



DIGITAL MEDIA IN EDUCATION

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Summary

- › The digitalisation, miniaturisation, portability and interconnectedness of media dynamically influence virtually all parts of society.
- › The new digital media have complex implications for all education stakeholders regarding the form, content, means and basic conditions of education.
- › Teaching how to use digital media in a sensible way related to daily life, work and life in general – which represents a central cultural technology – has become an important task in the various areas of education.
- › However, it is difficult to test the skills required to use digital media, the critical reflection of their use as well as their significance with regard to whether the use of digital media is effective for teaching and learning.
- › There is no assured data or knowledge that serves as a basis for the design of proper media education within educational institutions or education policy regulations. Such a basis would allow anyone to make use of the opportunities of professional, cultural and social participation associated with the new digital media.

In principal, the technological characteristics of digital educational media – their interactiveness, convergence and connectivity – mean that different types of educational concepts can be created and used. The resulting educational media do not substitute for preexisting media, but rather expand upon them. Possible synergy effects are coupled with structural conditions (e.g. the preparation and training of teachers, the clarification of legal stipulations, a supporting media policy and a positive image of digital media). At the same time, the **technical increase in a potential interactiveness, participation and collaboration** always means an increase in self-organisation for the students and an increase in conceptual work for the teachers.

The current situation in Germany, however, shows that a substantial integration of digital media in teaching and learning processes is not yet standard. A connection of formal and informal learning processes would be desirable. Additionally, the number of social science studies on the education process and digital media is still relatively small, and they are largely heterogeneous in both the types of questions asked and operationalisation. Since education policy should ensure that all people can benefit from the **opportunities for professional, cultural, and social participation associated with the new media**, the closing of these research gaps is also of public interest.

What is involved

With its newly emerging online tools and applications, digitalisation has a **massive potential for the field of education**: From a didactic point of view, this potential lies in the quality of teaching as it relates to the qualitative enrichment of existing teaching methods, the quality and quantity of learning options and the motivation of students. Further advantages include an independence from time and place, an easier management of educational processes and their verification, the extended usability of lesson plans and the promotion of equal opportunity regardless of social or socio-economic status. Fundamentally and above else, working with digital media is most advantageous if student learning is actually and substantially improved.

Challenges

In the last few years, several innovative educational provisions have been developed that have the potential to meet the current challenges in the individual educational sectors. The use of open educational resources (OER) in schools, for

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example, could contribute to supporting individual learning. The increasingly skill-oriented education and training concepts of many universities require the students to increasingly self-organise their learning, which can be encouraged through the use of social media, among others (fig.). Finally, in the area of vocational education, there is a particular potential regarding the use of new media to promote and improve the cooperation between learning venues in schools and enterprises. However, we must state with regard to actual educational practice that innovative educational provisions have been implemented in individual cases, but not yet on a broad scale.

German schools are often in an early phase of the change process towards an educational institution that prepares its students for life in a digital world. So far, debates on the success of media integration and the acquisition of media skills until now have been carried out mainly with regard to the »media equipment« of schools and students. Doubts about the success of such a one-dimensional strategy are certainly justified here. From the perspective of education experts, **the main reason for the thus far limited integration of digital media in schools can be found in the training and staff development of teachers.**

In **universities**, the »learning logic« has so far changed very little despite digitalisation. It is only through an **adaptation of the necessary organisational and legal framework conditions** and an **improvement of the education of teachers in media didactic skills** that it would be possible to tap the full potential of new digital types of media for creating new didactic concepts. This is especially the case for learner-centred concepts that are applied to face the increasing heterogeneity of university students, their diversified learning needs and their different learning behaviours. The discrepancy between the self-critical assessment of university teachers' media skills and the low number of attended continuing training courses points to institutional weaknesses in the university system, e. g. lacking consideration of online offers in the calculation of the teaching load, high formalisation of the accreditation system, a lack of venture capital, unclear data protection provisions as well as a teaching and learning culture that is oriented towards conventional classroom-based teaching.

In the field of **vocational education and training**, the acceptance and use of, for example, e-learning tools is increasing, but is still rather disparate. Moreover, the use of e-learning and digital media is still cautious in small and medium-sized companies. The demand for the introduction of forms of digital learning in companies is closely tied to the way



in which they are perceived as **potential upgrading for training and the whole company – with regard to individualisation, image optimisation, staff loyalty and quality improvement.**

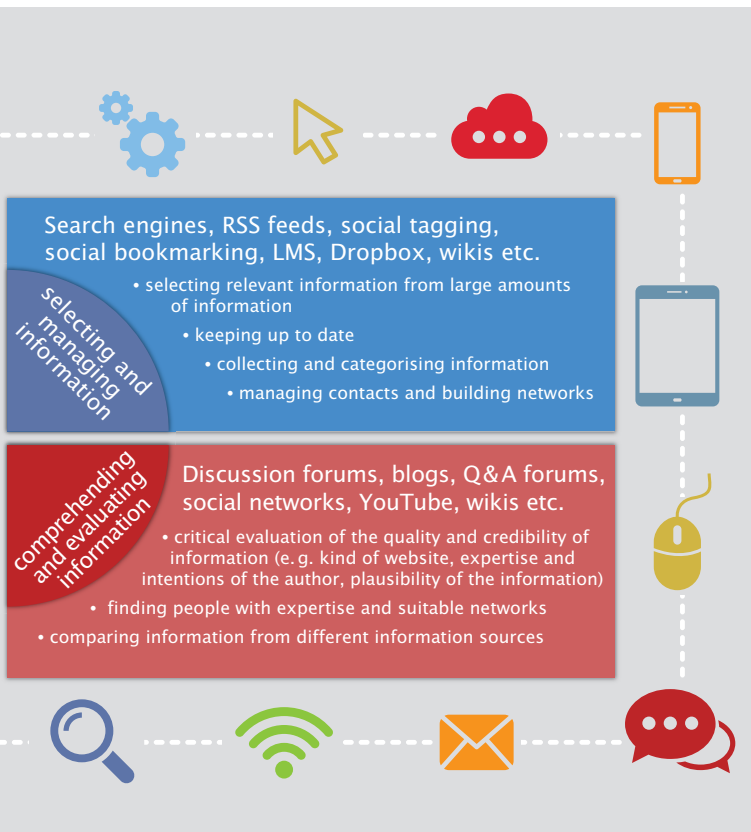
Competence of teachers

The use of digital media, or media education and capacity building, can only be as good as the resources provided for it. An effective and beneficial use of digital media in teaching

Dimensions of basic media education



activities is only reasonable with the simultaneous **rethinking of educational** concepts and the development of new didactic approaches. Teachers need to develop comprehensive media skills as well as didactic competence for using media, and need to be sensitized and prepared for the expected and in part already observable changes to their role.



Learners actively design their own learning processes in line with their individual needs. This way, teachers become learning companions. At the same time, digital educational media offer incentives for the development of a sharing culture, which increasingly causes teachers to work on the teaching material they have created together with students and other teachers.

To tap the full potential of new digital media for school, **changes regarding the training of teachers are required.** More than 80 % of teachers wish they had been better pre-

pared for lessons with digital media in their studies and traineeships. To that effect, media education **qualification standards** should be developed and **skill levels** should be formulated. Due to the low »half-life of knowledge« in the context of digitalisation and due to the rapid technological change in this area, teaching staff should also be continuously trained on the use of digital educational offers in school lessons.

In the university sector, the problem of a lack of recognition of teaching activities in relation to research activities is fundamental. This has consequences for the university teachers' awareness of didactic training provisions. For instructors, incentives must be created to undertake further training in the didactic and media education areas – for example through the awarding of a sabbatical to improve teaching skills. Additionally, a **stronger recognition of the job description »University Teacher« on an organisational level at universities as well as on an institutional level of the Federal Government and the Länder is necessary.**

Institutional conditions

At the institutional level of the Federal Government and the Länder, we would first need to create **adequate financial framework conditions.** These would account for the technological equipment and, for example, also for the implementation of pilot schemes for the use of new digital educational media in schools, such as tablet computing, bring your own device (BYOD) and mobile learning, as well as strengthened research efforts in the area of **integrating informal learning into the contexts of formal education** by means of digital media and mobile devices. For all areas of education, it is also necessary to **create online platforms for the provision of open educational resources** so that these can be found. As an orientation for the use of digital media in class and teaching, **guidelines (e.g. for social media, cloud computing)** must be developed. Furthermore, it would also be necessary to develop **quality mechanisms and standards** both for the creation of open educational resources and for the variety of new digital educational resources, which are not necessarily created by the educational institution any more that originally intended to use them.

4 Knowledge about the Protection of Minors in the Media regulation, the right to informational self-determination and the current discussion of copyright

5 Knowledge about media development and its social and economic dimensions

6 Capacity to combine subjects of media education with the study of the relevant subject, the relevant teaching methodology and practical demands

Legal aspects

At the European level, the updating of the 2001 Directive on the harmonisation of certain aspects of copyright and related rights in the information society (Directive 2001/29/EC) is necessary to have **copyright regulations that are as uniform as possible across the European area of justice** as well as broad exceptions or limitations to copyright for the fields of education and research. At the level of the Federal Government, it would be necessary to create a legal framework, in particular in the area of copyright law, which enables the legally compliant creation, use, editing and republishing of open educational resources. It would make sense to **simplify the protection of minors in the media system**, which would make it easier to use the corresponding regulations (also for laymen). In relation to **data protection**, a clarification is advisable as to the way in which new challenges arise and an explicit protection against these dangers is needed.

Technological aspects

For the use of new digital education provisions, the necessary technical infrastructure must be created. In the school sector, this especially concerns the improvement of technical equipment to an up-to-date standard – with consideration of aspects of digital (in)equality – and the **provision of appropriate network infrastructures**. It is also necessary to establish **platforms for the provision of and search for OER** as well as to consider to which extent the »Bildungsserver« of the Länder can take on this function for the school sector. The construction of technical infrastructures for a uniform rights, licence and quality management for open educational resources is also of relevance – particularly regarding the development of mechanisms for the choice of suitable licences as well as the allocation of metadata for individual content.

Research needs

More research is needed in particular to elucidate the **connection between the use of digital media in educa-**

TAB report no. 171

Digitale Medien in der Bildung

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tion and its effects on learning. Accordingly, studies must look more closely at the ways in which digital media are used in educational processes – and not only at the extent to which this is the case. Further to this, educational monitoring could have a positive effect, which would also record the use of digital media. International examples show that corresponding feedback can give valuable suggestions for the improvement of educational systems. This is not just interesting in the area of schools, but also for university teaching and the extent of the students' use of digital media, as there is currently no sufficient data available.

The large area of OER ultimately generates numerous challenges. Here, there is a need of **research, among others, with regard to new quality assurance processes, the support of OER through software systems** (e.g. licence management) and beneficial legal and institutional framework conditions. Some research initiatives have already been initiated at the European level by the initiative »Opening up Education« of the European Commission. In principal, such suggestions can also be expected from the recent research initiative »Digitale Hochschulbildung« of the German Federal Ministry of Education and Research (BMBF).

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