Resolution of the
150th Senate of
the German Rectors´
Conference
on 22 March 2022
Video conference

Teacher education in a digital world

HRK German Rectors' Conference
The Voice of the Universities

Leipziger Platz 11
10117 Berlin
Tel.: +49 30 206292-0
Fax: +49 30 206292-15
post@hrk.de
www.hrk.de

Ahrstraße 39
53175 Bonn
Tel.: +49 228 887-0
Fax: +49 228 887-110
post@hrk.de
www.hrk.de

Digitalisation is bringing about long-term changes in teaching and learning processes. In view of this, and also against the background of the experience gained during the Covid-19 pandemic, it is necessary to embrace these changes and to systematically orient teacher education[1] to the resulting requirements. The federal government and the federal states have already set the first accents in the funding of the Quality Offensive in Teacher Education with the thematic focus "Digitalisation in Teacher Education", which has facilitated research and development projects. The Foundation for Innovation in Higher Education has also engaged with the topic of "Strengthening Higher Education Teaching through Digitalisation" in a first round of funding. The HRK's recommendations are intended to follow this up in a timely manner.

Learning is and remains a social process. In this context, digital tools and media should be understood as extensions and supplements to face-to-face teaching in school. For teacher education, this means creating spaces and opportunities in which students as well as teachers at universities can creatively test learning formats, media and methods and empirically justify and theoretically reflect on their didactically meaningful use in the classroom. Continuing education and training for teachers in schools also plays a central role, because this is the only way to prepare teachers now in service for the new challenges. The existing paradigms for continuing education and training of teachers do not do justice to this problem in any way, either from the point of view of content or with regard to the organisational and financial framework conditions.

In this context, university teachers involved in teacher education have a special responsibility, as they have the task of specifically encouraging the competence development and reflective ability of students. Universities should therefore become development spaces where both teachers and learners can acquire the necessary competences. Here, student teachers face particular challenges in their dual role as learners and future teachers. In order for them to successfully assume this dual role, the further development of curricula in teacher education programmes must become a joint task of the individual academic disciplines, didactics and educational sciences.

So far, support for digitalisation in teaching and especially in teacher education has only been provided through temporary funding lines from the federal government or the federal states. However, without substantial and sustainable basic financial support, the ambitious goals of adequate teacher education for a "digitalised society" cannot be achieved. New professions with integrated professional and technical competence profiles must be developed, academic staff must be supported, and professorships in this field and the necessary personnel and material infrastructures must be established and secured in the long term. Last but not least, there is a need for permanent and reliable framework conditions as a

[1] Four groups of people are affected: University teachers, student teachers, teachers (at schools), pupils.

basis for universities to be able to fulfil the tasks that arise from the constantly changing process of digitalisation.

1. Provision and maintenance of the necessary infrastructure and legally compliant framework conditions

The provision of the technical infrastructure and associated support structures is a basic prerequisite. The infrastructure and framework conditions must address the challenges of the individual disciplines and those of an interdisciplinary nature in equal measure and be designed or adapted with a view to supraregional (as well as nationwide and international) connectivity. Subject-specific, interdisciplinary responsibilities within universities should be regulated in a clear and overarching manner within the framework of the specific conditions and requirements of teacher education and enable an intensive exchange of information and experience. This applies equally to cooperation with other institutions of teacher education. Finally, the legal framework for the use of technologies in teaching-learning scenarios and the use of the data generated in the process must be clarified. Low-threshold advisory and support services, both centralised and decentralised, are needed.

2. Development and selection of appropriate tools for teaching and learning in a digital world

Teacher education must strive to ensure that teachers comprehensively embrace and actively shape the opportunities that have arisen as a result of the pandemic-related digitalisation surge in their school activities. The reflective-critical, digital, media-pedagogical and subject-specific competences of teachers play an important role in this. Teacher education must be open to innovations and convey the different facets, opportunities and risks, possibilities and limitations of digital teaching, learning and assessment formats, so that student teachers can try these out and reflect on them in a theory-driven manner during practical phases and school-based training. The cooperation with partner schools that supervise students during their practical placements as part of the master's programme lends itself to this purpose.

To encourage openness to experimentation and at the same time strengthen a reflective approach to new technologies, project-oriented and experimental teaching-learning settings are also of central importance in the study programme. Forms of interaction and communication, values and their development in the digitalised world form an indispensable part of the teaching-learning process. There is a need for the ability to distinguish between factual information and opinions or commercial offers seeking to influence in the media or on the internet.

3. Curricular anchoring of topics and competences

3.1 Information technology competences

Pupils must be enabled to act competently, confidently and self-determinedly in a digital world. This requires that teachers are also able to do this and that they know the basic principles of the digital world and

recognise algorithmic structures in digital tools. The responsible use of digital teaching formats must be informed by a basic understanding of computer science systems (e.g. in robotics, language processing or simulation), handling data (especially with regard to big data, data protection and data sovereignty), licensing issues (concerning learning objects, tools and apps) and artificial intelligence. The teaching of information technology competences should be specific to teacher education and take into account corresponding focal points.

3.2 Digital transformation in school development

The possibilities of digitalisation must be used by all teachers to cater for different learning speeds, different prior knowledge and different interests and to teach remotely and when not interacting live with pupils. This also means that teacher education takes into account how the digital transformation affects the institution of the school and requires a rethinking of school development. Teacher education courses must take the digital transformation into account in all these aspects.

3.3 Digital transformation in individual academic disciplines and in didactics

Digital media and technologies can be used to support the acquisition of subject-specific competences by pupils. It is the task of teacher education to integrate digital media and technologies as a natural working tool for students and pupils in subject-specific and didactic courses. Even more than at present, teacher education institutions should research digital tools in didactics and develop them further in terms of their subject-specific potential. The digital transformation challenges us to redefine the relevance of academic content, which must also lead to a rethinking of school curricula.

4. Support for university teachers and teaching staff through continuing education and training

Broad participation in "lifelong learning" is necessary to allow the emergence of relevant didactic potential for designing innovative and cooperative learning and development spaces. The academic nature of these continuing education and training programmes and their close integration with the first phase of teacher education can be ensured through cooperation between state institutes and universities or through programmes developed and implemented by universities[2]. This science-based characteristic should certainly be the norm. The expertise of all types of higher education institutions involved in teacher education should be integrated in this process.

Existing programmes and paradigms for the continuing education and training of teachers do not always do justice to the current situation, either from the point of view of content or with regard to the organisational and financial framework conditions. Overall, the situation with

[2] cf: Resolution of the Senate of the HRK on 25 June 2020: Cross-sector and lateral entry into teaching: Academic standards are non-negotiable, https://www.hrk.de/resolutions-publications/resolutions/beschluss/detail/lateral-and-cross-sector-entry-into-teaching/

respect to continuing education and training for teachers is confusing and urgently needs a fundamental reform involving scientific expertise – and this is not only true in the face of the special challenges of the digital transformation. For example, microcredentials for relevant modules on digital teaching-learning relationships can be an important support for building digital collaborative teaching and learning competences. To be able to organise the continuing education and training of teachers at an academic level, the teaching obligation regulations at universities and those concerning teachers at schools must be amended.

5. Research and transfer

Due to the essential connection between teaching and research at universities, digital research approaches and methods should be an integrative academic component in teaching-related degree programmes and a subject of teaching. This involves research on teaching-learning processes in digital settings, but also research on digitality as a content component of learning processes.

Likewise, the effects of digitalisation on the social, labour and education system should be increasingly a subject of research. This requires an independent training for all student teachers in research methods, which, being empirically based and related to the findings of teaching-learning research, takes its place alongside didactics and its theoretical justification. The complexity of these effects can be analysed comprehensively, especially in interdisciplinary research projects and in the interaction of academic disciplines, didactics and educational sciences. As a specific example, it must be investigated how learning with digital media affects individual and social learning processes and educational outcomes, how it can be designed to be pedagogically and didactically effective, and how the research results can be transferred into teaching and the continuing education and training of teachers as well as the qualification of lateral and cross-sector entrants. Against the background of the experiences acquired during the pandemic, it is also important to build an improved understanding of the effects at the interface between school and home-based learning in the context of family and society and also about a clearer elaboration of the effects and the associated opportunities and risks of the permanent digitalisation of all areas of life.

6. Making full use of the potential of digitalisation in teacher education

Teacher education has a number of other challenges to overcome besides digitalisation. These include among others

- Measures for an inclusive school: So far, only rudimentary use has been made of the opportunities that digitalisation could offer for the individualised support of pupils with special needs.
- Overcoming socio-economic differences: Participation via digitalised formats must be supported by an improved digital infrastructure.
- Internationalisation: Digitalisation opens up new opportunities to strengthen *Internationalisation at Home* and *blended mobility*,

which cannot replace a period of study spent abroad, but nevertheless provide insights into other teaching-learning cultures.

Teacher education is in a constant state of change, as it must necessarily incorporate changes in living conditions and society into the academic preparation of future teachers. For this, it must be and remain open-minded and capable of change. Digitalisation offers the tools, but their use in dealing with new challenges must be continuously reflected upon in a science-based manner.