do with one person and some €20,000 for material, that's a completely different outlook. We have to get to a situation in which you have a decent basic budget—not too much, but appropriate—and in which we apply for grants based on the research we want to do.

EMBO reports: Do you see the same problem with the large EU networks of excellence? Do you think that the European Research Council (ERC) addresses this?

Beisiegel: The ERC is the right answer. Yes, the big networks are a European problem and have gotten really complicated, because you might need to include countries from different regions instead of just looking for suitable scientists. I am in favour of also supporting less advanced EU countries, but not using the same funding instruments as for high-quality research programmes.

EMBO reports: Do you think that the ERC, the European Science Foundation (ESF) or the European Commission (EC) should have a more prominent role in addressing research misconduct at the European level?

Beisiegel: They already do this. The ESF has published a position paper and together with the ORI they organized two global conferences on research integrity in 2008 and 2010, and published the Singapore position paper. However, these initiatives are a bit detached from reality: who in Germany knows the ESF papers? There is also the European network of ombudsmen, but there is still a long way to go. The offices in individual countries are so different that not everyone is really engaged, and then there is the question of which office in which country takes care of which case.

"But I think that good and sustainable research has to face the fact that it often doesn't work as the theory predicts"

EMBO reports: The German defence minister Karl Theodor zu Guttenberg was recently forced to resign after it was found that he had plagiarised large parts of his thesis. This was of course heavily publicized; do you think that this level of media interest is damaging for science?

Beisiegel: It is not damaging, but sometimes I wish the journalists would show a bit more

responsibility and less sensationalism. We have actually followed the Guttenberg case very closely to see how the university, the DFG and others handle it. When the case became public, it would have been wiser to respect that the university is investigating it and that Mr zu Guttenberg will have a chance to respond before we come to a conclusion. Instead, the whole back and forth in the media was perhaps more damaging to science. What I really appreciated was the fact that the young scientists got organized to make clear that they're not like this and to call for zu Guttenberg's resignation as minister. This was impressive and, in hindsight, it was maybe good that the DFG hesitated with its statement because otherwise this wouldn't have happened.

“Teaching students to be honest and to critically analyse their work is our major responsibility as a university”

EMBO reports: Some commentators are actually quite critical about the fact that the DFG, the Max Planck Society and others did not comment on the Guttenberg case.

Beisiegel: When the case became known to the public, I was still ombudsman and I supported the intention of the DFG to go public and comment. They should have reacted. But I think that the initiative of the young scientists was much better than any official statement. On the other hand, in the beginning we didn't know more about the case than the journalists, so we could not really comment on it and I didn't do it as well. Before you can be sure that it is plagiarism and that it should be sanctioned, you have to be very careful about what you say because comments by the ombudsman or the DFG carry a lot of weight. Imagine that the DFG had said that Guttenberg should resign and it

turned out that the plagiarism was minor and accidental; the damage would already have been done. But I still think that they should have commented once it was clear that he plagiarised his thesis.

EMBO reports: In terms of plagiarism, do you see a difference in perception or in definition between the sciences? That plagiarism is maybe less acceptable in the natural sciences?

Beisiegel: Of course there are differences: falsification is much more common in the natural sciences and most cases of plagiarism are in the methods section, which is due to the fact that the same methods are used—which still need to be cited! Serious plagiarism is more common in the humanities and social sciences, where longer paragraphs are copied without reference. You can find whole habilitations [the German examination that entitles someone with a PhD to use the title Professor] that are put together from two or more doctoral theses without giving reference to these. Plagiarism is also more important in these fields because it affects ideas; even if you don't quote someone verbatim, it can be plagiarism if you use someone else's idea without reference.

EMBO reports: If you rigorously pursue proper conduct in research, does it not carry the risk of hindering science? Take, for example, Robert Millikan or Gregor Mendel, who both ignored results that didn't fit their hypothesis: Millikan won the Nobel prize and Mendel founded genetics. Are there cases in which the end justifies the means?

Beisiegel: I am not in favour of claiming that the end justifies the means. There is, of course, the question of how often you need to repeat an experiment before you accept the results, because it can get very

expensive. But I think that good and sustainable research has to face the fact that it often doesn't work as the theory predicts. Of course, scientists want to prove their hypothesis is true and it's easy to fall into the trap of self-deception if the data is not really conclusive or if there are outliers; this is not deliberate fraud, but it is dishonesty.

We need to educate the students to be honest and to be critical of their experiments. When I came to Hamburg University, the biochemistry coursework required that if the students didn't get the right result, they had to spend extra hours in the lab to repeat the experiment and get the 'right' result. This teaches students to come up with an expected result no matter what, so they can go home even if they made it up or copied it from someone else. Instead, we should give the students a task and discuss the result. If it is unexpected, we should discuss what has happened and whether we think the result is correct or not or what the mistake might be. Teaching students to be honest and to critically analyse their work is our major responsibility as a university.

EMBO reports: More generally, do scientists have a responsibility to tell the truth?

Beisiegel: This is the most important responsibility for scientists, because science is all about uncovering truth. It is our responsibility to seek the truth, but it is also our responsibility to society, which expects honesty both in terms of our results and their potential effects on social life.

EMBO reports: President Beisiegel, many thanks for the interview.

This interview was conducted and translated from German by Holger Breithaupt.

Received 21 June 2011; accepted 29 June 2011; published online 15 July 2011

EMBO reports (2011) 12, 754–757.
doi:10.1038/embor.2011.144