Current challenges for tertiary education policy

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The German innovation system requires efficient and internationally competitive tertiary education institutions conducting basic research, applied research and teaching at a high and the highest level. In addition, universities and colleges should give society and the business sector access to their results and at the same time take on new problems and insights. Against this background, Germany's tertiary education institutions – and government tertiary education policy in general – face a wide range of challenges. These include, among many others, further differentiating Germany's tertiary-education system, creating attractive conditions for young scientists, taking the opportunities offered by digital change, and integrating refugees.

Further differentiating Germany's tertiary-education system

On several occasions, the Commission of Experts has advocated a further differentiation of the German tertiary-education system.[40] This could sustainably reinforce not only its own international competitiveness, but also the competitiveness of Germany as a whole.

Ten years ago, the Excellence Initiative set a differentiation process in motion. The Excellence universities have succeeded in enhancing their international visibility.[41] The promotion of graduate schools and clusters of excellence helped set scientific priorities at the supported universities,[42] thus initiating a process of differentiation between tertiary education institutions.

In December 2014, the Federal and Länder governments took a fundamental decision on a new initiative to follow the Excellence Initiative, which expires in 2017.[43] A concept detailing specific elements of the follow-up programme will be submitted by the Joint Science Conference (Gemeinsame Wissenschaftskonferenz, GWK) in June 2016. This is to be developed on the basis of the Imboden Commission's evaluation of the Excellence Initiative and launched at the end of 2016.

The Commission of Experts recommends using the planned continuation of the Excellence Initiative to further intensify the differentiation of tertiary education institutions. German universities that are performing particularly well at the time when the decision on funding is taken should continue to receive institutional funding in the future – in a similar way to the third line of funding of the current Excellence Initiative – to ensure a high level of visibility for the German science system. The term 'excellence' should be defined more precisely in future. A University of Excellence should not only conduct outstanding research, but must simultaneously make a successful contribution to the knowledge transfer of research results to business and society. Furthermore, regarding the continuation of the Excellence Initiative, support should also be given for outstanding research structures that are particularly focused on specific issues or disciplines and are internationally recognised.

Using science-driven competitions to choose the institutions to be funded has proved a successful procedure in the past.[44] The standards that have already been reached in the assessment of scientific projects must definitely be maintained and further enhanced.

The two rounds of applications for the Excellence Initiative have shown that the task of meticulously filing and evaluating applications involves a lot of work for the scientists involved. The duration of funding should therefore in future be significantly longer than five years,[45] to make it possible to implement long-term research programmes and to reduce the workload involved in the application process relative to the duration of funding.

When it comes to the differentiation of the tertiary-education system, other performance dimensions of universities and colleges in addition to research are also of importance: e.g. teaching, further education, knowledge transfer and research infrastructure. Tertiary education institutions are invited to identify their comparative advantages and to raise their profiles on that basis.

Creating attractive conditions for young scientists

The tertiary education institutions have the task of training young scientists, and that is a great responsibility. Universities and colleges must enable doctoral and post-doctoral researchers to become as well qualified as possible for their subsequent activities both inside and outside the science system. Attractive working conditions and career prospects must be offered in order to attract the best talents – also in the context of international competition.

Most young scientists at universities and colleges have fixed-term contracts.[46] When such fixed-term contracts are concluded between state tertiary education institutions and academic staff, the relevant law is the Law on Fixed-Term Employment Contracts in Science (WissZeitVG), which came into force in 2007. The core of the special fixed terms agreed here is the unfounded maximum fixed term, which amounts to six years both before and after PhD graduation (section 2, subsection 1, sentences 1 and 2 of the WissZeitVG). The Law on Fixed-Term Employment Contracts in Science is also the basis for fixed-term options when posts are funded by third parties (section 2, subsection 2 of the WissZeitVG). An evaluation of the law conducted in 2011 showed, inter alia, that the terms of more than half of the contracts concluded at tertiary education institutions amounted to less than one year.[47] The evaluation also revealed ambiguity with regard to the relevance of the scientific qualification for the unfounded fixed term. Further ambiguity was identified regarding the extent to which periods of temporary employment before graduation count towards the maximum fixed term.[48]

The Bundestag passed an amendment to the Law on Fixed-Term Employment Contracts in Science on 17 December 2015 which touched on the above-mentioned points, among other things.[49] In future, unfounded fixed terms will only be allowed in connection with an academic or artistic qualification; the period of the fixed term must be appropriate in view of the targeted qualification. In cases of third-party financing, the period of the fixed term is to correspond to the duration of the project. Furthermore, the amendment of the Law on Fixed-Term Employment Contracts in Science clarifies the extent to which fixed-term employment contracts are permitted before graduation.

The Commission of Experts is aware that there were shortcomings in the field of tertiary education under the old legal framework, and that these may have been favoured by the earlier version of the Law on Fixed-Term Employment Contracts in Science. Some of these shortcomings will be eliminated with the revised version of the law.[50]At the same time, the Commission is sceptical as to whether the revised version of the law will lead to a general and sustainable improvement in the situation of young academics. Furthermore, tertiary education institutions are being burdened with a lot of bureaucracy, and the trend seems to be towards limiting their flexibility.

Structured doctoral study programmes in the form of research training groups and graduate schools have grown in importance[51] and the quality of training for PhD students has improved. In the view of the Commission of Experts, there is now a further need for action to improve the career prospects of post-doctoral students. Since the percentage of permanently employed professors is very low in Germany by international comparison,[52] post-doctoral students can expect little chance of a permanent position.[53] Furthermore, German universities rarely offer tenure-track careers and therefore often have little to offer to attract and keep talented young scientists in the face of international competition.[54]

At the Joint Science Conference (GWK) held in April 2015, the Federal and Länder governments agreed to implement an initiative for young scientists aimed at helping tertiary education institutions to make young scientists' future career prospects more reliable and easier to plan.[55] The negotiations to flesh out the details of the initiative have not yet been completed.

The Commission of Experts advocates a change in the personnel structure at the universities. It sees this as a key starting point for improving the situation of young scientists. Over the next few years additional W2 and W3 professorships should be created and the curricular standard values concurrently raised. This would have the advantage of reducing the teaching

workload of professors and bringing the student-to-professor ratio into line with international standards. This could improve not only young scientists' career prospects, but also the quality of teaching, and increase the time resources available for research.[56]

In addition to the creation of additional W2 and W3 professorships, the Commission of Experts recommends creating more independent research and teaching positions for post-doctoral students. The growth in the establishment of junior research groups that can already be observed should continue.[57] An increasing number of tenure-track careers should be offered instead of the usual form of junior professorships, which do not provide for a continuation of employment even after a successful probationary period. This would offer the job holders permanent employment after successful evaluation – which should be carried out according to transparent criteria.

Forms of faculty organisation within universities are also an important issue if there is to be a change in the personnel structures at universities.[58] For example, universities in the USA and the United Kingdom have departmental structures, as opposed to the German system, which follows the 'professorship principle'. There should be more experimentation with such models.

Taking the opportunities offered by digital change

Tertiary education institutions should make better use of the opportunities offered by digital change.

An adequate digital infrastructure is a prerequisite for excellent research and teaching. This applies not only to the STEM subject group, but increasingly also for the social sciences and humanities.[59] The focus here is on the development, expansion and networking of information infrastructures. In the social sciences, it is essential to build up and have access to data stocks, which make empirical analyses possible.[60] In the humanities, the digitisation of texts and artefacts in particular opens up new avenues of research.[61]

The priority in teaching is to pass on to students skills with which they can exploit the potential of digitisation in research and practice – for example techniques such as programming, data mining and text mining. Computer science education should be more interdisciplinary and application-oriented that it is today. Furthermore, greater use should be made of digital technologies for teaching skills and knowledge; one instrument, for instance, could be Massive Open Online Courses (MOOCs).[62]

Digital solutions can also be used to further optimise administrative processes in tertiary education institutions and make them more transparent. In addition, digitisation offers opportunities to improve knowledge transfer to business and society,[63] to make more progress with the internationalisation of tertiary education,[64] and to engage in citizen science.[65]

Tertiary education institutions need individual strategies for dealing with the challenges of digitisation. The Commission of Experts has the impression that this topic has been neglected by many education institutions up to now. Such strategies need to be developed against the background of the respective profile-building processes. Issues such as open access and open data must also be taken into consideration.[66] The tertiary education institutions can be supported in their strategy development by identifying and supporting best-practice examples.[67] Furthermore, the Federal Government could provide institutional funding for individual tertiary education institutions to encourage the implementation of sustainable digitisation strategies which promote interdisciplinarity (cf. Chapter B 2), have especially ambitious aims, and can be used to build the profiles of these universities and colleges.

Beyond project-related IT investments, tertiary education institutions need sufficient basic resources to build up, expand and operate an appropriate digital infrastructure.

Giving refugees easier access to the tertiary-education system

Providing refugees with the appropriate qualifications access to the education system – and thus also to the tertiary-education system – is a big challenge both for the tertiary education institutions and for tertiary education policy.[68] It is necessary to tackle this task quickly – both for humanitarian reasons and in the light of the looming shortage of skilled labour. In the meantime there are a large number of programmes and initiatives at German universities and colleges aimed at integrating refugees.[69] Various measures have also been taken at the federal-state level to give qualified refugees access to tertiary

education.[70] In addition, on 3 December 2015 the Standing Conference of Education Ministers passed a resolution on procedures for providing access and admission to tertiary education for applicants who no longer have proof of the tertiary education entrance qualification they acquired in their home country as a result of their flight.[71]

The Commission of Experts is in favour of sometimes using unconventional methods to give refugees access to the tertiary-education system. Innovative ways of proving qualifications – and study courses in the form of the English-speaking MOOCs – can be part of the solution. A lack of German language skills, and lost or not recognised documents, must not mean that qualified refugees have to wait a long time for a university education – or be forced to abandon the idea altogether.

The private Kiron University in Berlin, founded as a start-up in 2014, has an interesting concept: its aim is to enable refugees to gain a university degree free of charge.[72] For the first two years of study the programme is made available in the form of MOOCs that can be subtitled in the respective language. Complementary support is also available in the form of language courses and access to IT infrastructure. In the third year, students who have been successful hitherto can attend regular lectures and seminars at the partner tertiary education institutions – these include the RWTH Aachen, the Eberswalde University for Sustainable Development, and Heilbronn University.

Recommendations

- Regarding the continuation of the Excellence Initiative, institutional funding of Germany's best-performing universities should be maintained. In addition, support should be provided for outstanding research structures that are focused on specific issues or disciplines and internationally recognised.
- Tertiary education institutions should further raise their profiles and, in addition to their main research areas, also focus on other performance dimensions such as teaching, further education, knowledge transfer and research infrastructure.
- The personnel structure of tertiary education institutions must be changed in order to create attractive conditions for young scientists. Over the coming years additional W2 and W3 professorships should be set up and the curricular standard values concurrently raised. An increasing number of tenure-track careers should be offered instead of the usual form of junior professorships, which do not provide for a continuation of employment even after a successful probationary period.
- Tertiary education institutions must develop strategies to make better use of the opportunities offered by digitisation. In this context they should be supported by identifying and promoting examples of best practice. Furthermore, the Federal Government could provide institutional funding for individual tertiary education institutions to encourage the implementation of digitisation strategies which promote interdisciplinarity (cf. Chapter B 2), have especially ambitious aims, and can be used to build the profiles of universities and colleges. Sufficient basic resources must be available to build up, expand and operate an appropriate digital infrastructure.
- Tertiary education institutions and political decision-makers must work together to ensure that refugees with the appropriate qualifications gain swift and unbureaucratic access to the German tertiary-education system.