Digital education and upskilling of VET teachers

POLICY DEVELOPMENT PRACTICAL MEASURE/INITIATIVE GERMANY

Timeline

| 2019 **Implementation** | 2020 **Implementation** | 2021 **Implementation** |
| 2022 **Implementation** | 2023 **Implementation** | 2024 **Implementation** |

ID number 28145

Background

Since 2016, digitalisation of vocational schools is increasingly subject to educational research and policy. For example the BIBB research investigates the impact of digitalisation and industry 4.0 on emerging skills requirements for employees and also for teachers and trainers. More individualised learning, increased use of learning platforms, social media or virtual classrooms will imply different ways of teaching and require teachers and trainers to have increased IT and media competences. The strategy Education in the digital world and the resolution Vocational schools 4.0 (both KMK, 2016) put particular emphasis on four fields of action:

    (a) development of education plans, teaching and curricula;
    (b) initial and continuing education of teachers;
    (c) infrastructure and equipment;
    (d) educational media.

BIBB also addressed this topic in studies and at several events. Furthermore, also the *Monitor digital education on vocational training in the digital age (*Schmid; Goertz; Behrens et al., 2016) tackles the digitalisation of vocational schools. In 2018, the Telekom Foundation launched also the research project *Vocational school digital, s*upported by Bremen's Institute for Information Management (IFIB). The project aimed to clarify until the end of 2019, which cross-occupational and occupation-specific digital skills vocational school learners need to learn and which conditions vocational schools need to be able to integrate digital media profitably into their teaching and everyday life.

The respective federal states are responsible for the training and further education of teachers.

Objectives

Update teachers' digital skills to respond to the increasing impact of digitalisation and industry 4.0.

Description

Under its *Digital pact for schools* programme (2019-24), the Federal Government aims to fund the digital infrastructure in all German schools, including vocational schools, to promote the uptake of digital skills. Vocational schools have been gradually provided with high-quality digital equipment including professional administration. This investment goes hand-in-hand with investment of Federal States, promoting digital competences of teachers and the development of new digital teaching concepts. For example, 2020 funding guideline of the *Quality initiative for teacher training* (*Qualitätsoffensive Lehrerbildung*, QLB) described in the policy development on *Long-term quality initiative for teacher training* focuses on the topics 'Digitalisation in teacher education' and 'Teacher education for vocational schools'. This is an important complement to the Digital Pact. A total of EUR 5.5 billion from the Federal Government and the Federal States were foreseen to invest in school digital infrastructures and teacher digital upskilling over a five-year period.

2019 Implementation

In 2019, the Federal Government continued to fund projects that seek to identify strategies for designing learning processes using the potential of digital media to support successful learning, both of individuals and for groups.

2020 Implementation

Since 2020, the Federal Government and the Federal States have supplemented the *Quality initiative for teacher education* with a new funding guideline. Funding focusses on the topics 'Digitalisation in teacher education' and 'Teacher education for vocational schools'.

The COVID-19 pandemic has highlighted the need for powerful digital infrastructures in schools and for digital educational content. Funds from the *Digital pact for schools programme* (*DigitalPakt Schule*) for State-wide and cross-State projects amounting to EUR 100 million were allocated to the States for the use of digital educational offers and the expansion of infrastructures to compensate for school closures. The coalition committee has also decided to provide EUR 500 million for schoolchildren who cannot access a mobile device at home and to support schools with online teaching content, as well as EUR 500 million for teachers' equipment (Corona-Hilfe I, II and III). This additional investment funding is intended to improve the provision of digital teaching, learning and communication opportunities for schools, students and teachers: teachers can use the tablets or laptops issued by the school for lesson preparation and the implementation of digital forms of teaching.

Moreover, in 2020 the project *Digi Gap*, which is part of the programme *Digitalisation in teacher education* started. It aims to analyse 'digital gaps', in didactic, organisational, individual and technological factors in educational processes, within the framework of systematic research and to generate approaches to closing them for all phases of teacher education as well as in the school context.

2021 Implementation

In 2021, the Competence Workshop, which was funded by the Federal Ministry of Education and Research (BMBF) as part of the *Digital media in VET programme*, presented a didactic-methodical approach in the webinar series that transcends occupations and learning venues and provides company, inter-company and school teaching staff with basic information on how VET can be planned and implemented at all learning venues in a work-process-oriented, competence-promoting and digitally supported manner.

Two films published in 2021 provide insights into how the projects support and implement the topic of digitisation in teacher education: 'Teacher education in times of corona' (3/2021) and 'Digitalisation in teacher education' (11/2021).

The *Digitalised learning in STEM teacher education* (digiMINT) project of the Karlsruhe Institute of Technology (KIT) will investigate how the acceptance of digital tools has changed amongst teachers as a result of the COVID-19 pandemic. Furthermore, the

results of a survey of teachers about digital teaching tools (EduApps) have been published.

Through a Federal-State supplementary agreement of Corona-Hilfe III, EUR 500 million have been available since January 2021 to enable schools to equip teachers with laptops.

A new approach for prospective and practising teachers is offered by the Mixed reality interactive training (MITHOS) project. In the MITHOS project, vocational school teachers learn how to deal with heterogeneity and conflict situations at school in a mixed reality (MR) environment. By means of sensor technology, a precise real-time recording of social signals from the teachers' faces, bodies and speech becomes possible. The project was developed and is being implemented by a network of universities and IT companies coordinated by the German Research Centre for Artificial Intelligence GmbH. With funding of EUR 2.47 million, of which 69% is funded by the BMBF, runs from August 2021 to June 2024.

2022 Implementation

In 2022, HubbS (a hub for vocational schools), a digital platform for the exchange and development of teaching materials and teaching concepts as well as for the communication and collaboration of teachers at vocational schools was under development, based on more than 100 user stories.

Furthermore, in January 2022 the BMBF published a brochure 'Digitalisation in teacher education after the digital turn', within the Quality initiative for teacher education.

As part of the *Digital pact for schools* programme, vocational schools and VET teachers have been gradually provided with high-quality digital equipment including professional administration.

2023 Implementation

In 2023, a second status conference of the Digital Pact for Schools took place and the progress report on the digital pact was published, documenting the funding activities relating to the digitisation of German schools. Vocational schools and their teachers are part of the initiative. Information is provided here about the status of the HubbS project. HubbS (a hub for vocational schools), a digital platform for the exchange and development of teaching materials and teaching concepts as well as for the communication and collaboration of teachers at vocational schools was still under development. The launch is expected in 2024.

The Digital Pact for Schools started to be evaluated in February 2023.

The Quality Initiative for Teacher Training *(Qualitätsoffensive Lehrerbildung, QLB)* expired in 2023. Various projects have addressed the qualification of vocational school teachers in digital education. For more information, see Long-term quality initiative for teacher training.

The project Shaping Heterogeneity and Inclusion - Cologne Strategy for the Future of Teacher Training (ZuS) [(*Heterogenität und Inklusion gestalten - Zukunftsstrategie Lehrer*innenbildung Köln (ZuS)*]) was developed as part of the Quality Initiative for Teacher Training and was funded from 2015 to 2023. As one field of action and aimed at equipping teachers and student and trainee teachers, with the digital skills they need for the classroom, the free 'eTeaching Expert' training programme (Cross-phase online training for teaching in the digital age) was designed. It was already offered at the beginning of the pandemic and continues to be available.

In 2023, the Standing Conference of the Ministers of Education and Cultural Affairs published the 'Objectives and organisational framework of the pact for vocational schools'. The work of the pact between the federal states and the federal government includes the qualification of vocational school teachers for education in the digital world.

2024 Implementation

While in recent years the focus has been on training teachers in the technical handling and design of learning content using digital tools (eLearning), in 2024 'soft skills' came to the fore in dealing with developments such as AI, deep fake, data literacy and media use in the digital space in further training courses that overlap with other topics. Further examples of events for teachers include 'Understanding and using ChatGPT as a learning tool', 'Examination interviews as an examination form in the age of AI', but also further training on how social media use amongst young people affects the development of democracy. At the same time, the further developments of digitised technology and its use for schools were discussed. Examples were assistive technologies in the context of inclusion and a further training format for teachers of historical-political education in North Rhine-Westphalia, who were being trained in the use of an app as a tool for creating digital learning spaces in history lessons.

Critical reflections on digitalisation and its impact on schools and society were also taking place at the federal state level, as in the dialogue series *Zukunftsdialog Weiterbildung* (Future Dialogue on Further Education). This is part of the target programme of the Quality and Support Agency of the State Institute for Schools in North Rhine-Westphalia. The plan is to set up a further training monitoring system and a further training reporting system for teachers in North Rhine-Westphalia. The further training of teachers on the subject of teaching and learning in the digital age is part of the agenda.

In Rhineland-Palatinate, the State Pedagogical Institute supports schools in the digital transformation and offers further training.

The digital information and interaction platform HubbS went online on 5 November 2024 to support vocational school teachers of dual training across all 16 federal states. It offers information, directories, a media library with legally compliant content and a community area. Information on further training is also provided here.

The opportunity for long-term networking is supported by numerous collaboration tools. There is an editor for cross-state cooperation, a cloud for central file storage and video conferencing for quick coordination. The project is run by the Digital Pact for Schools.

One focus of the Digital Pact for Schools is the qualification of teaching staff as part of the digital education infrastructure. At the 2024 status conference in mid-November, stakeholders exchanged views on the current situation. The third progress report which covered the funding activities in the years 2023-24 was published in November 2024. The fourth digital congress took place in November 2024 under the title 'Fake News and Democracy - How Social Media Forms Opinions' and will be organised by the Centre for School Quality and Teacher Education (ZSL).
The Digital Pact for Schools, which is jointly funded by the federal and state governments, expired on 6 November 2024. On 13 December 2024, the federal and state governments agreed to continue the Digital Pact for Schools. The Digital Pact 2.0 is to provide a total of EUR 5 billion for the digitisation of schools by 2030. Funding will cover three topics: the expansion of digital infrastructure, digitisation-related school and teaching development, and the Digital Teaching and Learning initiative, which aims to conduct research on evidence-based quality development in digital teacher training. The training, continuing education and professional development of teachers (VET teachers included) will also be promoted.

Bodies responsible

- Federal States (Länder)
- Standing Conference of the Ministers of Education and Cultural Affairs (KMK)
- Federal Ministry of Education and Research (BMBF)
- German Research Centre for Artificial Intelligence (DFKI)

Target group

Education professionals

Teachers

Thematic categories

Governance of VET and lifelong learning

Engaging VET stakeholders and strengthening partnerships in VET

Modernising VET infrastructure

Improving digital infrastructure of VET provision

Modernising VET offer and delivery

Developing and updating learning resources and materials

Teachers, trainers and school leaders competences

Systematic approaches to and opportunities for initial and continuous professional development of school leaders, teachers and trainers

Supporting teachers and trainers for and through digital

European priorities in VET

VET Recommendation

VET as a driver for innovation and growth preparing for digital and green transitions and occupations in high demand

VET as an attractive choice based on modern and digitalised provision of training and skills

Osnabrück Declaration

Establishing a new lifelong learning culture - relevance of continuing VET and digitalisation

Sustainability - a green link in VET

Subsystem

IVET CVET

Further reading

HUBBs: information and interaction portal for teachers at VET schools

The Standing Conference's Education in the digital world strategy, Summary

DigitalPakt Schule

Federal and state governments agree on Digital Pact 2.0

Related policy developments

2024 **Implementation**

Qualifying trainers for the future world of VET

Since 2015, BIBB has funded eighteen 'VET for sustainable development' projects (BBNE). They experimented and evaluated relevant curriculum concepts, digital teaching, learning materials and examination questions on green skills for initial and continuing VET, e.g.

GERMANY

Type of development

Practical measure/Initiative

Subsystem

CVET

2024 **Completed**

Long-term quality initiative for teacher training

The Federal Government and the Federal States (represented by the Standing Conference of the Ministers of Education and Cultural Affairs KMK) have launched a joint programme, the Quality initiative for teacher training (*Qualitätsoffensive Lehrerbildung,* QLB), a funding competition scheme

GERMANY

Type of development

Practical measure/Initiative

Subsystem

IVET CVET

2024 **Completed**

Digital media and innovative technology in VET

The web portal, Digital media in VET, has provided information since 2015 on the use of digital media in VET and selected project findings.

🇩🇪 GERMANY

Type of development

Practical
measure/Initiative

Subsystem

IVET CVET

2024 **Implementation**

Alliance for initial and further training

The 2015-18 Alliance for initial and further training was agreed between the Federal Government, Federal States, business and industry, the unions and the Federal Employment Agency at the end of 2014.

🇩🇪 GERMANY

Type of development

Strategy/Action
plan

Subsystem

IVET CVET

2022 **Completed**

VET 4.0 project: effects of digital innovation on vocational training

The Federal Ministry of Education and Research (BMBF), in cooperation with the Federal Institute for VET (BIBB), started the initiative VET 4.0 for the period from February 2016 to April 2018. The initiative is based on three pillars.

🇩🇪 GERMANY

Type of development

Practical
measure/Initiative

Subsystem

IVET CVET
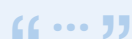
2021 **Completed**

Pact for vocational training

The Pact for VET (*Der Berufsbildungspakt*) includes the following measures, partly addressing work-based learning:

Type of development

Strategy/Action
plan

Subsystem

IVET CVET

> ❝ ••• ❞ **Cite as**
>
> Cedefop, & ReferNet. (2025). Digital education and upskilling of VET teachers: Germany. In Cedefop, & ReferNet. (2025). *Timeline of VET policies in Europe* (2024 update) [Online tool].
>
> https://www.cedefop.europa.eu/en/tools/timeline-vet-policies-europe/search/28145