GERMANY

Teachers and trainers in a changing world

Building up their competences and professional development

ReferNet Deutschland, November 2026

Thematic perspectives provide national overviews of specific themes in a common format and offer comparative dimension across the EU Member States, Iceland and Norway.

This thematic perspectives series complements the general information on vocational educationand training (VET) policies and systems provided in VET in Europe database and in the Timeline of VET policies in Europe. The themes presented in the series feature high on the European agenda. This thematic perspective was prepared based on data/information up to July 2026.

Thematic perspectives are co-financed by the European Union and ReferNet national partners. ReferNet is a network of institutions across Europe representing the 27 Member States, plus Iceland and Norway. The network provides Cedefop with information and analysis on national vocational education and training (VET), skills and qualifications. ReferNet also disseminates information on European VET and Cedefop's work to stakeholders in the EU Member States, Iceland and Norway.

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Please cite this publication as:
Huismann, A., Hippach-Schneider, U., & Nottelmann, C. (2026). *Teachers and trainers in a changing world – Building up their competences and professional development.* Cedefop Refernet thematic perspective.
https://www.refernet.de/en/refernet_68664.php

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CHAPTER 1. Introduction

In view of emerging issues during the last decade, like digitalisation and artificial intelligence, growing diversity, demographic and societal changes, as well as environmental challenges, the COVID 19 pandemic accelerated the need to adapt to these new demands also in the professional development of VET trainers and teachers, by developing and acquiring digital skills as well as skills on sustainability and inclusiveness. This 2026 report is an update and a significant expansion of the 2022 published thematic perspectives on Teachers and Trainers in a Changing World: Building up Competences for Inclusive, Green and Digitalised Vocational Education and Training (VET).

Since 2021, important VET policy programmes were continued in these emerging fields in Germany: the programme InnoVET for innovative and modern VET (extended in 2024 with InnoVET PLUS) to face the challenges of digitalisation and AI, the NIB funding programme on sustainable development in VET, and the Alliance for initial and further training as well as the Educational Chains initiative to address early leaving, inclusiveness and mismatch in apprenticeship. These broad policy initiatives have already implemented numerous funding priorities and sustainable projects, and were consolidated under the overarching governmental 'Excellence initiative for VET' since 2022. One of its priorities is the continuous professional development (CPD) of trainers and VET teachers to enable them to face the challenges of digitalisation and diversity of apprentices. As regards the ageing workforce, the 16 federal states have continued to address the (VET) teacher shortages with the creation of additional pathways in the teaching profession in 2024.

After giving an overview of the main types of VET teaching and training staff at the different learning environments (chapter 2), chapter 3 presents the initial and continuing education and training of VET school teachers, followed by chapter 4, which describes the professional development of in-company trainers. Chapter 5 illustrates the cooperation between the IVET learning venues to support the professional development of teachers and trainers. National funding programmes and initiatives on CPD of VET staff in the fields of digitalisation, sustainability and inclusiveness are described in chapter 6. Finally, chapter 7 presents national surveys of teaching and training populations.

CHAPTER 2. Types of teaching and training professionals

This chapter presents a definition of initial vocational education and training (IVET) in Germany. In a second step, it introduces the main types of IVET teaching and training professionals.

2.1. Main categories/types

2.1.1. Country-specific definition of IVET

In Germany, IVET is defined as training undertaken typically after full-time compulsory education (i.e. after 10th grade or lower secondary) to acquire the necessary knowledge, skills, and competences for employment in a particular occupation or group of occupations. Its main pillar is the apprenticeship scheme or dual system at upper secondary level, with almost two thirds of VET learners. There are also school-based IVET programmes at upper secondary level (under the jurisdiction of the federal states i.e. Länder) for specific occupations (about one third of VET learners). This report focuses on the apprenticeship scheme, as it plays a predominant role in Germany.

Apprenticeship or dual training is carried out in two learning environments, i.e. at part-time vocational schools (*Berufsschulen*) and in companies. Apprentices attend the two places of learning either alternately or simultaneously, with a 70% share of work-based learning. In school-based programmes, instruction takes place (either partly or exclusively) in full-time vocational schools. These programmes can have an on-the-job training component, i.e. a component of some practical experience at the workplace. In 2024, there were 1 424 600 in-company apprentices attending part-time VET schools versus 837 100 learners at secondary full-time VET schools (KMK, 2026b, p12).

2.1.2. Main categories / types of teaching and training professionals

Table 1 presents the different types of teachers and trainers in the German IVET system.

Table 1. **Types of teachers and trainers in the German IVET system**

Type of training	Type of staff
Work-based IVET programmes (dual system of training: apprenticeship)	**Training staff in companies:** • At least one registered responsible trainer (mostly part-time) having passed the examination on trainer aptitude; • Skilled workers providing training at their particular workplace, without being trainers themselves. • Full-time trainer or master craftsperson in company or inter-company VET centre, as well as VET manager in large company. **Teachers in part-time VET schools:** • University-trained VET teachers for vocational and general subjects; • University-trained grammar school ([1]) teachers for general subjects; • Side-entering teaching staff without an initial teacher qualification but university-trained in (vocational) subjects with teacher shortage; • 'Technical' teachers for vocational practice with work experience (e.g. Meister, technicians) having attended a further training course with the federal state seminars of pedagogy.
School-based IVET programmes (including pre-vocational transition programmes)	**Teachers in full-time VET schools:** • University-trained VET teachers for vocational and general subjects; • University-trained grammar school teachers for general subjects; • Side-entering teaching staff without an initial teacher qualification but university-trained in (vocational) subjects with teacher shortage; • 'Technical' teachers for vocational practice with work experience (e.g. Meister, technicians) having attended a further training course with the federal state seminars of pedagogy.
External learning facilitators (mentors, coaches, counsellors)	• Individual 'career start mentors' for the transition from school to apprenticeship, Assisted Training coaches for preparatory and support services during the apprenticeship (AsA flex standard programme) and 'VerA senior volunteer coaches' for apprentices at risk of early leaving from VET until successful completion of their training; • Youth social workers in training schemes for vulnerable groups, training counsellors at the chambers, vocational guidance counsellors employed by the (youth) employment agencies, etc.

Source: compiled by the authors – ReferNet Germany.

2.2. VET schools

In the vocational school system, there is a variety of upper and post-secondary VET school types ([2]). These in turn are subdivided into a large number of VET programmes within the various occupational sectors. There are two main categories of secondary VET schools:

(a) **Part-time VET schools** (e.g. *Berufsschule, Berufskolleg*) complementing in-company training of apprentices in the dual system and

(b) **Full-time VET schools** for school-based programmes at different levels (e.g. *Berufsfachschule, Berufsaufbauschule, Fachoberschule, Berufsoberschule, Fachgymnasium* or *berufliches Gymnasium*). This includes healthcare programmes (e.g. for nurses, physiotherapists), pre-vocational introductory programmes – so-called transition programmes ([3]) and VET schools for learners with disabilities.

2.3. Teaching/training professionals and type of VET school

VET teachers' university degrees and practical training are designed for teaching in all types of VET schools mentioned above in section 2.2. Moreover, due to shortages of VET teachers, the education ministries of all 16 federal states have launched recruitment campaigns to attract career changers and side-entrants ([4]), but with different conditions (see 3.6.4 and KMK, 2024). In some Länder ([5]), there are further training courses to become a subject teacher or teacher of vocational practice in most VET school types (also VET schools for persons with disabilities) without university studies.

As part of the standard Assisted Training (AsA flex) programme ([6]), the VET provider commissioned by the public employment agency (BA) offers suitable preparatory and support services for both the apprentices and the training companies. Vocational preparation and training are linked and tailored to the apprentices' individual circumstances. Assisted Training coaches, who provide ongoing support to AsA-participants, must either hold the qualification of master craftsman/ craftswoman, a technician or a management specialist with a trainer aptitude examination and in-depth professional experience working with young people, or a university degree in social pedagogy/social work, curative/rehabilitation or special needs education, or comparable qualifications (BA, 2020).

Furthermore, education providers commissioned by the employment agencies employ 'career start mentors' (*Berufseinstiegsbegleiter*) to support learners

encountering difficulties as they make the transition from lower secondary school to apprenticeship ([7]). ‘VerA senior volunteer coaches’ ([8]) can carry on after the career start mentors by accompanying apprentices facing problems and being at risk of early leaving from VET until successful completion of their training (Huismann, 2018).

CHAPTER 3. Teaching and training professionals in school-based settings

3.1. National legislation

In the field of initial education and training as well as continuing professional development (CPD) of teachers, the federal system confers cultural sovereignty on the federal states (*Länder*) and accords them the right to pass legislation in school-related matters. VET teachers are thus trained under the jurisdiction of the Länder. The Standing Conference of the Ministers of Education, Science and Cultural Affairs (*Kultusministerkonferenz*, *KMK*) is a national coordinating platform ensuring common standards and mutual recognition, e.g. through framework agreements, information, and monitoring of the Länder systems ([9]).

3.1.1. VET teachers with university degree

Since the Bologna process was introduced in 2003, each federal state has different general conditions and requirements with regard to access to higher education, structure and content of curricula, and duration and nature of practical training, all of which are defined by the university itself (Hensen/Hippach-Schneider, 2016). However, the process is regulated by an agreement adopted by the KMK in 1995 and last amended in 2018, the “Framework agreement” on the training and examination for teaching at the secondary level II (vocational subjects) or for vocational schools (Teaching post type 5) (KMK, 1995/2018). This agreement is the legal basis and ensures common standards and mutual recognition of VET teachers’ initial qualification at university countrywide. The KMK produces a comprehensive annual overview of the structures of teacher initial education and training in the Länder (KMK, 2026).

Furthermore, the concepts of initial and continuing training of VET teachers are based on the "Common content requirements of the Länder for the specialised sciences and didactics in teacher education" (KMK, 2008 - last revised in 2024), the "Standards for teacher education: educational sciences" (KMK, 2004 - last revised in 2022), as well as priorities specific to the federal states (KMK, 2020a). In 2014, the standards for teacher education were revised to address the requirements of inclusive teaching. In 2019, the standards were revised to reflect the requirements of education in the digital world, drawing on academic expertise and with the involvement of professional associations. In 2022, the standards were expanded to include competences in prevention and intervention when dealing

with group-focused hostility, such as antisemitism. In 2026, the KMK will begin updating and further developing the standards for teacher training. The aim is to establish a contemporary, cross-state coordinated model that systematically links university education with the second phase of teacher training ([10]).

In the last years, due to an increasing shortage of VET teachers in certain vocational subjects ([11]), the education ministries of all 16 federal states launched recruitment campaigns to attract side entrants, but with different conditions and possibilities, depending on their own specific needs ([12]). In 2013, the KMK formulated a joint decision on how to attract and train teachers in areas of shortage (KMK 2013). This decision was complemented in 2024 with measures to recruit additional teachers, establish structural supplements to teacher training, and create additional pathways into the teaching profession (KMK, 2024, 2024a). Most Länder also have regulations on the additional pedagogical and didactical education, practical training (preparatory service is mandatory), and examination of side entrants coming from other university fields (mostly technical/scientific courses of study), as in Rheinland-Pfalz ([13]). In case of several years of experience in the relevant field of work, this may replace the preparatory practical service, as in North-Rhine-Westphalia (NRW). The schools also employ side-entering teaching staff without a teacher qualification but mostly with a university master's degree in a technical field.

3.1.2. University-trained grammar school teachers at VET schools

The Länder regulate the education and training of grammar school ([14]) teachers. The KMK framework agreement for teaching post type 4 (KMK, 1997/2018), the content requirements and the standards for teacher education mentioned above serve as references.

3.1.3. Teaching staff with VET qualification and further training

In VET schools, beside university-trained teachers, there are also 'technical' teachers for vocational practice with work experience (e.g. Meister, technicians), who have attended a further training course with the federal state seminars of pedagogy. There is no KMK framework agreement on the training of specialised teachers for vocational subjects (e.g. *Fachlehrer, technische Lehrkraft*), which is regulated by Länder legislation, e.g. in Bavaria ([15]). The German Education Server, which provides access to documents and background information regarding the German education system and its international context, compiles a register of references for legislation on teacher training in the Länder and updates it annually ([16]).

Regarding the training of teachers of vocational practice (*Lehrer für Fachpraxis*), there is a framework agreement as overarching instrument (KMK

1973) and an overview on the German Education Server ([17]), but the Länder implement their own regulation, as in Saxony ([18]).

3.1.4. CPD for VET teaching staff

Like initial training, CPD of teachers is under the responsibility of the respective federal state. Consequently, there is not just one legal basis, but 16 different legislations regulating CPD of VET teachers. However, again, the KMK is the coordinating platform: it has compiled a detailed overview on the legal basis, responsibility, requirements, organisation, and main approaches of CPD of teachers in the 16 Länder, including VET teachers (KMK, 2026a). In its resolution "Länder common guidelines for the CPD of teachers as a component of their professionalisation in the third phase of teacher education" adopted in March 2020, the KMK underlines the importance of lifelong education and training for teachers through in-service CPD (KMK 2020a).

3.2. Qualification and competence requirements

3.2.1. VET teachers with university degree

Applicants sometimes underestimate the demands of working as a teacher. For this reason, the KMK adopted some recommendations on aptitude assessment in the first phase of teacher training in 2013 (KMK, 2013a). The general competences and teacher mission statement for the areas of teaching, educating, assessing, and innovating are defined in the KMK standards for teacher education (KMK, 2004/2022). The subject-related profiles in the KMK common content requirements (KMK, 2008/2024) describe the competences to be achieved in the course of study as well as the individual content-related focal points. The pedagogical, subject-specific, and didactical basic qualifications in the areas of diversity, inclusion (joint learning of learners with and without disabilities), basics of special needs diagnostics, as well as teaching and learning in the digital world are of particular importance (KMK/HRK, 2015; 2020).

The university programme is concluded with a Master's degree of Education or a First State Examination without separate Bachelor's and Master's degrees (partly in Bavaria and Baden-Württemberg). The duration of the practical preparatory service in a vocational school (*Vorbereitungsdienst*) is a minimum of 12 and a maximum of 24 months. The preparatory service shall be concluded with the [second] state examination, which qualifies the candidate to become a teacher (KMK, 1995/2018).

The standard period of study before starting the preparatory service is at least six semesters for the bachelor's programme and at least two semesters for the master's programme; in total, including practical work, it is 10 semesters and corresponds to a study effort of 300 ECTS credits ([19]). Practical work (e.g. 42 weeks in-company placements and 10 weeks school internships) related to the vocational specialisation chosen is required – generally 52 weeks ([20]) - and included in the university programme preceding the preparatory service.

The qualification and competence requirements to enter the teaching force are the same for side entrants, but they can prepare the state examination with an additional pedagogical and didactical training as well as practical training while already in school service ([21]). Sometimes, the schools also employ side-entering teaching staff without a teacher qualification but mostly with a university master's degree in a technical field and some work experience.

3.2.2. University-trained grammar school teachers at VET schools

The qualification and competence requirements for grammar school ([11]) teachers, who are teaching general subjects at VET schools (e.g. maths, German language) are the same as described above for university-trained VET teachers, except that the practical work until the Master's degree is limited to the 10 weeks of school internships – without the 42 weeks of in-company placements.

3.2.3. Teaching staff with VET qualification and further training

In VET schools, beside university-trained teachers, there are also 'technical' teachers for vocational practice with work experience (e.g. Meister, technicians), who have attended a training course with the federal state seminars of pedagogy. The prerequisites for admission to the further education programmes and preparatory service leading to the qualification as subject-related teacher or teacher for vocational practice at VET schools are usually: a) an intermediate secondary school leaving certificate and, b) depending on the federal state and the chosen subject area, either a master craftsperson's (following an apprenticeship) or technician's examination in conjunction with corresponding professional experience, or sometimes even the First State Examination for teachers at vocational schools ([22]). Bavaria, who has been training and employing most such staff at VET schools compared to other Länder, is requiring the master craftspeople or technician's examination plus at least 3 years of work experience, and explicitly *excludes* a university education as equivalent.

The duration of the further training programmes (including the mandatory one-year preparatory service) for subject-related teachers varies between 2 to 4 years (full-time), depending on the federal state and chosen subject combination, compared to 18 months for the qualification as teacher for vocational practice

according to the framework agreement (KMK 1973). The further training for subject-related VET teachers is regulated in five Länder (Baden-Württemberg, Bavaria, NRW, Rhineland-Palatinate and Saxony) and leads to different degree titles ([23]).

3.3. Initial and further training programmes

3.3.1. VET teachers with university degree

As mentioned in 3.1 and 3.2, there are specific initial training programmes to prepare those teaching theoretical subjects (general and vocational) in all types of VET schools/centres (under the jurisdiction of the *Länder* with a coordinating role by the KMK). The VET teacher initial education and training has a two-phase structure: first a course of studies at a university, then the preparatory practical service in a vocational school.

The first phase takes place at state-recognised universities and, at least partially, in higher education establishments, equivalent to universities (*Pädagogische Hochschule* in *Baden-Württemberg*) and sometimes also in cooperation with universities of applied sciences (*Fachhochschulen)*. Students acquire fundamental occupational and pedagogical knowledge; for instance, the study programme Business and Economic Education Programme (*Wirtschaftspädagogik*) deals with how economic content is taught and acquired in trade schools and in companies. In doing so, it considers individual learning processes, organisational and structural conditions from an interdisciplinary perspective. As a graduate of the MSc Business Education, students will be able to design school and company learning processes and have a sound knowledge of economics (Deissinger, 2010).

The prerequisite for access to these programmes are general or subject-specific university entrance qualifications or a qualification recognised as equivalent. The prerequisite for access to a master's study programme is a bachelor's degree in the same subject. While the focus of the bachelor's studies is on the chosen general (e.g. physics) and vocational subject (e.g. electrical engineering) as well as educational and social sciences, the studies at the master's level focus on occupational didactics and the elements of teaching/educational theory in the VET system. Sixteen occupational specialisations ([24]) may be chosen as fields of study. In addition to the university courses, the first phase of teacher training includes a period of practical training (12 months in total) that takes place both at a vocational school and mostly in a company. Thus, initial practical experience is gained and acquired theoretical knowledge is applied. The

organisation and implementation of this practical training vary between the *Länder*. This study phase is completed with a Master or first state examination.

The second phase of the teacher training for vocational schools is the teaching traineeship or so-called 'preparatory service'(*Vorbereitungsdienst)*, a service that prepares for working as a vocational school teacher. The aim of the preparatory service is the practical school training based on the academic training. The training should also take into account the teaching and educational work in dealing with inclusion and heterogeneity. Training in the preparatory service includes independent teaching to a limited extent. The preparatory service lasts at least 12 and up to 24 months, and is completed with the (second) state examination. This examination serves to establish whether the prospective teacher has the required professional competence and can fulfil the educational tasks independently.

As already mentioned, most Länder also recruit side-entrants due to teacher shortage in certain vocational subjects. They offer training programmes with additional pedagogical and didactical education, practical training (preparatory service is mandatory) and teacher examination for side entrants coming from other university fields (mostly technical/scientific courses of study). This additional training can be completed in-service. Some schools also employ side-entering teaching staff without a teacher qualification but mostly with a university master's degree in a technical field and some work experience.

Germany has structured induction and mentoring provision for beginning teachers, but it is decentralised rather than a uniform national entitlement and is generally not VET-specific. Federal states and individual schools organise combinations of induction courses, peer groups, coaching, counselling and mentoring. More systematic arrangements are often found for lateral entrants, an important target group in vocational schools because of teacher shortages. Berlin, for example, offers an early-career programme covering the first three years and structured classroom accompaniment and mentoring for lateral entrants, including those entering vocational schools (25).

3.3.2. University-trained grammar school teachers at VET schools

University and practical school training of the grammar school (11) teachers are the same as for VET teachers regarding the programme structure; only the study courses are different (general subjects instead of technical/vocational subjects). The practical experience of 42 weeks in a company is not required (KMK, 1997/2018).

3.3.3. Teaching staff with VET qualification and further training

The further education and training programmes qualifying as subject-related teacher (*Fachlehrer*) and teachers of vocational practice (*Lehrer für Fachpraxis*)

(KMK 1973) have a theoretical part and a practical part – the preparatory service in a vocational school. The contents of the theoretical classes are on pedagogy including special needs education content, VET pedagogy, educational psychology and sociology, methodology and didactics of practical teaching, some occupational theory, school organisation, school and vocational training law, school-related youth and parental law. The preparatory service includes observation, instruction under supervision and independent teaching. For more information on length, etc., please see section 3.2.3.

3.4. Requirements for CPD of VET teaching staff

Germany has a largely publicly supported CPD infrastructure, and teachers may receive funded training, reimbursement and/or release from teaching. CPD can also support access to additional qualifications and leadership functions. However, there is generally no strong direct financial or promotion incentive for ordinary CPD, while teacher workload, scheduling difficulties, the need to cover lessons, uneven access to release time, and differences between Länder and between schools can constrain participation.

CPD of VET teaching staff (all types) is intended to continuously develop the professional competences of teachers. It shall ensure that staff development in the subject-related and didactic professional areas, as well as in school organisation and school management corresponds to the state of scientific development and professional practice in enterprises and institutions (KMK 1995/2018, p. 4).

Following a study on CPD of teachers (Daschner/Hanisch, 2019), the KMK adopted a resolution with common guidelines for the CPD of teachers, including VET teachers (see 3.1.4). It underlines the importance of in-service CPD due to the changing conditions (e.g. growing heterogeneity of learners; inclusion and digitalisation). The KMK instigates a transparent, efficient, and sustainable in-service CPD offer, adapted to needs and objectives, covering a broad thematic and format diversity, and following criteria of quality. This shall motivate and support teachers in building their own professional development portfolio (KMK, 2020a).

In the legislation of all 16 Länder (KMK, 2026a), there is a CPD obligation for teachers. The scope of this obligation varies according to the Länder and the type of teachers and schools. In the city-state of Hamburg for example, VET teachers shall follow CPD for 45 hours per year. Mostly, the head of the school is responsible for the implementation of this CPD obligation for its teaching staff.

Each school draws up a CPD plan based on its qualification needs assessments and on results of internal or external evaluations. A broad spectrum

of VET teaching competences and topics are covered: technical, pedagogical/didactic, and transversal. The CPD is offered in different formats, depending on the objectives and needs. However, the preferred formats are half-day CPD on-site (to avoid cancellation of classes), as well as in-process CPD at school, distributed over a school year (e.g. in modular sequential format, i.e. building on each other), allowing time to discuss with colleagues as well as reflection time on the own practice and thus more sustainable. Sometimes the offer is regional or statewide (KMK, 2026a). Online and blended learning formats are becoming more common, especially since the Covid-19 pandemic ([26]).

The CPD offer can be provided through different structures, but is often organised by federal institutions dedicated to quality development of schools and teachers ([27]) and subordinated to the respective federal ministry of education. These regional institutions provide guidance to VET schools and teachers on CPD offers, e.g. in North Rhine-Westphalia with 'regional CPD teams' for teachers within the five district authorities ([28]). CPD can also be organised by the school or close to the school by a local institution, universities, and external providers. The CPD trainers are mostly teaching staff themselves and sometimes freelance lecturers, increasingly regarding CPD on digital competences. The trainers receive further training for this task or have to prove that they have special qualifications. Cooperation with universities is organised selectively, mostly for selected thematic focal points of CPD for teachers. To ensure the quality of training, feedback forms from participants and trainers are collected and evaluated. In some cases, there is an external monitoring and evaluation of the CPD measure. In North-Rhine Westphalia for example, the QUA-LiS NRW Quality and Support Agency is responsible for reporting on teachers' CPD and produces state-wide CPD reports covering both quantitative and qualitative aspects. These form part of a state-wide monitoring process currently under development (KMK, 2026a, p42).

Teachers in vocational schools in Germany have faced changing professional requirements and expectations related to digitalisation, sustainability, and increasing learner diversity since 2021. Key drivers include the COVID-19 pandemic, the growing relevance of artificial intelligence, demographic change, and a persistent teacher shortage. Due to the federal structure of the German education system, implementation differs between Länder, while national initiatives provide common orientations and support structures (KMK, 2024a).

The COVID-19 pandemic accelerated the use of digital and hybrid learning formats in vocational schools. Teachers adapted to remote teaching, digital communication, and online learning environments, which have remained important elements of teaching practice. The DigitalPakt Schule, launched in 2019 as a joint investment programme of the Federal Government and the Länder, supported this

transition by improving digital infrastructure and equipment in schools. Although primarily focused on infrastructure, related Länder initiatives supported schools and teachers in developing digital teaching practices. The DigitalPakt 2.0, adopted in 2024, continues support for digital education until 2030, including investments in digital infrastructure and accompanying measures for schools (BMBF, 2024).

Beyond infrastructure, digitalisation has changed expectations regarding teachers' pedagogical use of technology. The KMK strategy Education in the Digital World highlights digital competence as an essential part of teaching practice and emphasises teachers' ability to select, evaluate and use digital technologies in pedagogically meaningful ways (KMK, 2021). In vocational education, this includes integrating digital technologies into subject-specific teaching and supporting learners in developing competences relevant to increasingly digitalised workplaces.

The growing use of artificial intelligence has introduced additional competence requirements. The KMK recommendation "Guidelines for dealing with artificial intelligence in school education processes" *(Handlungsempfehlung zum Umgang mit Künstlicher Intelligenz in schulischen Bildungsprozessen)* highlights that teachers need to understand both the opportunities and limitations of AI systems and address issues such as transparency, data protection and responsible use (KMK, 2024c).

3.5. International mobility of VET school teachers

3.5.1. Participation trends since 2021

Teachers in German VET schools can participate in international continuing professional development (CPD), particularly through Erasmus+ staff mobility, including job shadowing, courses and teaching or training assignments.

National Erasmus+ data for Germany show a substantial increase in approved mobility for VET staff (*Bildungspersonal*), from 2 437 participants in 2021 to 5 029 in 2022, 7 752 in 2023, 9 365 in 2024 and 11 902 in 2025. The initial increase partly reflects recovery from the COVID-19 pandemic, but participation subsequently exceeded the pre-pandemic level of 6 029 approved participants in 2019. However, these figures not only cover vocational school teachers, but also in-company trainers and other VET personnel.

Beyond Erasmus+, opportunities include the German-French teacher exchange programme ProTandem, teacher hospitations organised by the Pädagogischer Austauschdienst (PAD) in France and the United Kingdom, and thematic exchanges under the German-Israeli Programme for Cooperation in VET.

However, no consolidated national statistics are available on participation by school-based IVET teachers in these programmes or in informal international CPD.

3.5.2. CPD strategies and mobility programmes

In Germany, teachers' CPD falls primarily within the responsibility of the 16 federal states (*Länder*). The Standing Conference of the Ministers of Education, Science and Cultural Affairs (KMK) identifies CPD as an integral part of teachers' professional development. Its common framework adopted in 2020 recommends integrating CPD into school and personnel development and documenting participation in individual so-called “professionalisation” portfolios. However, it does not establish specific requirements for international CPD (KMK, 2020a).

International mobility can therefore contribute to teachers' professional development, but its formal recognition depends on the regulations and procedures of the respective Land and school. There is no uniform national system awarding CPD credits or career advancement specifically for international mobility.

International CPD is encouraged particularly through Erasmus+ and institutional internationalisation strategies. The National Agency at BIBB provides information and support through its nationwide Erasmus+ advisory network, which includes IVET teachers commissioned by Länder authorities. Erasmus accreditation also encourages schools to integrate mobility into their longer-term institutional development.

The main objectives documented in mobility programmes include improving teaching methods and subject-specific expertise, exchanging professional practices, developing language and intercultural competences, establishing international partnerships and preparing learner mobility. Digital transformation, environmental sustainability and inclusion are also priorities within Erasmus+. However, national data are insufficient to establish changes in individual teachers' motivations since 2021.

3.5.3. Barriers and enabling measures

Participation in international CPD may be constrained by organisational and administrative factors. The KMK acknowledges the challenge of reconciling teachers' CPD participation with the need to maintain teaching provision, particularly during staff shortages (KMK, 2020a, p4). The Erasmus+ User Advisory Board at the NA at BIBB also highlights the administrative burden on vocational schools, noting that Erasmus+ coordination frequently depends on teachers' personal commitment and is generally not reflected in their allocated teaching workload (NA at BIBB, 2024a, p6).

Support measures include Erasmus+ funding, mobility consortia and the National Agency at BIBB's advisory network, which assists institutions with

planning, implementing and applying for mobility projects. Integrating international mobility into school development planning and providing dedicated organisational resources are also encouraged at European level. However, evidence on the effectiveness of these measures specifically for German school-based IVET teachers remains limited.

3.5.4. Activity type and examples of good practice

The National Agency at BIBB provides annual Erasmus+ statistics on approved VET staff mobility, including activity types and regional distribution. In 2025, the main activities were job shadowing (7 140 participants), courses and training (4 172), and teaching or training assignments (250). These figures refer to VET staff generally, not exclusively VET school teachers.

The following examples illustrate approaches to integrating international mobility into school development:

- Heinz-Nixdorf-Berufskolleg, Essen: International cooperation and teacher job shadowing in areas including robotics, artificial intelligence and cybersecurity, with new approaches incorporated into teaching ([29]).
- Arnsberg administrative district, North Rhine-Westphalia: Since 2017, the district government has offered CPD courses for Erasmus+ coordinators at VET schools, supporting the integration of international mobility into school development. According to Stein (2024), 42 of the district's 49 public VET schools were Erasmus+ accredited in 2024.

3.6. Data

In 2024/25, there were 124 126 teachers employed in all types of VET schools (Destatis, 2025a, Table 21121-13). The majority of these were university-trained VET teachers (59 570), followed by the university-trained grammar school teachers (30 580) – especially in Baden-Württemberg and North Rhine-Westphalia. Teaching staff without a teacher qualification ([30]) counted 20 781 people, followed by the subject-related teachers and teachers for vocational practice accounting for 5 838 teachers. More than half of all teachers at VET schools were women (67 627 women versus 56 504 men). The age group “55 up to under 65 years”, most of which will retire within the next decade, was overrepresented (37 550 corresponding to a 30% share) among all teachers at VET schools. In addition to the 124 126 teachers at VET schools, there were 11 184 teaching staff in healthcare schools in 2024/25. Regarding the employment status, from the 124 126 teachers at VET schools, almost two-thirds (78 711) were employed full-time and more than one third (45 415) were employed part-time, in

particular women (34 241, i.e. 75.4% of all part-time teachers at VET schools). In addition to full-time and part-time teachers, there were also 21 331 hourly staff working at VET schools (Destatis, 2025a, Table 21121-11).

Teachers at German vocational schools (Berufsschule/Berufskolleg) are often among the better-paid public-school teachers. The exact setup depends on the federal state, but a fully qualified VET teacher with the standard university qualification including the *Referendariat* (traineeship) is commonly classified at A13 (starting at approximately EUR 5 000 to 6 500 gross salary per month according to the *Besoldungstabelle*) as a civil servant, or E13 (starting at approximately EUR 4 600 to 6 600 gross salary per month according to the *TV-L table*) as a salaried employee (similar-looking gross salaries, but their net incomes can be noticeably different). A VET teacher's income is above the median monthly gross salary of all full-time employees in Germany (EUR 4 217). It is difficult to compare the salary gap with the industry, because it depends on the vocational subject (mechanical, electrical and IT engineers are best paid: around EUR 7 000 gross per month).

The national education statistics provide the data and key figures that serve as a basis for planning for policy-makers and public authorities and for further analyses by the scientific community. The KMK secretariat regularly produces documentation and evaluations for the school (including vocational schools) and higher education sectors (including university training programmes for vocational teachers). Of particular importance is the annual publication "Pupils, Classes, Teachers and Graduates of Schools" with detailed tables, graphs, and time series over 10 years for all Länder, the projection of pupil and graduate numbers. The data basis for school statistics is the data requested from the highest education authorities of the Länder and for higher education statistics the data of the official higher education statistics of the statistical offices of the Federation and the Länder ([31]).

The KMK publication on teacher recruitment provides a statistical overview of the three phases for recruiting new teachers: teacher education, preparatory service, and recruitment into the public-school service (including side entrants). The data is presented by teaching type and federal state. The documentation covers a period of at least 10 years and has been updated every two years since 2007 with data that are requested from the Länder by means of a separate survey. In the interim years of the documentation, an updated extract of the table is made available ([32]). However, there is no systematic collection of data on CPD of teachers yet (Daschner/Hanisch, 2019).

According to the tables on the recruitment of teachers in 2025 (KMK, 2026c), 1 930 applicants for becoming a VET teacher (Type 5) were recruited – only 88.9%

of those who had just completed their preparatory service (2 170). This is the lowest share in the last ten years. Additionally, 1 168 subject-related vocational teachers were recruited, few teachers for vocational practice (254), and finally 560 side entrants for VET teaching (e.g. in metal technology, electrical engineering, as well as nutrition and home economics), particularly in the eastern German federal states. In 2025, 2 173 students started their preparatory service (compulsory 12 to 24 months traineeship following the Master’s degree) in VET schools.

For data on teacher shortages, please see section 7.3.

CHAPTER 4. Training professionals in work-based settings

4.1. Definitions

Training professionals in work-based settings are called **in-company trainers** (*betrieblicher Ausbilder*). Trainers are responsible for planning training content and schedules and for conducting in-company VET programmes, as defined in a BIBB terminology (BIBB, 2017). They provide apprentices with the knowledge and practical skills required for an occupation and are their point of contact in the company. Only those who are personally and professionally suitable are allowed to act as trainers (Vocational Training Act, BBiG § 28-30).

In-company training personnel can be divided into the following categories:

- **Training managers** coordinate the entire training of a (large) company for individual occupations or occupational groups.
- **Full-time in-company trainers** are predominantly employed in large companies with a training workshop, which, however, account for only a small share of all training companies.
- **Part-time in-company trainers** provide training directly at the workplace, alongside their other work duties. They are trainers in the sense of the BBiG. Their (part-time) activity in training includes providing workplace experience. In small companies, they may simultaneously hold the position of training manager.
- **Skilled workers providing training** are employees who provide training at the workplace without being trainers themselves. In the crafts sector, these skilled workers may be journeymen or foremen. There is no uniform job title for this group of persons.

The two latter categories represent the large majority of staff providing training. As pointed out by Bahl et al. (2025b, p4), only a minority of companies employ full-time staff for vocational training; full-time trainers therefore tend to work for external training providers, while in-company training is carried out by part-time trainers and skilled workers who act as trainers. This diverse group includes employees at all levels of the organisation, from managers to operational staff.

Even when multiple parties participate in the training process, the trainers (in the sense of the BBiG) bear the overall responsibility.

In addition to in-company training, vocational trainers also perform an educational task at third learning venues such as inter-company training centres (ÜBS/ÜLU – details are provided in 5.2.2) and at external training service

providers. In these cases, they are usually entrusted with training tasks on a full-time basis.

4.2. Legislation, qualifications and competences

Anyone who provides or wants to provide an apprenticeship in Germany has to observe the legal provisions – in particular, those laid down in the Vocational Training Act (BBiG), if applicable, the Trades and Crafts Code (HwO), the Protection of Young People in Employment Act (JArbSchG), the Ordinance on Trainer Aptitude (AEVO), and the corresponding framework curriculum. Further, the BIBB Board Recommendation No. 162 sets out criteria for the suitability of training venues and their training personnel.

4.2.1. Vocational Training Act - Trade and Crafts Code

Only those who are personally and professionally qualified may train apprentices. This is set out in the Vocational Training Act (BBiG) in § 28-30 and the Trade and Crafts Code (HwO) in § 22. Anyone who is not allowed to employ children and young people (see also JArbSchG), or who has repeatedly or seriously violated the BBiG (or the HwO) or rules and regulations based on those, is considered personally unsuitable. A person is considered professionally suitable if they possess the professional and pedagogical skills, knowledge, and abilities required to impart the contents of the training. A completed vocational training or course of study in a field corresponding to the training occupation can demonstrate professional aptitude. The aptitude of the training staff is guaranteed by the competent chamber that registers them (e.g. chambers of industry and commerce, chambers of skilled crafts).

4.2.2. Ordinance on Trainer Aptitude (AEVO)

Professional qualification of trainers also includes vocational and occupational pedagogical knowledge. The Ordinance on Trainer Aptitude (AEVO), which was published based on BBiG ([33]), specifies what this consists of in concrete terms and how proof of this can be provided. Any company carrying out apprenticeship has at least one employee who is the designated responsible trainer and has proven their aptitude to take over this task by successfully passing the examination according to the AEVO (which is also part of the Meister exam). Although legally regulated, this is not a formal educational qualification and is therefore not included in the German Qualifications Framework so far.

According to this ordinance, vocational and occupational pedagogical aptitude includes the competence to independently plan, conduct, and monitor vocational

training in the fields of action: checking training prerequisites and planning training; preparing training and assisting in the recruitment of apprentices; conducting and completing training. For example, one skill to be acquired is the ability to identify learning difficulties of apprentices, and to give individual learning support and guidance. Whether knowledge is available in these four fields is determined in a training aptitude test, which is carried out by the competent bodies (the chambers). These competent bodies are responsible for adopting regulations and setting up boards to conduct aptitude examinations for trainers.

BIBB monitors the Ordinance on Trainer Aptitude (AEVO) as well as the competences needed by trainers in companies. In view of new requirements (digitalisation, heterogeneity, inclusion, and sustainability), the review and updating process of the framework curriculum for preparing the AEVO examination started in 2021 was completed in June 2023. In July 2023, the Board of the BIBB published the updated framework plan with details of the knowledge to be imparted in the preparatory courses (BIBB, 2023; Ulmer, 2009/2019). The knowledge relevant to the examination is imparted in so-called “training of trainers” courses (AdA courses). The BIBB recommends taking a 115-hour course to prepare the AEVO examination. The relevant bodies (mostly the chambers) organise such courses, offered in different formats (physical attendance, distance learning or blended formats).

In the skilled crafts, anyone who has passed the master craftsperson's examination in the occupation in which training is to be provided, may train apprentices, since AEVO is part of the Meister degree. The liberal professions (doctors, dentists, veterinarians, tax consultants, lawyers, notaries, and pharmacists) are entitled to train with the corresponding degree and do not require the training aptitude examination.

4.2.3. Suitability of training venues and personnel

In its 2015 recommendation No. 162, § 2.5.2, the BIBB Board recommends that a part-time trainer should not train alone more than three apprentices on average, and a full-time trainer, not more than 16 apprentices in a group accordingly. In § 2.5.3, the recommendation summarises the qualification requirements and CPD options for the in-company training staff according to its level of responsibility (BIBB, 2017).

4.3. CPD provisions

Needs analyses have been carried out since the 1960s mostly by the BIBB in the form of research projects (e.g. explorative or case studies, surveys) to monitor the

competences needed by trainers, ensure the quality of IVET and CVET in companies, and adapt the train-the-trainer course offer accordingly.

The following advanced vocational qualifications for in-company trainers build on one another and are intended to be closely related to the trainer's own professional environment. In addition to the examination in accordance with the Ordinance on Trainer Aptitude (AEVO), the advanced VET qualifications of 'certified initial and continuing education pedagogue' ([34]) (EQF level 6) and 'certified vocational pedagogue' ([35]) (EQF level 7) have been developed by VET stakeholders in 2009. They provide professional skills in pedagogy and management in a broad sense (e.g. planning, designing, monitoring, mentoring and leading). These qualifications entitle trainers to take additional tasks, such as searching and selecting apprentices or managing training. The competences acquired and occupational profiles include, among others, online tutoring, development of teaching materials, quality management, ability to identify apprentice skills, drafting exams, mentoring and leading trainers and skilled workers providing training (BMBF, 2013).

Similar to preparation courses for the AEVO exam, the range of these preparation courses is large and allows the choice between different forms of teaching and learning. In addition to part-time and full-time seminars, evening and weekend offers, there are also numerous online courses, mostly combined with attendance phases. The courses can be provided in or outside the company, for example by the chambers or other institutions providing CVET (courses for EQF level 7 qualification takes place in cooperation with higher education institutions, e.g. University of Rostock). The duration of the advanced courses is about 500 hours for EQF level 6, and around 800 hours for EQF level 7 qualification. As for the AEVO, the 'competent bodies' (mostly the chambers) are responsible for the organisation and carrying out the examinations and the certifications.

Due to low demand for these programmes, the Federal education ministry plans to reform the advanced courses for trainers at EQF levels 6 and 7. As part of the discussion on the planned modernisation of the two qualifications, the social partners wished to clarify in advance whether there was a need for vocational training staff to obtain a qualification at EQF level 5. The findings of the BIBB preliminary study (2023-26) suggest a need for a formal pedagogical qualification at EQF level 5, that is between the AEVO and the EQF level 6 qualification mentioned above. The content of the new qualification should specifically address designing and supporting learning and change processes in a workplace context. This new qualification at EQF level 5 would be part of a career development framework for in-company training staff. At the same time, the process should examine the possibility of making parts of the new qualification available as

standardised nationwide further training options in the form of adaptation courses under Section 53e of the Vocational Training Act (BBiG) below the first level of advanced training (EQF level 5). This would also meet the clearly expressed high demand for low-threshold and more content-focused access (Schneider, 2026).

The 2012 framework curriculum takes up the content specifications of the BIBB Board of 2009 on the framework regulation for training regulations for disabled persons in accordance with § 66 BBiG / § 42m HwO. According to this, an additional qualification in rehabilitation education for trainers (ReZA) of 320 hours is generally required for trainers to conduct appropriate vocational training for disabled persons both in companies and in inter-company and extra-company facilities or vocational rehabilitation measures ([36]). The prerequisite is completed vocational training and an AEVO training qualification (Vollmer, K. et al, 2020).

There is also a variety of non-formal, punctual CPD opportunities provided by the employer, the chambers, and other educational institutions. For example, regular updating of specialist knowledge and skills is necessary, in particular in the technical-commercial and the skilled crafts occupations. Digital media literacy is of high importance as well (see chapter 6). The portal leando.de (former www.foraus.de) is an information and exchange platform for trainers and examiners. It also provides the possibility for trainers to further qualify themselves through online learning modules (https://leando.de/learnmap). This flexible and low-threshold offer is important to address specific competences of trainers as the formal advanced qualifications described above are very demanding and time-consuming and the demand has been quite limited among employers and trainers – see chapter 7 (Schley, 2018; Bahl, 2019; Schneider, 2026).

4.4. International mobility of IVET trainers

4.4.1. General trends since 2021

International mobility of VET staff in Germany has increased substantially since 2021, following the disruption caused by the COVID-19 pandemic. According to the National Agency Education for Europe at BIBB (NA at BIBB), the number of approved Erasmus+ VET staff participants rose from 2 437 in 2021 to 5 029 in 2022, 7 752 in 2023, 9 365 in 2024 and 11 902 in 2025. These figures cover VET school teachers, company-based trainers and other eligible VET staff. They refer to approved participants rather than completed mobility activities and therefore do not allow conclusions about participation trends among workplace trainers specifically (NA at BIBB, 2024, p18 and 2026, pp13-14).

4.4.2. Main programmes and purposes

Two programmes provide the main publicly funded opportunities for company-based IVET trainers. Erasmus+ supports job-shadowing, teaching or training assignments, and structured courses abroad. These activities enable trainers to exchange professional experience, observe training practices in other countries, develop occupational and pedagogical competences, and establish international cooperation. Digital transformation and environmental sustainability are also programme priorities.

AusbildungWeltweit (VETworldwide), financed by the German Federal Ministry for Education, Family Affairs, Senior Citizens, Women and Youth (BMBFSFJ), complements Erasmus+ by supporting mobility to countries outside the Erasmus+ programme countries. Company-based trainers can undertake learning or teaching stays lasting two days to two weeks, provided these activities contribute to their professional competence in relation to training content or methods.

4.4.3. Barriers and enablers

Programme requirements indicate several potential organisational challenges: arranging release from workplace responsibilities, securing funding, identifying suitable foreign partner organisations, and organising travel and learning activities. These should be regarded as potential barriers, rather than empirically established obstacles for trainers in Germany.

Several established support mechanisms facilitate participation:

- Erasmus+ short-term mobility projects provide an entry route for organisations with limited experience, while Erasmus accreditation facilitates regular mobility planning. Organisations may also participate through mobility consortia.
- AusbildungWeltweit offers financial contributions towards travel, subsistence, preparation and organisation.
- Mobility advisers, including those working through the chamber-based Berufsbildung ohne Grenzen (Training without borders) network, provide advice on organising mobility, funding applications and practical implementation.

The NA at BIBB's Erasmus+ advisory network offers free guidance to participating organisations. These services are particularly relevant for enterprises that do not have dedicated international mobility coordination resources.

4.4.4. Evidence and examples

A particularly relevant example of targeted support for workplace trainers is AusbildungWeltweit. Unlike many general descriptions of VET mobility, its eligibility

provisions explicitly refer to company-based trainers undertaking their own professional learning activities abroad. The programme also provides a specific work-programme template and participant reporting arrangements for trainers.

The NA at BIBB's Annual Report 2024/2025 provides additional information on Erasmus+ VET staff activities. In 2025, approved activities included 7 140 job-shadowing participants, 4 172 course participants and 250 teaching or training assignments. However, these figures are not disaggregated by workplace trainers and VET school staff. The earlier ‘Mobil in Europa mit Erasmus+’ analysis remains useful for examining reported outcomes (Broß & Wiethölter, 2019).

4.5. Data

Data on registered in-company trainers (e.g. on number, examinations) are collected yearly by the Federal statistical office. The BIBB is analysing these data and presents its own calculations and analyses in its yearly Data Report on VET in the dedicated section A 5.9. However, as pointed out by Bahl et al. in several recent publications (Bahl & Schneider, 2022, p8; Bahl et al., 2025b), there are still major gaps in the statistics on in-company training staff: the heterogeneity of training staff (see 4.1) remains invisible, and there is a lack of figures regarding the actual number of company employees delivering training, since this is not limited to registered trainers.

The BIBB survey on the costs and benefits of in-company training 2022/2023 provides data on which types of employees are involved in in-company training and how much time they spend on it (BIBB, 2025; Wenzelmann et al., 2025). HR and training managers were surveyed in more than 3 000 companies providing training and 1 000 companies not providing training. For only a few employees is training their main responsibility. Such full-time training staff are found primarily in larger companies with many apprentices. For most employees, however, training is an additional responsibility carried out alongside their duties (so-called part-time training staff) as managers (31%), skilled workers (64%), or even unskilled and semi-skilled workers (3%). Part-time training staff mainly supervise the apprentices alongside their actual duties within the company (e.g. 12.2 hours per week for part-time training staff in companies employing 10 to 49 people). However, for about a third of the time, the training staff focus entirely on the training (e.g. 6.1 hours per week for part-time training staff in companies employing 10 to 49 people). The estimated, rounded time spent on supporting the 1.2 million apprentices in Germany’s dual VET system during the 2022/2023 training year, was 820 million hours, which accounts for around 1.5 per cent of the total number of working hours in Germany (BIBB, 2025).

At least one trainer per training company is registered with the competent body (usually the chamber). As described in Data Report 2026 (BIBB, 2026, A 5.10, p 197-199 in pre-release), 618 411 trainers were registered nationwide in 2024 in the fields of industry and commerce (48.5%), skilled crafts (31.2%), liberal professions (13.1%), agriculture (3.8%), public service (3%) and home economics (0.3%). Since 2019, the number of trainers decreased significantly (2019: 643 023 registered trainers versus 2024: 618 411). In terms of age distribution, the largest age groups among trainers were those aged 50+ with almost 50%, and those aged 40-49 with almost 25%. Of all the trainers registered in 2024, almost three-quarters were men and 27.1% were women (167 349). In the younger age groups, there were relatively more women, whereas among those over 50, the share of male trainers was the highest.

As a rule, trainer aptitude is demonstrated by passing an examination in accordance with the AEVO. In 2024, 98 208 people took trainer aptitude examinations in the various training sectors and 89.6% passed (88 041). Almost a third of these were women (32.9%). From 2010 (67 182) until 2019 (91 335), the number of passed AEVO examinations has constantly increased with just a slight decrease in 2017/18. In 2020, there was a significant drop, with only 76 446 successful examinations. Since 2021, the number of successful examinations has been increasing again.

Since the AEVO examination is part of the master craftsperson's / bachelor professional qualification, it is also interesting to have a look at these data: 40 179 people took part in the master craftsperson's examination in the various occupational fields in 2023 and 85% passed (34 158).

In 2024, 111 candidates took and 87 of them passed the examination for the advanced VET qualification ‘certified initial and continuing education pedagogue’ (EQF level 6). As for the advanced VET qualification ‘certified vocational pedagogue’ (EQF level 7), 78 took and 69 passed the examination (Destatis, 2025, Table 21211-63). These figures have decreased significantly in the last five years.

CHAPTER 5. Partnerships between schools and enterprises in support to teachers and trainers' CPD

VET-labour market linkage including responsiveness of qualifications to labour-market change remain strong, particularly because the dual system structurally connects vocational schools, training companies and the social partners. The Vocational Training Act mentions both companies and part-time vocational schools as learning venues for apprentices, and stresses that their cooperation is necessary. Partnerships between all dual training actors and venues are anchored in formal documents and guidelines, as described in 5.2. In practice, some forms of cooperation are well established, but other forms are still limited and need to be expanded, with digitalisation being both a cause and an enabler.

5.1. Examples of practice

Common CPD of VET teachers and in-company trainers has been encouraged since 1997 by the Board of the BIBB in its Recommendation No. 99 (see section 5.2) but does not exist yet in practice. Formal CPD programmes for VET teachers in companies and for trainers in VET schools do not exist either. As described further below, reasons for this are the different legal bases for CPD of teachers (*Land*) and trainers (*Bund*). Further, such CPD activities are one of the last steps in a long process of communication and collaboration. As described in section 4.3, there are CPD offers for trainers in the field of pedagogy and didactics as formal advanced VET programmes at EQF levels 6 and 7 in cooperation with universities. The BMBFSFJ programmes InnoVET and INVITE have funded such partnerships of VET excellence, which may also involve CPD of trainers at universities or centres of VET excellence ([37]), e.g. the InnoVET project Bildungsbrücken OWL (Education Bridges in the region OWL) ([38]) and the InnoVET PLUS project BeConnect ('Berufspädagogik Connect'), which develops CPD for vocational training staff and promotes exchange across different learning environments (BIBB, 2025, p32).

5.2. Cooperation between VET schools/centres and companies

The digital platform Leando.de (former foraus.de) provides in-company trainers and VET school teachers with online training modules and allow collaborative design of teaching and training materials (see Chapter 6). This section is mainly based on the Leando dossier “Learning venue cooperation in VET”([39]), and the corresponding learning package for in-company trainers and VET teachers ([40]). After describing the legal provisions and guidelines for learning venue cooperation (*Lernortkooperation, LoK*), examples of established forms of cooperation in dual training are provided.

5.2.1. Legal provisions for cooperation of learning venues

The basic formal link between VET schools and training companies are the recognised training regulations, which are designed in a cooperative process between the Federal government, the federal states and the social partners. The company is bound to the training plan set in the regulation and the VET school and teachers are bound to the corresponding framework curricula. In consequence, there is a strong inherent formal link from the start. Cooperation between companies and VET schools as learning venues is regulated in legal provisions to which the partners in dual training are bound in the content and organisation of their educational mission. The Vocational Training Act stipulates in Section 2, that the IVET learning venues (e.g. companies, vocational schools, inter-company training centres) shall cooperate in implementing vocational training.

Already in 1997, the Board of the BIBB had issued a “Recommendation on cooperation between learning venues” (No. 99), which defines the tasks of learning venue cooperation in more detail (BIBB, 1997). This recommendation remains relevant and important, as its implementation is still not very widespread. Here are the main tasks of learning venue cooperation according to the recommendation, addressing the different VET actors - companies, vocational schools and inter-company vocational training centres:

- Working groups of trainers and teachers for information purposes;
- Initiation or strengthening of cooperation through existing bodies such as vocational training and examination committees at the chambers, school conferences, state committees;
- Joint training projects to develop or strengthen methodological and didactic cooperation of trainers in vocational school teaching or of teachers in in-company work placements and to intensify communication;

- Joint participation of trainers and teachers in further training measures in vocational pedagogy and technical subjects to develop a common pool of experience.

One example of good practice is the Hamburg School Act of 2006, which succeeded in committing both dual training partners (companies and VET schools) - despite the two different legal systems - to quite extensive cooperation: e.g. meetings of trainers and teachers twice a year, or coordination of the curriculum between companies and schools.

5.2.2. Examples of cooperation in dual training

1. Inter-company vocational training centres (ÜBS / ÜLU)

In addition to the "typical" learning venues (companies and vocational schools), inter-company training centres fulfil an important function, particularly in the craft trades and agriculture. They contribute largely to ensuring that training is not only company-specific, but also occupation-specific training. Furthermore, inter-company vocational training centres offer opportunities for vocational training staff to gain qualifications and undertake further training, for example for new digital skills. This opens up learning venue cooperation with new ways of learning from, through and with one another, as well as new formats for skills development ([41]).

2. Joint training

Since many small companies are unable to teach certain training contents, they have joined forces to form training partnerships. In the network, the companies can complement each other in the practical vocational training.

3. Assisted training

Assisted training (standard programme AsA flex) ([42]) is a form of cooperative training. A training provider takes on the role of a service provider who ensures that training relationships between apprentices and company as well as vocational school are established and run successfully. The services offered to young people include application training, work placements in the preparatory phase, tutoring, counselling, and assistance in coping with life and securing a livelihood during training. Companies receive support in the form of application and training management, counselling, and information with regard to specific target groups as well as cooperation between learning venues. The assisted training is anchored in the German social code (SGB III).

4. Cooperation in the examination system

Volunteer work on examination boards enables trainers and teachers to get to know each other in a completely new setting and to establish contacts. This formalised cooperation in the form of regular meetings creates trust between the two bodies, provides an opportunity for agreement, and often leads to closer cooperation in the regular course of training. The exchange in the examination board also ensures that the company and the school are always up to date. Leando's 2026 annual event took place in Bonn on 24 November 2026 and focused on cooperation between learning venues, with a workshop on cooperation within the examination board ([43]).

5. Example of good practice: joint project BLok

The portal leando.de and the German Education Server ([44]) provide a wide offer of thematic guides, learn package on learning venue cooperation, and examples of best practices, like the joint project BLok. New technologies can support innovative pathways for cooperation between learning venues in VET. The "Online report book to strengthen cooperation between learning venues" (BLok) is a development of the paper-based report book which represents such an approach ([45]). The BLok digital training record is accessible to all actors in dual training: e.g. the apprentice, the training company ([46]), the vocational school, and the inter-company vocational training centre. BLok enables transparent, structured, and location-independent documentation of the respective learning goal progress. This promotes the cooperation between partners at all learning venues, facilitates the coordination and interlocking of the training content, and enables the strengthening of self-responsibility and the initiation of reflection processes (BIBB, 2020). Such digital training records make it possible to combine project-based learning in the workplace with periods of theory and reflection at vocational school. Project results can often be documented in electronic learning diaries (e-portfolios), wikis or blogs. Apprentices can also use mobile phone videos to document work steps and archive them in the cloud for 'on-demand' access across all learning locations.

5.3. Hybrid teachers/trainers

5.3.1. Hybrid trainer

In-company trainers are in a way hybrid by definition, as most of them are part-time trainers with some pedagogical skills, having to do their share of 'productive' work as skilled staff during the rest of their working time. These "hybrid" in-company trainers are a pillar of the dual VET system (see section 4.1). Some

skilled workers or master craftspeople are changing sides at some point in their career by qualifying as teacher for vocational practice or as subject teacher in VET schools (see chapter 3).

5.3.2. Hybrid teacher

In order to improve the current and future supply of teaching in selected technical subjects at vocational schools (electrical, automotive and mechanical engineering), the Ministry of Education in North Rhine-Westphalia (MSB NRW) is implementing a comprehensive programme with the support of the business associations and chambers. Part of this programme is the possibility of part-time teaching at vocational schools (alongside the job in the industry) to a mutually agreed extent. Applicants should have an engineering degree from a university (of applied sciences) in one of the subjects mentioned. ([47])

Another part of the programme is to attract university students in such needed technical subjects to join the VET teacher university programme as side-entrants with additional courses in pedagogical and didactical subjects as well as mandatory preparatory practical training (see section 7.3).

Industry placements are an established but decentralised form of VET teacher professional development rather than a universal entitlement or nationally standardised secondment programme. Some federal states have quite concrete provisions - NRW allows VET school teachers placements of up to four weeks and even envisages reciprocal teacher/company-trainer exchanges - while elsewhere arrangements are shorter or primarily embedded in school-level CPD. The strongest benefits are maintaining teachers' occupational currency and strengthening school–company links; the main constraints are time release, scheduling, finding host companies and, in some cases, unreimbursed costs.

5.4. Data

There is no data available on the cooperation and partnerships between learning venues. For data on in-company trainers, please see section 4.4, and for data on side-entering VET teachers, please see section 7.3. According to a KMK expert, the category “teaching staff without a teacher qualification” contains mostly university graduates with a master in a technical field with teacher shortage. In addition, some also come from the world of work, e.g. through the NRW recruitment programme mentioned above, and could be seen as hybrid teachers.

CHAPTER 6. National and EU-funded projects and initiatives on VET teachers and trainers' professional development

6.1. Digital skills and remote and blended teaching and learning

Germany is beginning to adapt IVET to AI primarily through the occupational-standard-setting process rather than through a separate national AI curriculum. AI-related workplace changes are being investigated by BIBB and considered in the updating of individual training and advanced-training regulations, while the mandatory "Digitalised World of Work" standard already provides a cross-occupational basis for digital competences. BIBB is now calling for market-relevant AI competences and digital sovereignty to be integrated into IVET. At vocational schools, the Länder are incorporating digital and AI competences into curricular development and experimenting with AI-supported teaching.

At the same time, assessment is emerging as a particularly important policy issue. The ability of generative AI to produce conventional learner work is prompting discussion of greater emphasis on learning processes, reflection, verification and transparent documentation of AI use. National debate also focuses on hallucinations and misinformation, data protection, ethical use, unequal AI literacy, VET teacher and in-company trainer competence, and the regulatory implications of the EU AI Act - especially because some AI applications for grading, educational placement and examination surveillance are classified as high-risk.

The thematic focus of the BIBB Data Report 2026 is "AI in VET" and it explicitly connects AI-induced changes in work with occupational regulation and qualification requirements (BIBB, 2026).

6.1.1. Platforms with distance learning resources

The online platforms Leando (former foraus.de and qualifizierungdigital.de) and NetzwerkQ (former Netzwerk Q 4.0) provide in-company trainers and VET school teachers with suitable online resources and tools for distance learning of theoretical and practical components. The digital platforms offer online training modules and allow sharing and collaborative design of teaching and training material.

On the Leando portal, launched at the end of 2023, in-company trainers and examiners can find: information on practical topics (e.g. AI, green skills, inclusion and recruiting) and examples of good practice in training and assessment; community, such as opportunities to exchange ideas with other trainers and assessors, enabling peer-to-peer case discussions and the collaborative development of materials; and tools, such as quality-assured access to customised tools and learning pathways for training and assessment staff.

The roadshow 'Leando on Tour - Tools for Training Practice' visits four to five locations per year. With Leando Live 2025, the BIBB invited training staff, examiners and other vocational training professionals to Bonn on 30 October. Under the motto ‘All AI or what?!’ the focus was on interactive workshops, inspiring impulses and collegial exchange on all aspects of AI in training.

On netzwerkq.de, in-company trainers can find learning resources, practical materials, specialist articles and studies on key topics relating to vocational training, such as training marketing, AI, and diversity and health. This is complemented by talks, workshops, and networking events where trainers can connect with other training providers. The Network Q aims to support trainers in shaping vocational training within their organisation in a targeted way, reflecting on their approach and trying out new methods.

The increasing expectations regarding digitalisation, AI, sustainability, and inclusive education have expanded the areas in which vocational teachers require further professional development. Due to Germany’s federal education structure, CPD is mainly organised by the Länder through teacher training institutes, universities and regional support structures. At federal level, the Quality Initiative for Teacher Training (*Qualitätsoffensive Lehrerbildung*), including the 2020 funding lines on “Digitalisation in teacher education” and “Teacher education for vocational schools”, supported the development of innovative approaches in teacher education (*Qualitätsoffensive Lehrerbildung*) ([48]) ([49]).

Although the programme ended in 2023, some universities have continued individual activities and structures developed through funded projects. For example, LMU Munich continues to provide a platform for exchange and knowledge transfer in teacher education through *Lehrkräftebildung@LMU* (Ludwig-Maximilians-Universität München, MZL) ([50]). However, no comparable federal successor programme specifically dedicated to teacher education has been introduced so far.

6.1.2. Developing digital skills and didactic competences in distance teaching for trainers and VET teachers

The projects MIKA seminars and Digi-Gap both equip VET trainers and teachers respectively with digital skills, remote, and blended teaching pedagogies.

Based on the research work and the funding initiative, ‘Digital media in VET’, the Digital change qualification initiative Q 4.0 was launched in 2019 to set up and test innovative continuing education and training concepts. These concepts aim to enhance the media and IT skills of in-company trainers and their ability to adapt the content of the training process to digital changes. The learning platform MIKA campus (MIKA = Media and IT competence for training personnel) was developed from 2019 and continually expanded: CPD offer MIKA-Seminars and training for future seminar leaders (MIKA-Trainer), MIKA-Tools (free digital tools for training with tutorials), MIKA-Game (educational game in quiz format testing knowledge in digitalisation and media education), MIKA-Do (digital pinboard for VET teachers and trainers with learning and work tasks), MIKA-THEK (library) and MIKA-Storys (successful practical examples of the related project work).

The MIKA seminars focus on six learning fields, e.g. “Understanding the digital world”, “Communicating and collaborating”, “Creating and sharing content”. Since the seminars for the trainers mostly take place alongside their jobs, the MIKA seminars are offered in a blended learning format. The seminar concept should be directly oriented towards the everyday work of the participants. The “MIKA learning world” available from mid-2021 was intended to support the self-learning phase and supplement the previous offer in the BIBB's trainer portal at foraus.de. From 2024, MIKA was integrated into the Leando portal.

In 2025, the Learning World on the Leando portal gave practical support for training and examination staff: here they had access to learning and information paths on job-specific topics, as well as general content such as personal development, inclusion, sustainability, artificial intelligence, and the MIKA offers. In 2025, the Leando Toolbox provided 24 digital tools, and the podcast series ‘Leando Talks’ highlighted current topics in vocational education and training in interviews with various guests.

Besides investing in schools’ digital infrastructure (DigitalPakt Schule) as well as in teachers and students equipment (Corona-Hilfe I, II and III), the Federal government and the federal states supplemented the ‘Quality Initiative for Teacher Education’ with a new funding guideline in 2020. Funding focuses on the topics, ‘Digitalisation in teacher education’ and ‘Teacher education for vocational schools’. For example, the project 'Digi_Gap' aims to analyse digital gaps in relation to 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 ([51]). The DigitalPakt 2.0, agreed in 2024, continues support for digital education until 2030, including investments in digital infrastructure and accompanying measures for schools (BMBF, 2024).

Further support is provided through initiatives addressing specific competence needs. HubbS – Hub for Digital Skills in Vocational Schools – provides vocational teachers with digital teaching materials, information on CPD opportunities and exchange formats (HubbS, 2025). The KI-Campus ([52]) provides open educational resources and learning opportunities on AI, while VET-specific initiatives such as KI B³ address AI-related competence development in vocational education ([53]). The Berufsschul-Digi-Teams programme supports universities in preparing future vocational teachers to use digital media, AI and extended reality in vocational teaching (Stifterverband) ([54]).

6.1.3. New technologies for CPD of trainers and VET teachers

The following funding programmes are embedding the newest technological developments (i.e. AI, augmented and virtual reality) into VET teachers and trainers' CPD:

Inter-company vocational training centres (ÜBS) are designed to supplement in-company training, since SMEs are often unable to provide all the stipulated learning content. In the meantime, ÜBS have developed into multifunctional centres of education, providing also advanced training and continuing education. Through the special **ÜBS digitalisation programme** (2016-23) ([55]), pilot projects in competence centres helped to accelerate the digitalisation of processes in the training of apprentices. They developed innovative teaching and learning concepts and disseminated them as multipliers. In parallel to funding the digitalisation of the inter-company training centres, the idea of excellent inter-company training was further developed by developing the inter-company training centres into technology-oriented centres of excellence. The funding programme for excellent inter-company training (INex-ÜBA) aims to test and implement innovative, training-related concepts for designing excellent teaching/learning locations (2024-27). For example, the 'QualLe Handwerk' project ([56]) focuses on the professional development of training staff: trainers are to implement innovative learning formats using digital technologies and to develop their skills to become learning process facilitators.

In 2019, the Federal Ministry of Education and Research (BMBF) launched the funding programme 'Shaping the future - innovations for excellent vocational training (**InnoVET**)', which aimed to support collaborative projects in adopting innovations (e.g. artificial intelligence) and developing corresponding qualification

concepts in VET ([57]). The **SPERLE project** for example qualified teaching staff in vocational schools, companies, and further education institutions to create motivating learning resources for personalised learning with digital media ([58]). Another example is the **BM=x³ project**, which developed and tested a decentralised supra-regional vocational training academy for the high-technology sector with micro- and nanotechnology (MNT) occupations ([59]). In 2024, the follow-up innovation competition InnoVET PLUS launched 28 projects, including some targeting training staff. For example, the project **Berufspädagogik Connect** supports the professionalisation of vocational teaching and training staff across all learning environments with a digital academy for vocational education ([60]).

The German Federal Government's AI Strategy and its AI Action Plan provide an overarching policy framework, including investments in AI research, digital infrastructure, teacher and workforce development, and ethical governance. One of the flagship projects is **KI B³ – "Integrating Artificial Intelligence into Vocational Education and Training"**. The project develops additional qualifications in technical and commercial occupations, as well as two advanced qualifications at EQF levels 5 and 6. These qualifications enable skilled workers to acquire AI-related competences relevant to their occupational field. The project is a collaborative effort involving vocational schools, chambers of commerce and industry, companies, and training professionals ([61]).

6.2. Green skills for sustainability

Green skills are inherent to sustainability. Cedefop defines green skills as "the knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource-efficient society" (Cedefop, 2012). Sustainability has become an increasingly important cross-cutting issue in vocational education. Since August 2021, "environmental protection and sustainability" (*Umweltschutz und Nachhaltigkeit*) has been a mandatory standard occupational profile item in all recognised dual training regulations. VET teachers and trainers are therefore expected to integrate sustainability-related requirements into subject-specific teaching.

From 2015 to 2021, BIBB funded eighteen **'**VET for sustainable development' projects (BBNE) ([62]). The projects experimented and evaluated relevant curriculum concepts, digital teaching, learning materials, and examination questions on green skills for initial and continuing VET, e.g. on energy saving and energy efficiency, carbon and water footprint, or thinking about resources. These projects led – among others – to recommendations for organising VET and related didactic guidance. A strong partnership between businesses, scientific support, and the

responsible authorities was encouraged. A transfer programme for training staff (2020-22) ([63]) followed the VET for sustainable development (BBNE) programme, to support in-company trainers in developing green and sustainable skills. One example of transfer project is the successor of the BBNE sustainability project ANLIN ”Apprenticeship promotes sustainable places of learning in industry”: the transfer project ANLIN² “Trainers and apprentices become sustainability experts”.

To follow up the BBNE funding programmes, the Sustainable at work – future-oriented training (NIB) funding programme was launched in 2023, with its first funding guideline focusing primarily on the qualification of training personnel. The common goal of the funded projects is to train 12 000 skilled workers (who work as in-company trainer) from different sectors and professions in sustainability-related skills. To this end, they implemented 212 customised analogue and digital Train-the-Trainer courses, which are often modular in structure - from low-threshold taster courses to comprehensive certificate courses ([64]). One example is the NBAU project on sustainable construction, which offers Train-the-Trainer courses and community building for vocational training in sustainable development in the construction industry in Berlin-Brandenburg. Another example is the NAWiGaLa project, which offers qualification for sustainable training and management in gardening, landscaping and sports field construction. The trainer portals Leando, Überaus and NetzwerkQ are also promoting green skills of trainers for sustainability.

There is no formal sectoral hierarchy in Germany's approach to developing green competences among VET teachers and trainers: sustainability is intended as a transversal competence across VET. In practice, however, provision is uneven. Successive BBNE programmes have designed comparatively well-developed training concepts and materials in selected sectors and occupational fields - including commercial occupations, industry, food production and trades, dairy production and care - while coverage in other fields is less developed. Current programmes seek to reduce this fragmentation by transferring tested approaches across sectors and by focusing increasingly on cross-cutting challenges such as the energy transition and circular economy. Thus, the main imbalance appears to concern the maturity and availability of sector-specific provision rather than unequal policy commitment to green skills across sectors.

6.3. Inclusiveness for learners at risk of early leaving

6.3.1. Violence and harassment in IVET schools

There is a substantial set of initiatives aimed at preventing and addressing violence and harassment in VET schools, although the German landscape is somewhat fragmented. There is one particularly relevant nationwide programme specifically aimed at vocational schools and apprentices, while many other programmes are school-wide or Land-level initiatives that explicitly include vocational schools.

The strongest example is “Jugend will sich-er-leben” (JWSL) ([65]), a nationwide prevention programme of the German statutory accident insurance system (DGUV). It is specifically targeted at apprentices and VET school learners and is offered to all vocational schools and training companies in Germany through the DGUV regional associations. The 2025/26 annual theme was “Prevention of violence in training and work”. The programme addresses a broad understanding of violence, including violence and harassment occurring in training, at vocational school and in workplaces. Its objectives include helping apprentices:

- recognise different forms of violence early;
- understand causes and consequences;
- identify risks for violence;
- learn preventive and protective strategies;
- know what to do when violence occurs;
- know where and how to obtain assistance.

The programme provides a complete teaching package for vocational school teachers, including lesson plans, background information, films, exercises and a student competition. There is a parallel training package for workplace trainers. The programme links the school and workplace components of dual VET, rather than treating violence exclusively as a school issue.

DGUV also produces teaching materials on violence prevention under its “Learning and Health” programme. Some materials are explicitly labelled BBS (VET schools). For example, the unit “violence prevention” discusses aggression, conflict and violence in vocational schools, training institutions and companies. It emphasises identifying organisational risk factors, recognising escalation processes and establishing procedures for dealing with violence ([66]).

At federal state level, some violence-prevention programmes explicitly cover VET, e.g. Anti-Bullying-Strategies (ABS) in Baden-Württemberg, PRIMO in Bremen or “With courage against mobbing” in Bavaria. These approaches train teachers, school social workers and student mentors to deal systematically with mobbing and bullying. They combine prevention and intervention. Individual VET

schools also develop their own anti-violence systems beyond formal national or federal programmes.

Sexual violence and sexual harassment tend to be addressed through safeguarding (*Schutzkonzepte)* rather than through VET-specific anti-harassment programmes. The KMK adopted a national guide in 2023 on developing and implementing school safeguarding concepts and measures against sexual violence. It provides schools with procedures and practical materials for establishing protection systems ([67]). This builds on earlier KMK recommendations on preventing and responding to sexual abuse and violence in schools. KMK policy also explicitly recommends integrating violence prevention, bullying prevention and social learning into teaching and school life in ways adapted to school type and educational stage ([68]).

6.3.2. Access, inclusion and support for diverse learners in IVET

Some full-time VET schools offer pre-vocational introductory programmes – so-called transition programmes ([69]) and VET schools for learners with disabilities. Vocational preparation helps young people who have not yet started an apprenticeship after leaving general education, or who have been unsuccessful in their search for one, to enter the world of work by assisting them in making a career choice where one is still lacking and by creating the conditions necessary for them to successfully commence vocational training. Its programmes focus on improving basic academic skills, addressing personal issues and completing a series of qualification modules. According to Section 1 of the BBIG, vocational training preparation aims to provide the foundations for acquiring vocational competence and thus to prepare young people for vocational training in a recognised apprenticeship occupation.

In vocational schools (*Berufsschulen/Berufskollegs*), learners at risk are often supported by specialist staff in addition to vocational teachers. There is not one single nationwide job category, however. The arrangements differ considerably between Länder, municipalities, and individual schools. The most important specialist roles are:

- School social workers work with students experiencing social, family, behavioural, financial, attendance, or learning-related difficulties and can coordinate support with youth welfare services and other agencies.
- Career guidance counsellors from the Federal Employment Agency have consultation hours directly in vocational schools. Their role is particularly relevant for young people who have difficulty finding an apprenticeship. They

can provide individual counselling, placement support and access to labour-market programmes.

- Career start mentors work particularly with disadvantaged young people. They can help with completing school, personal difficulties, career choice, finding an apprenticeship and the first months of an apprenticeship. Career start coaching primarily starts in general secondary schools before entry into VET, rather than being a standard staff position in vocational schools (Huismann, 2018, p20).
- Youth employment agencies bring together the Federal Employment Agency, Jobcenters and local youth welfare services. They are particularly relevant to young people who risk becoming disconnected from education, training or employment. Schools are important cooperation partners.
- School assistants can provide individual support for learners with physical, psychological or intellectual disabilities. They may accompany an individual student during lessons and cooperate with teachers, therapists and parents. This is a somewhat different category from general dropout-prevention work because the support is linked primarily to disability-related individual needs.

Regarding the workplace component of apprenticeship, as part of the standard Assisted Training (AsA flex) programme ([70]), the VET provider commissioned by the public employment agency (BA) offers suitable preparatory and support services for both the apprentices and the training companies. Vocational preparation and training are linked and tailored to the apprentices' individual circumstances. The services offered to young people include application training, work placements in the preparatory phase, tutoring, counselling, and assistance in coping with life and securing a livelihood during training. Companies receive support in the form of application and training management, counselling, and information with regard to specific target groups as well as cooperation between learning venues. The assisted training is anchored in the German social code (SGB III).

The VET teacher and the trainer should also be able to call for external support measures if needed, e.g. individual coaching. 'VerA individual coaches' ([71]) are retired professionals (e.g. former in-company trainers), who volunteer to support apprentices facing problems and at risk of dropping out of VET until successful completion of their training. Apprentices, parents, trainers and companies, VET teachers and vocational schools, training guidance of the chambers or employment agency can contact the VerA team (Huismann, 2018).

The understanding of inclusion in VET has evolved in the last decade against the backdrop of social and political developments. For example, intercultural competences of VET teachers and trainers have been relevant due to the integration of refugee flows (e.g. from Syria since 2016 and Ukraine since 2021)

and the need for foreign skilled workers due to growing shortages. But inclusion in VET is also about responding to increasing diversity, heterogeneity, generational differences and dealing with apprentices with disabilities. For aspects regarding wellbeing of VET teachers and trainers, please refer to Chapter 7.

Teachers at VET schools increasingly work with heterogeneous learner groups, including learners with different educational or language backgrounds and individual support needs. This requires teachers to adapt teaching approaches and create learning environments that enable participation and individual learning. The KMK identifies inclusive education as a central responsibility of schools and highlights the importance of responding to learners' individual needs while ensuring equal participation (KMK, 2011). It also emphasises language-sensitive education as a cross-cutting responsibility across educational pathways, including vocational education (KMK, 2019a).

In March 2015, a joint recommendation on 'Educating teachers to embrace diversity' was passed by the German Rectors' Conference and the Standing Conference of the Ministers of Education and Cultural Affairs of the States in the Federal Republic of Germany. Diversity and inclusion are taken in a broad sense: "Diversity in the broadest sense is a reality and a responsibility for every school. It is important to take the various dimensions of diversity into account. This includes both disabilities as defined by the Convention on the Rights of Persons with Disabilities, and specific background factors such as language, social circumstances, cultural and religious orientations, gender, and particular aptitudes and talents." (KMK/HRK, 2015, p. 2) The 2015 resolution pointed out the need for pedagogical, subject-specific, and didactical basic skills in the areas of diversity, inclusion (joint learning of learners with and without disabilities) and basics of special needs diagnostics in the teacher education (KMK/HRK, 2015). End of 2020, the joint implementation report of the 2015 recommendation was published (KMK/HRK, 2020).

The 2026 German School Barometer shows that supporting diverse learner needs remains a major challenge for teachers in Germany and highlights continued demand for professional development in this area (Robert Bosch Stiftung, 2026). Simulation-based approaches, such as the MITHOS project, help prospective and practising teachers to develop strategies for managing heterogeneous learning environments (DFKI) ([72]).

To support in-company trainers in facing various inclusion issues, the portals leando.de, www.überaus.de and NetzwerkQ are providing information and CPD modules promoting specific competences. For example, the dossier *Qualification and labour market integration – refugees* on the portal *Überaus* was expanded to include information on the integration of refugees from Ukraine ([73]). The dossier

for trainers *Language and culture in training*, updated in 2023, is also available on the portal and contains a wealth of information on cultural differences ([74]). In 2025, a guide for in-company trainers was published on the Leando trainer platform, providing tips for everyday training situations involving people from a wide range of cultural backgrounds ([75]).

The chambers are also promoting upskilling of trainers in inclusiveness. For example, Chambers of Industry and Commerce (IHKs), DIHK-Bildungs-gGmbH, companies and experts have developed a range of training programmes designed to help trainers integrate apprentices from abroad. Further, the chambers network *Companies integrate refugees* ([76]) published an update of their handbook for volunteers supporting refugees, with a specific checklist for volunteers supporting refugees from Ukraine.

In 2023, the BIBB Board updated the framework plan for the Trainer Aptitude Ordinance (AEVO), in which, among other things, the intercultural competences of trainers are named as a learning objective. On the one hand, the skills of the trainers relate to a constructive, respectful and objective approach to intercultural differences when supervising apprentices with different cultural backgrounds. Equally important is the ability to impart intercultural competences to the apprentices. In one of the KAUSA transfer projects, 'Interkulturell SMART', the intercultural approach is particularly emphasised by the development and implementation of an additional module, 'Interkulturell-sensible Ausbildung' (Interculturally Sensitive Training), for the trainer aptitude test (Trainer Aptitude Ordinance, AEVO) ([77]).

The fact that the term "Inklusion" in Germany has become established in relation to people with disabilities is undoubtedly due to the UN Convention on the Rights of Persons with Disabilities, which came into force in Germany in 2009 and emphasises the particular importance of inclusion for the full and equal participation of people with disabilities, including in VET and in the labour market. As mentioned in section 4.3, an additional qualification in rehabilitation education for trainers (ReZA) of 320 hours is generally required for trainers to conduct appropriate vocational training for disabled persons both in companies and in inter-company and extra-company facilities or vocational rehabilitation measures ([78]). The BIBB portal Überaus compiled a dossier on inclusion during the transition from school to work, including video clips and publications ([79]). For example, the 2018 anthology makes a case for greater participation in mainstream provision and offer suggestions for improvements and modernisation within the vocational training system. Alongside the theoretical articles, there is a comprehensive practical section which demonstrates how inclusion can be successfully achieved in day-to-day vocational training (Arndt et al, 2018).

CHAPTER 7. National surveys of teaching and training populations

7.1. Surveys on in-company trainers

7.1.1. Situation of training staff in apprenticeship

From 2009 to 2012, the BIBB conducted a research project on the "Situation of training staff in apprenticeship" (SIAP). Through a case study approach, personal interviews were conducted with various training stakeholders (personnel and training management, full-time and part-time trainers, supervisors, employee representatives, apprentices) in companies nationwide (Bahl & Blötz, 2012). The results of this survey are still relevant since they have been the basis for forthcoming actions. In 2019, the main author of the SIAP study concluded, that:

> *"The general call for professionalisation of VET personnel in German and European policy does not adequately respond to the particular situation of workplace trainers. Policy summarises them under the joint label of an occupational group, but as we have seen, the persistent analogy with VET teachers at schools is misleading. In apprenticeship at least, we have to speak of an additional function and need to target a much more heterogeneous group of employees.* (…) *VET policy needs to better address the benefits of investing in the training of trainers on the part of companies.* (…) *Finally, professional development of workplace trainers requires, as a starting point, the systematic reflection of their role within the respective company context. Strengthened awareness and self-esteem in their role as learning facilitators (…) are prerequisites for the development of personal strategies to negotiate the contradictory demands they face.*" (Bahl, 2019, p218)

7.1.2. Study on the ordinance on trainer aptitude (AEVO)

On behalf of the Federal education ministry (BMBFSFJ), the BIBB has conducted a one-year study in 2020/21 to investigate whether the ordinance on trainer aptitude (AEVO) and the corresponding framework plan (both dated 2009) still adequately reflected the challenges of in-company training processes (regarding digitalisation, sustainability, demographic development, heterogeneity) or whether there is a need for modernisation. One element of the study was an online survey among VET actors involved with the AEVO with almost 3 900 participants. The online survey targeted human resources managers, training managers, trainers, training advisors at the chambers, training providers for CPD of training staff,

works/staff councils, youth and apprenticeship representatives and examiners. Based on the study results, the BIBB recommended to keep the AEVO/AMVO ([80]) ordinances in their current version due to their open wording, but to update the contents of the corresponding BIBB framework plan. In July 2023, the Board of the BIBB published the updated framework plan with details of the knowledge to be imparted in the preparatory courses (BIBB, 2023; Ulmer, 2009/2019). The knowledge relevant to the examination is imparted in so-called "training of trainers" courses (AdA courses). Further training and refresher courses for trainers should supplement the current offer. ([81])

7.1.3. Advanced qualifications for trainers

In 2009, beside amending the AEVO framework, two advanced VET programmes (at EQF levels 6 and 7) were adopted to promote the professionalisation of trainers, as detailed in chapter 4. However, demand has so far fallen short of expectations. To explore the reasons for this low demand, a research survey was conducted on the acceptance of the advanced training qualification "Certified Vocational Pedagogue" in 2018 among candidates, education providers and chambers carrying out the exams (Schley, 2020; Bahl & Schneider, 2022).

The Federal education ministry now plans to reform the advanced courses for trainers at EQF level 6 and 7. As part of the discussion on the planned modernisation of the two qualifications, the social partners wished to clarify in advance whether there was a need for vocational training staff to obtain a qualification at EQF level 5. The findings of the BIBB preliminary study (2023-26) suggest a need for a formal pedagogical qualification at EQF level 5, which specifically addresses designing and supporting learning and change processes in a workplace context. This new qualification at EQF level 5 would be part of a career development framework for in-company training staff. At the same time, the process should examine the possibility of making parts of the new qualification available as standardised nationwide further training options in the form of adaptation courses below the first level of advanced training (EQF level 5). This would also meet the clearly expressed high demand for low-threshold and more content-focused access (Schneider, 2026). The preliminary findings from this study are based among others on twelve interviews with a total of 21 interview partners in companies and with training providers. The topics of recruiting training staff and the demands of the young target group were frequently raised – even without being asked directly.

7.1.4. Surveys among companies and labour force

A special module on in-company training staff and the challenges in this context was incorporated into the 2023 survey wave of the BIBB Qualification Panel (subsample of companies that provide training in occupations covered by the BBiG or the HwO). Analyses of data and interviews with those responsible for vocational training pointed to growing areas of tension within companies and identified similar issues as above (Bahl, 2025a; Bahl, 2025b). This relates, on the one hand, to the recruitment of trainers and, on the other, to the workload involved in supervising apprentices and the way in which the young target group and their needs are viewed. The willingness to take on training responsibilities amongst employees seems to be declining. More than half of the companies report that the workload for training staff per apprentice has increased over the last five years. The increased effort involved in dealing with an increasingly diverse group of apprentices was raised so frequently and so clearly in the qualitative interviews that it became a recurring theme. A wide variety of challenges were cited that require more intensive support. These range from deficits in reading, writing and arithmetic, through a lack of social skills, to mental health issues affecting a growing proportion of apprentices, who are carrying ‘a much heavier burden’ than in the past. In this regard, the respondents find it even easier to address technical shortcomings than social ones. In the case of the latter, not only do they estimate the effort required to be significantly greater, but they are also uncertain about their prospects of success. Beyond such methodological and pedagogical challenges, however, there are also accounts of situations, in which apprentices express expectations and demands of the company (e.g. regarding Work-Life-Balance) that shock their counterparts, as they run counter to their own values in the workplace. The dual challenge facing trainers – who act as bridge-builders between school and the world of work – in dealing with the next generation of skilled workers amidst a general shift in values and in the face of the pressures of transformation in their own day-to-day working lives becomes particularly clear here (Bahl, 2025a).

Employees who are involved in providing vocational training within their organisations remain a largely unknown group. This applies in particular to their personal dispositions. Using data from the 2024 BIBB-BAuA Labour Force Survey, Bahl (2025c) examined whether employees involved in training are characterised by specific professional ambitions – in this case, improving their qualifications and/or their position. The results revealed an independent correlation with their role in training. This group’s inclination towards further qualifications is more pronounced than their career aspirations. Ideally, the specific educational activities of this group should also be reflected in the further training opportunities available to them within the field of vocational and workplace education, if in-company

training is to remain viable in the future (Bahl, 2025c). Chapters 4 and 6 are presenting such advanced qualifications as well as more low-threshold further training opportunities to support trainers to cope with the new challenges.

As already presented in section 4.4, the BIBB survey on the costs and benefits of in-company training 2022/2023 provides data on which types of employees are involved in in-company training and how much time they spend on it (BIBB, 2025; Wenzelmann et al., 2025).

7.1.5. Role evolution and well-being of trainers

In dual vocational training, in-company training staff bear a great deal of responsibility, as they play a key role in imparting skills and competences. They consist almost exclusively of employees who carry out training duties either alongside or instead of their main job (part-time training staff). As indicated above, training staff in apprenticeship are under pressure.

As pointed out in the DEQA-VET self-assessment report on quality assurance and qualification of in-company trainers in Germany (Sabbagh & Maiczak, 2024, p16), in-company training is a challenging undertaking, not only because of the complexity of the tasks involved, but also because it involves areas of tension, as economic and educational interests compete with one another and may not always be able to be accommodated equally or with the same intensity (Greinert 1989, p175; Pätzold, 1997; Kohl, 2021, p19). Part-time training staff, in particular, must continually balance these potentially conflicting demands. Another important aspect is that the vocational training concept applicable in Germany is linked to the requirement to provide training across a broad professional field, which also includes pedagogical support for the personal development of apprentices (Gonon/Bonoli, 2023, p14). It should be noted here that apprentices are often very young people, which is why the responsibility on the part of the training staff in this regard is correspondingly great (Wolff, 2023, p60). Due to this young clientele, VET is also “regarded as an educational task and goes beyond simply preparing apprentices for gainful employment” (Sloane, 2006, p612).

As emphasised by Sabbagh & Maiczak (2024, p17), societal challenges such as digitalisation, demographic change and the need to decarbonise the economy and society, are reflected not only in operational processes but also in teaching and learning environments. At the same time, the diversity among young people – in terms of, for example, educational attainment, linguistic and cultural background, and other aspects of socialisation – has increased, placing greater demands on training staff in the areas of intercultural competence, communication and conflict management. Furthermore, technological developments are contributing to changes in both working and learning practices, meaning that trainers must

continuously develop their skills not only in the area of media literacy but also in terms of pedagogical and didactic knowledge (Kohl, 2021, p142; Euler, 2023). More generally, research indicates a shift in the traditional role of the trainer – which centres on the imparting of knowledge – towards functions within the training context that involve advising, designing, supporting and facilitating (Bahl/Grollmann, 2011, p79; Ulmer/Gutschow, 2013, pp 151ff.). In addition to the challenges posed by digitalisation, the issue of climate change must also be reflected upon, taken into account and integrated across disciplines into the day-to-day practice of in-company training (Härtel, 2022).

7.2. Surveys on teachers' and learners' well-being

7.2.1. Current situation and data availability

Teacher well-being has become an increasingly important educational policy issue across Europe, particularly in the context of persistent teacher shortages, digital transformation and growing psychosocial pressure in schools (OECD, 2020; Cedefop, 2026). In Germany growing attention has been paid to workload, stress, and mental health among teachers, while evidence specifically addressing VET teachers remain limited (Robert Bosch Stiftung, 2025; VBE, 2025).

Germany currently lacks a comprehensive, VET-specific monitoring framework for teacher well-being. Germany is not part of the OECD Teaching and Learning International Survey (TALIS), resulting in a significant gap in the internationally comparative evidence base on teachers' working conditions and professional development (OECD, 2020). Similarly, Germany is not included in the current sample of Cedefop's European Vocational Teacher Survey (EVTS), the first large-scale European survey addressing VET teachers' working conditions and well-being specifically (Cedefop, 2025). This absence makes cross-national benchmarking particularly difficult.

At the federal level, fragmentation across the 16 Länder further complicates data collection. Health and working condition data are held across multiple institutions, including occupational health authorities, teacher insurance funds, labour ministry statistics and union surveys, with no unified reporting structure (Robert Bosch Stiftung, 2025; VBE, 2025).

The most prominent national instrument is the Deutsches Schulbarometer, an annual representative longitudinal survey conducted by the Robert Bosch Stiftung tracking how teachers across all school types experience their working conditions and professional well-being. Now in its third consecutive wave, the survey has followed 1 246 participants since 2023, making it the most robust repeated-

measures instrument for teacher well-being at national level. In 2026, around 26.5% of respondents worked at vocational schools. The findings point to significant and persistent strain: 24% of teachers reported feeling emotionally exhausted several times a week, and 12% daily. Longitudinal analysis shows that over 90% of teachers saw no meaningful change in burnout symptoms between 2024 and 2026, suggesting that without targeted intervention, strain levels will remain structurally elevated. The 2026 wave also used the same job satisfaction items as TALIS 2024, placing Germany marginally below the international average and offering a rare point of cross-national comparison given Germany's absence from that study.

A further source of cross-occupational evidence is the BIBB/BAuA Employment Survey, a large-scale representative survey of approximately 20 000 employees in Germany. The survey covers working conditions, job demands, occupational strain as well as health complaints across all sectors and occupational groups. Wesselborg and Bauknecht (2022) drew on the 2018 wave to examine factors associated with psychological exhaustion and protective resources among teachers at vocational schools specifically.

Occupational medicine research supports these findings: administrative tasks, digital requirements and staff shortages have been identified as key stress factors associated with burnout risks and long-term health consequences among teachers across all school types (Buchner et al., 2026).

Data from the Forsa school leadership survey (2023), a national representative survey of 1 310 school leaders at general-education schools commissioned by the Verband Bildung und Erziehung (VBE), further illustrate a worsening trend. In the 2023 wave, 60% of school leaders reported an increase in long-term sick leave, for psychological conditions (compared to 37% in 2019 and 50% in 2021).

Research focusing specifically on vocational schools presents a more differentiated picture. Arndt’s comparative study on subjective workload across school types (2025) suggests that teachers at vocational schools partly report lower levels of strain than colleagues in other school forms. Nevertheless, organisational demands, administrative workload, and reform pressures remain high across all school types.

The AARL-BS project (Arbeitszeit, Arbeitsbelastung und Resilienz von Lehrkräften an beruflichen Schulen), conducted jointly by the University of Mannheim and the Baden-Württemberg vocational schools association, examined working time, workload, and resilience specifically among VET teachers. A key finding was the positive correlation between working hours and health risk,

underlining the relevance of workload management for this professional group (Aprea et al., 2023).

7.2.2. Trends and drivers of teacher well-being

Drawing on successive waves of the Deutsches Schulbarometer (2021–2026), a clear trend towards increasing perceived work-related stress emerges, particularly since the COVID-19 pandemic:

- 2021: The pandemic's impact and the growing psychosocial problems of students emerged as key sources of strain.
- 2022: Ongoing pandemic effects, teacher shortages, and the integration of refugees intensified the experience of burden.
- 2023: Rising child poverty, expansion of part-time working and the demand relating to inclusive education and digital infrastructure were the main concerns.
- 2024: Greater exposure to psychological and physical violence from students was associated with heightened burnout risk, emotional exhaustion, with particularly high strain among young and female teachers.
- 2025: Anticipated consequences of artificial intelligence and challenging student behaviour emerged as main concerns. Time pressure, excessive workloads, large class sizes, administrative burden, lack of work-life balance and insufficient resources for managing heterogenous in learning groups were consistently reported.
- 2026: The focus shifted from external pressures to internal school conditions: cooperative culture and social work support were identified as the most effective protective factors, while student behaviour and AI integration remained the dominant challenges.

A general trend towards increasing perceived work-related stress over recent years is therefore clearly supported by the available evidence, with the COVID-19 pandemic appearing to represent a structural turning point. Nationwide survey research conducted during the COVID-19 pandemic additionally highlighted elevated levels of anxiety, depression symptoms, and psychological strain among teachers in Germany (Köstner et al., 2022).

Digital transformation has added a distinct dimension to teacher well-being. Central concerns include digital stress, hybrid teaching requirements, expectations of permanent availability, and ongoing infrastructure gaps.

The Berlin workload and digital stress study, conducted in cooperation with the University of Göttingen and the GEW Berlin (Mußmann & Hardwig, 2024), found that among all school types in Berlin, vocational and grammar schools report the highest levels of digital media use. While vocational schools were found to have comparatively favourable conditions for digital implementation, the study

nevertheless identified growing concerns regarding permanent availability, increased preparation time, and digital overload associated with hybrid and technology-supported teaching. Research on digital well-being increasingly points to the connection between digital media use, workload intensification, and psychosocial strain among teachers. Annemann, Menge and Gerick (2024), for example, identify increased workload and accelerated work processes as central mechanisms through which digital media contribute to teacher strain.

This picture is sharpened by the most recent Deutsches Schulbarometer data. The share of teachers using AI tools at least several times a month rose sharply from 31% in 2025 to 52% in 2026, while the proportion feeling confident in doing so grew from 38% to 48%, still leaving the majority uncertain. AI-related training has meanwhile become the single most frequently cited professional development need, mentioned by 52% of teachers. The pace of adoption has clearly outrun teacher preparation, and that gap is itself a source of digital stress.

7.2.3. Recruitment and retention challenges

Teacher well-being is an increasingly significant factor in the recruitment and retention difficulties affecting VET teaching in Germany. The evidence points to a structural supply gap that is set to persist throughout the decade. According to the KMK's most recent teacher supply and demand projections, covering the period 2025 to 2035, an estimated 50 500 teachers will be needed for vocational school positions (*Lehrämter für den Sekundarbereich II, berufliche Fächer*) while only around 26 500 are expected to complete their teacher training — leaving a projected shortfall of approximately 24 000 across the forecast period. The KMK explicitly recommends a VET teaching career to prospective students and career changers as offering particularly strong employment prospects throughout the entire forecast period.

The Deutsches Schulbarometer (2026) captures this clearly: 28% of teachers say they would leave the profession if they could, with this group concentrated disproportionately at primary and lower secondary schools. VET teachers present a more favourable picture overall, with above-average job satisfaction and comparatively lower burnout symptoms. Yet they face their own pressures: student behavioural challenges are reported at similarly high rates as at lower secondary schools, AI integration is advancing faster in VET than elsewhere, and administrative and reform demands remain substantial.

7.2.4. Learner well-being

Systematic evidence on learner well-being in VET schools and in training companies in Germany remains limited. However, for apprentices, the annual DGB Youth Training Report (*Ausbildungsreport*) provides recurring evidence on

apprentices' satisfaction with training, working conditions, workload and psychological and physical strain. Recent findings indicate that overall training satisfaction remains relatively high, but also point to concerns related to stress, overtime, inadequate training conditions, and economic insecurity among apprentices (DGB-Jugend, 2025). The reasons and factors influencing dropouts of IVET may also give some insights in apprentice well-being (Huismann/Hippach-Schneider, 2023). These reports therefore provide important insights into broader dimensions of learner well-being, although they do not specifically address digital well-being.

Digital fatigue among learners has emerged as a recognised concern, particularly in the context of the post-pandemic expansion of hybrid and remote learning formats. Research on digital fatigue has so far focused almost exclusively on higher education students (Romero-Rodríguez et al., 2023; Roick et al., 2023), leaving VET learners largely unexamined. Furthermore, the ICILS (International Computer and Information Literacy Study) examines students' digital competences comparatively but does not address well-being directly. Therefore, Cedefop's digital inclusion and well-being framework (2026) highlights the importance of integrating learner digital well-being into VET quality assurance, noting that technology use in learning environments carries both opportunities and risks for learner health and engagement.

7.2.5. Monitoring mechanisms

A prerequisite for evidence-based policy is reliable data on the problem it seeks to address. Germany does not currently operate a systematic national monitoring framework specifically targeting the well-being of VET teachers. No single institution is responsible for collecting this relevant data, but evidence is captured primarily through one-off studies, regional projects and general teacher surveys that are not consistently disaggregated by school type.

The Deutsches Schulbarometer, as discussed in Section 7.2.1, represents the most consistent annual source at the national level, but does not focus on VET specifically. In addition, the BIBB/BAuA Employment Survey provides one of the few recurring large-scale data sources on working conditions, occupational strain, and health-related factors across occupational groups, including teachers. Nevertheless, VET-specific data remains fragmented and is not systematically available across monitoring instruments.

Further evidence is generated through occupational health research and regional studies, such as the Berlin workload and digital stress study conducted by the University of Göttingen in cooperation with GEW Berlin (Mußmann & Hardwig, 2024), or the AARL-BS project on workload, resilience and working time among

VET teachers in Baden-Württemberg (Aprea et al., 2023). While these studies provide important insights into workload, digital stress and health-related risks, they remain project-based and regionally limited.

State-level occupational health data and regional programmes exist in several Länder, yet differences in methodology and reporting structures make it difficult to compare across the federal system or on international level. As the VBE (2025) notes, understanding the scale and drivers of teacher health challenges requires systematic data collection and analysis. The Deutsches Schulbarometer itself explicitly calls for robust, representative empirical studies that can identify risk groups and track development over time, precisely the kind of longitudinal, VET-specific monitoring that is currently missing in Germany.

7.2.6. Policies and support measures

In the absence of a unified national framework, individual federal states have developed their own occupational health and well-being support structures for teachers. Selected examples include:

- Hessen: The Landesprogramm Schule & Gesundheit offers prevention measures specifically targeted at teachers (Hessisches Ministerium für Kultus, Bildung und Chancen, 2025).
- Baden-Württemberg: The Zentrum für Schulqualität und Lehrerbildung (ZSL) provides health promotion measures including pedagogical case consultation groups, coaching groups, self-management programmes, entry-phase mentoring and the “10plus” programme for sustained motivation and health in the teaching profession (ZSL Baden-Württemberg, 2025).
- Berlin: The GEW Berlin has engaged specifically with digital stress as an emerging occupational health concern (GEW Berlin, 2024).

In parallel, digital transformation has increasingly become part of broader educational policy strategies. The KMK’s digital education strategy aimed to expand digital learning environments across German schools, although implementation has varied considerably across the federal states (KMK, 2016).

Overall, the available evidence suggests that awareness of teacher well-being has increased considerably in recent years and that a growing number of support measures and regional initiatives have been established. At the same time, monitoring structures, access to support services and implementation strategies remain uneven across the federal system. This is also reflected in the findings of the Deutsches Schulbarometer (2025), according to which 38% of teachers considered the psychological support structures at their schools to be entirely insufficient.

7.2.7. Outlook

As outlined in the preceding sections, no national survey in initial VET that comprehensively addresses teacher and learner well-being is currently planned or publicly announced in Germany. The evidence gap is recognised by stakeholders including the VBE, the Robert Bosch Stiftung and individual researchers, but has not yet translated into a coordinated national monitoring initiative. Germany's continued absence from TALIS and the EVTS sample represents a missed opportunity for systematic, internationally comparable data. At the same time, the growing body of longitudinal evidence from the Deutsches Schulbarometer — particularly its use of TALIS-comparable items — shows that repeated-measures monitoring of teacher well-being is both feasible and valuable at national level. Extending this approach to VET specifically, and connecting it to European frameworks such as the EVTS, would substantially strengthen Germany's capacity to understand and respond to the well-being challenges facing its VET workforce.

7.3. Teacher shortages

The situation in German schools is becoming increasingly drastic – there is a shortage of teachers everywhere. The teacher shortage in Germany is leading to overcrowded classes and increased stress for the remaining teachers. The causes of the teacher shortage are varied and include demographic changes and the low appeal of the teaching profession. Measures to tackle the teacher shortage, such as better working conditions and targeted incentives, are necessary to improve the situation. The demand for teachers varies from region to region, and there are also significant differences between the various types of school. The impact of the teacher shortage on education is considerable ([82]).

7.3.1. Availability of data

The Conference of ministers of education and cultural affairs of the 16 federal states (KMK) regularly publishes current model calculations and future forecasts up to 2035 on teacher recruitment needs and supply. According to the latest forecast published in December 2025 (KMK, 2025), the number of new graduates from the VET teacher university training programme who apply for permanent positions in the school system is projected to be 26 500 between 2025 and 2035. In comparison, the teacher recruitment requirement over the same period is of 50 500 VET teachers. The recruitment requirement cannot be met in any of the forecast years, meaning that there will be a shortage of approximately 24 000 VET teachers throughout the entire forecast period. Unlike most other teaching roles, where supply is expected to improve after 2028, the gap in VET is projected to

widen further towards 2035, with no year in which demand can be fully met (KMK, 2025).

7.3.2. Sectoral or regional shortages

VET teacher shortages are concentrated in specific vocational fields, in particular STEM subjects (science, technology, engineering and mathematics). For example, VET schools in NRW (*Berufskolleg*) are lacking teachers in the fields electrical engineering, energy engineering, communications engineering, mechanical engineering, manufacturing engineering, automotive engineering, design engineering, process engineering, utilities engineering, chemical engineering, automation engineering, information technology, civil engineering (including building construction and earthworks) and technical computing, as well as media design and design engineering ([83]).

At the start of the 2025/26 school year, thousands of teaching posts remained unfilled. The availability of teaching staff varies greatly from region to region. In rural areas in particular, it is often difficult to find candidates for schools. Some federal states are responding by seconding staff to underserved regions or by offering financial incentives, e.g. grants, supplements, relocation assistance and other incentives to attract teachers to work in remote regions ([84]).

7.3.3. Causes for shortages

The causes of the teacher shortage are varied and include demographic changes (ageing workforce) and the low appeal of the teaching profession ([85]). The demographic factors are reflected in two ways: on the one hand, the ‘baby-boomer generation’ is leaving the workforce, whilst the next generation is much smaller. This is having a noticeable impact on the supply of teachers, as competition for skilled workers in the labour market as a whole is increasing and will continue to rise. On the other hand, pupil numbers are expected to rise well into the 2030s, as the effects of demographic trends – such as the rise in the birth rate between 2012 and 2016 and the significant slowdown in the birth rate since 2021 – are felt across the education sector with a time lag. Furthermore, pupil numbers have risen significantly, particularly in 2015/16 and, more recently, since 2022, due to the influx of refugees from Ukraine (as well as other immigration), which has significantly increased the demand for teachers (KMK, 2025). Measures to tackle the teacher shortage, such as better working conditions and targeted incentives, are necessary to improve the situation.

7.3.4. Policy responses

The KMK formulated a joint decision in 2013 on how to attract and train teachers in areas of shortage (KMK, 2013). The education ministries of all 16 federal states

have launched recruitment campaigns to attract career changers and side entrants ([86]), but with different conditions and focuses, depending on their own specific needs. The dossier '*Career changes and lateral entry for teachers: requirements for lateral entry into teaching*' on the German Education Server information platform is regularly updated to provide information on the conditions and opportunities for lateral entry into teaching in accordance with the regulations of the 16 federal states ([87]). Since 2013, there has been a significant increase in the recruitment of career changers and side entrants. The figures from the Federal Statistical Office show the increase of lateral entrants: of the 123 800 teachers at vocational schools, 16.6% did not have a recognised teaching qualification in the 2023/2024 school year ([88]).

In a statement issued at the end of January 2023, the Standing Scientific Commission of the Conference of Ministers of Education and Cultural Affairs ([89]) provided recommendations on how to deal with the acute shortage of teachers. Statements by professional associations and professional institutions from the vocational school sector criticised the initiative and pointed out that it would counteract the associations' efforts to attract new teachers specifically to the vocational school system ([90]). In June 2024, the KMK published its resolution on the creation of additional pathways into the teaching profession (KMK, 2024). These alternatives include opening up access to the teaching profession to so-called single-subject teachers and graduates of so-called lateral entry master's programmes (*Quereinstiegs-Masterstudiengänge, Q-Master*) and dual study programmes. The aim is to attract further professional groups with initially different educational or professional biographies.

One of the Q-Master-programmes, the lateral entry master's degree programme (Q-Master) in Berlin was originally developed and supervised as part of the K2teach project funded by the QLB (Long-term quality initiative for teacher training) and started in 2016. With the increasing pressure caused by a shortage of teachers, the master's programme came into the focus of political instruments aimed at opening up teacher training to more students and ultimately, the study programme was included in the 2024 resolution of the KMK mentioned above. In the 2026/27 winter semester students will be able to choose a so-called Flex Master's programme as a dual version in line with an existing employment contract at a school (KMK, 2024).

In addition to the acute shortage of teachers, the issue of quality assurance in teacher training is becoming increasingly important. In 2024, the Stifterverband launched the 'Future of Education' project ([91]). One of its main focuses is the Alliance for teachers, which aims to counteract the shortage of teachers in vocational schools, among others ([92]). One challenge is ensuring the quality of

teacher training, particularly for those entering the profession from other fields. A funding programme supports projects that contribute to strengthening the coherence of teacher training and professional orientation. An interactive map has been developed to showcase the multitude of projects and initiatives that are already working towards opening up and making teacher training more flexible. Since autumn 2024, stakeholders from all areas and stages of teacher training, political decision-makers and representatives of civil society meet regularly in workshops to agree on specific reform measures based on the respective political situation in the federal states (Cedefop & ReferNet, 2026).

As mentioned in section 7.3.2, some federal states are responding to teacher shortage in rural areas by seconding staff to underserved regions or by offering financial incentives, e.g. grants, supplements, relocation assistance and other incentives to attract teachers to work in remote regions ([93]).

To conclude, the attractiveness of the VET teaching profession in Germany does not appear to have improved substantially since 2021. Although employment prospects are very favourable and the federal states have expanded alternative and more flexible routes into teaching, persistent shortages of vocational teachers and continued reliance on lateral entrants indicate ongoing recruitment difficulties. Overall, the profession can therefore be assessed as broadly stable in attractiveness, with some signs of deterioration in recruitment attractiveness, despite strong job security and policy efforts to attract additional teachers.

CHAPTER 8. Conclusions

Addressing the current and future shortage of skilled staff by improving the attractiveness of apprenticeship cannot be achieved without improving the work conditions of trainers and promoting their considerable role in securing future skilled labour (Bahl, 2019; Bahl, 2025a). In view of changing work conditions due to digitalisation and AI, economic and productivity pressure, demographic change, heterogeneity and changing needs of apprentices, trainers need support in redefining their role and updating their skills. This was the background for updating the curricula to prepare the trainer aptitude examination AEVO (BIBB, 2023), as well as of the preliminary study on the need for developing a new advanced qualification for trainers at EQF level 5 (2023-26). The findings of the study confirm the need for a formal pedagogical qualification between the AEVO and the EQF level 6 qualification. The content should specifically address designing and supporting learning and change processes in a workplace context. Making parts of the new qualification available as standardised further training modules would meet the clearly expressed high demand for low-threshold and more content-focused access (Schneider, 2026). Further modular CPD offer for trainers is available on the new Leando learning world and its MIKA campus.

On the school side of apprenticeship, VET teachers are similarly affected by the changing conditions due to digitalisation, AI and diversity, and there is a shortage of VET teaching staff as well, especially in STEM subjects and rural areas. Consequently, the education ministries of all 16 federal states have launched recruitment campaigns to attract career changers and side entrants and the KMK adopted a resolution on the creation of additional pathways into the teaching profession (KMK, 2024). Further, following its 2021 strategy on Education in the Digital World, the KMK adopted in 2024 its Guidelines for dealing with artificial intelligence in school education processes. Modular CPD offer for VET teachers is promoted by the hub for digital skills in vocation schools (HubbS), similarly to the Leando platform for trainers.

One way of making the VET trainer and teaching professions more attractive and facing together the common challenges is the cooperation of learning locations (school, company and ÜBS) and actors (apprentice, trainer and VET teacher), as promoted at the Leando annual event “Stronger together” in Bonn, on 24 November 2026.

List of abbreviations

AEVO	Ordinance on trainer aptitude *(Ausbilder-Eignungsverordnung)*
BBiG	Vocational Training Act (*Berufsbildungsgesetz*)
BIBB	Federal Institute for Vocational Education and Training (*Bundesinstitut für Berufsbildung*)
BMBF	Federal Ministry of Education and Research (*Bundesministerium für Bildung und Forschung*)
CPD	Continuous professional development
CVET	Continuing vocational education and training
Destatis	German Federal Statistical Office (*Statistisches Bundesamt)*
EQF	European Qualifications Framework
Leando	Portal for VET trainers and examiners (*Portal für Ausbilder und Prüfer*)
HwO	Trade and Crafts Code (*Handwerksordnung)*
IVET	Initial vocational education and training
JArbSchG	Youth employment protection act *(Jugendarbeitsschutzgesetz)*
KMK	Standing Conference of the Ministers of Education, Science and Cultural Affairs of the Länder (*Kultusministerkonferenz*)
NRW	North Rhine-Westphalia (*Nordrhein-Westfalen*)
SME	Small and medium-sized enterprise
ÜBS	Inter-company vocational training centre (*Überbetriebliche Berufsbildungsstätte*)
ÜLU	Inter-company vocational training centre in skilled crafts sector (*Überbetrieblichen Lehrlingsunterweisungen im Handwerk*)
VET	Vocational education and training

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([1]) A grammar school is a general secondary school preparing for higher education. This type of school covers both lower and upper secondary level (grades 5-13 or 5-12) and provides an in-depth general education aimed at the general higher education entrance qualification.

([2]) They may have different names in the different Länder.

([3]) e.g. Berufsvorbereitungsjahr BVJ, Berufsgrundjahr BGJ, pre-VET for refugees https://www.ueberaus.de/wws/9.php#/wws/berufsvorbereitung.php

([4]) Side-entrants are people who have not completed a teacher training study programme and who are appointed to the teaching profession without having undertaken a practical teacher training placement. In contrast, career changers are required to undertake a practical teacher training placement.

([5]) e.g. Baden-Württemberg, Bavaria, North Rhine-Westphalia, Saxony, Rheinland-Pfalz

([6]) Assistierte Ausbildung (AsA flex) https://www.bibb.de/de/1301.php

([7]) https://www.arbeitsagentur.de/bildung/ausbildung/berufseinstiegsbegleitung

([8]) VerA is an offer to anyone who encounters difficulties in training and is thinking of dropping out of their apprenticeship. On request, SES provides these young people with senior experts with professional and life experience - retired professionals who are specifically prepared for their task. https://vera.ses-bonn.de/

([9]) https://www.kmk.org/en/index.html https://www.kmk.org/kultusministerkonferenz/vertiefende-inhalte/einzelthemen-des-lehrerberufs/lehrkraeftebildung.html

([10]) https://www.kmk.org/kultusministerkonferenz/vertiefende-inhalte/einzelthemen-des-lehrerberufs/lehrkraeftebildung.html

([11]) e.g. side-entering teacher at VET school in NRW (Lehrkraft am Berufskolleg) with shortage in the fields machine technology, electrical engineering, social pedagogy, and health https://www.lehrkraft-werden.nrw/

([12]) Federal states recruiting side entrants as teachers https://www.bildungsserver.de/schule/quereinsteiger-seiteneinsteiger-1573-de.html

([13]) Landesverordnung über die pädagogische Zusatzausbildung und Prüfung von Lehrkräften im Seiteneinstieg (Lehrkräfte-Seiteneinstiegsverordnung). https://landesrecht.rlp.de/bsrp/document/jlr-P%C3%A4dZAusbLehrAPrVRP2023rahmen

([14]) German Gymnasium (upper secondary school leading to general higher education entrance qualification)

([15]) https://www.lehrer-werden.bayern/fach-und-foerderlehrkraefte/fachlehrkraft-berufliche-schulen

([16]) Lehrkräfteausbildung in den Ländern https://www.bildungsserver.de/schule/lehrerausbildung-in-den-laendern-5740-de.html
You can also refer to the German Education Server https://www.bildungsserver.de/Ausbildung-zum-Fachlehrer-fuer-Fachpraxis-8747-de.html

([17]) https://www.bildungsserver.de/bildungswesen-allgemein/ausbildung-zum-fachlehrer-fuer-fachpraxis-8747-de.html

([18]) Verordnung des Sächsischen Staatsministeriums für Kultus über die berufsbegleitende Ausbildung und Prüfung für Lehrkräfte für den fachpraktischen

Unterricht an berufsbildenden Schulen im Freistaat Sachsen https://www.revosax.sachsen.de/vorschrift/19576

([19]) The standard period of study for courses leading to a first state examination rather than a master (which is still the case in a small minority of federal states) is 9 semesters and corresponds to 270 credit points according to ECTS.

([20]) The completion of a relevant apprenticeship can be considered as proof of such subject-specific activity.

([21]) Lasting 2 years in NRW https://recht.nrw.de/lrgv/rechtsverordnung/28012026-ordnung-zur-berufsbegleitenden-ausbildung-von-seiteneinsteigerinnen/

([22]) See leaflet on the Berufenet portal (for career orientation) of the federal employment agency https://web.arbeitsagentur.de/berufenet/beruf/9392

([23]) German Education Server https://www.bildungsserver.de/Ausbildung-zum-Fachlehrer-fuer-Fachpraxis-8747-de.html

([24]) Business and administration; Metal technology; Electrical engineering; Construction technology; Wood engineering; Textile technology and design; Laboratory technology/process technology; Media technology; Colour technology, interior design and surface technology; Health and body care; Nutrition and home economics; Agricultural economics; Social pedagogy; Nursing and care; Vehicle technology: Information technology. The Länder may allow additional occupational fields. *Source:* KMK (1995/2018).

([25]) https://www.berlin.de/sen/bildung/fachkraefte/qualifizierung/berufseingangsphase/

([26]) e.g. Learning materials and platform for teachers CPD in NRW: https://www.lernen-digital.nrw/arbeitshilfen/fortbildungs-und-weiterbildungsangebote-der-bezirksregierungen-nrw

([27])e.g. Landesakademie, Landesinstitut, Kompetenzzentren für Qualitätsentwicklung in Schulen https://www.bildungsserver.de/schule/landesinstitute-600-de.html

([28]) 'Regional CPD Teams' for teachers within the five district authorities in NorthRhine-Westphalia https://lehrkraeftefortbildung.nrw/die-staatliche-lehrkraeftefortbildung-nordrhein-westfalen

([29]) https://www.na-bibb.de/aktuelles/detail/news/erasmus-meets-ki-in-essen

([30]) According to a KMK expert, this category contains mostly university graduates with a master in a technical field with teacher shortage in VET schools. Some also come from the world of work and could be seen as hybrid teachers.

([31]) https://www.kmk.org/dokumentation-statistik/statistik.html

([32]) https://www.kmk.org/dokumentation-statistik/statistik/schulstatistik/einstellung-von-lehrkraeften.html

([33]) The AEVO was first published in 1972 and modernised in 1999. It was suspended between 01.08.2003 and 31.07.2009, and reinstated in 2009 after a second modernisation.

([34]) *geprüfter Aus- und Weiterbildungspädagoge* http://www.gesetze-im-internet.de/awp_dfortbv/AWP%C3%A4dFortbV.pdf https://web.arbeitsagentur.de/berufenet/beruf/77111#ueberblick

([35]) *geprüfter Berufspädagoge* https://web.arbeitsagentur.de/berufenet/beruf/77128#ueberblick

([36]) https://www.bibb.de/de/66312.php

([37]) InnoVET: https://www.inno-vet.de/innovet/de/home/home_node.html
INVITE: https://www.bibb.de/de/120851.php

([38]) https://www.inno-vet.de/innovet/de/die-projekte/alle-projekte-von-a-bis-z/InnoVET/bildungsbruecken-owl.html

([39]) https://leando.de/lernortkooperation-der-beruflichen-bildung

([40]) https://leando.de/lernpaket/13817

([41]) https://www.bibb.de/de/qualifizierung-des-bildungspersonals-durch-lernortkooperationen-schley-158745.php

(42) Assistierte Ausbildung (AsA flex) https://www.bibb.de/de/1301.php

(43) https://leando.de/gemeinsam-stark-zusammen-ausbilden-und-pruefen

(44) https://www.bildungsserver.de/berufliche-bildung/lernortkooperation-in-der-beruflichen-bildung-13260-de.html

(45) The platform was created as part of a project funded by the Federal Ministry of Education and Research and the European Social Fund of the European Union (2009-2012). BPS Bildungsportal Sachsen GmbH now operates the training portal. The service is available throughout Germany and for all dual training occupations: www.online-ausbildungsnachweis.de

(46) The cost of the BLok digital training record for companies is (usually) covered by the trade association. If not, the cost per apprentice and training year is 10.30 euros (net). By way of comparison: non-guild members pay €13.95 (net) plus a one-off fee of €79 (net) for setting up and using the data centre. https://www.kh-hl.de/blok/

(47) https://www.schulministerium.nrw/nebenberufliche-lehrkraefte-am-berufskolleg

(48) Qualitätsoffensive Lehrerbildung: Programm zur Weiterentwicklung der Lehrerbildung in Deutschland. https://www.qualitaetsoffensive-lehrerbildung.de

(49) Bundesministerium für Bildung und Forschung (BMBF). *Digitalisierung in der Lehrerbildung* [Qualitätsoffensive Lehrerbildung]. https://www.qualitaetsoffensive-lehrerbildung.de/de/digitalisierung-in-der-lehrerbildung-1752.html

(50) Ludwig-Maximilians-Universität München, Münchener Zentrum für Lehrerbildung (MZL). *Lehrkräftebildung@LMU – wissenschaftliches Online-Magazin zur Lehrerbildung.* https://lehrerbildung.ub.uni-muenchen.de/index.php/lehrerbildung/about

(51) https://www.qualitaetsoffensive-lehrerbildung.de/de/digitale-luecken-in-der-lehrkraeftebildung-schliessen-eine-vorstellung-des-projekts-digi-2336.html

(52) KI-Campus: Die Lernplattform für Künstliche Intelligenz. https://ki-campus.org

(53) KI B³ – Integrating Artificial Intelligence into VET. https://www.ki-fortbildung.de

(54) Stifterverband. *Berufsschul-Digi-Teams*. https://www.stifterverband.org/berufsschul-digi-teams

(55) https://www.bibb.de/de/36913.php

(56) Inex-ÜBA-Projekt ‚QualLe Handwerk': https://www.bibb.de/de/204346.php

(57) https://www.inno-vet.de/innovet/de/home/home_node.html

(58) https://www.inno-vet.de/innovet/de/die-projekte/alle-projekte-von-a-bis-z/InnoVET/sperle.html

(59) https://www.inno-vet.de/innovet/de/die-projekte/alle-projekte-von-a-bis-z/InnoVET/bm-x.html

(60) InnoVET PLUS project Berufspädagogik Connect https://www.inno-vet.de/innovet/de/die-projekte/alle-projekte-von-a-bis-z/InnoVET_PLUS/Berufsp%C3%A4dagogik_Connect.html

(61) KI B³ – Integrating Artificial Intelligence into VET. https://www.ki-fortbildung.de

(62) 'VET for sustainable development' (BBNE) https://www.bibb.de/de/33716.php

(63) ANLIN² https://www.bibb.de/de/121439.php

(64) NIB funding programme (2023-27) https://www.bibb.de/de/168210.php

(65) https://www.jwsl.de/jahresthema-brandschutz/jahresthemen-archiv/gewaltfrei-bin-dabei

(66) https://www.dguv.de/gewalt-angehen/beschaeftigte/beschaeftigte-bildungseinrichtungen/index.jsp

(67) https://www.kmk.org/aktuelles-1/artikelansicht/leitfaden-fuer-schutzkonzepte-und-massnahmen-gegen-sexuelle-gewalt-an-schulen-vorgestellt.html?utm_source=chatgpt.com

(68) https://www.kmk.org/bildungsministerkonferenz/vertiefende-bildungsinhalte/allgemeinbildende-schulen/praevention-vor-sexuellem-missbrauch.html?utm_source=chatgpt.com

(69) e.g. Berufsvorbereitungsjahr BVJ, Berufsgrundjahr BGJ, pre-VET for refugees https://www.ueberaus.de/wws/9.php#/wws/berufsvorbereitung.php

([70]) Assistierte Ausbildung (AsA flex) https://www.bibb.de/de/1301.php

([71]) https://vera.ses-bonn.de/

([72]) Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI). *MITHOS – Mixed-Reality Interactive Training for Handling Heterogeneity and Conflict Situations in Schools.* https://www.dfki.de/en/web/research/projects-and-publications/project/mithos

([73]) https://www.ueberaus.de/wws/9.php#/wws/fortbildungskonzept-ausbildungspersonal.php

([74]) https://www.ueberaus.de/wws/9.php#/wws/sprache-kultur-ausbildung.php?sid=492690463493591624587392939487 90

([75]) https://leando.de/landing_page/leitfaden-ausbildende-fachkraefte

([76]) https://www.unternehmen-integrieren-fluechtlinge.de/

([77]) https://www.bildungsketten.de/bildungsketten/shareddocs/projekte/de/karte/kausa-transfer-smart-leipzig.html

([78]) https://www.bibb.de/de/66312.php

([79]) https://www.ueberaus.de/wws/9.php#/wws/dossier-inklusion.php

([80]) part IV of the Meister exam AMVO, which corresponds to the AEVO

([81]) BIBB study with recommendations for action on modernising the qualification of training personnel https://www.bibb.de/de/pressemitteilung_145713.php?from_stage=ID_96240&title=Qualifizierung-des-Ausbildungspersonals-modernisieren%21

([82]) Bildungsserver: Lehrkräftemangel in Deutschland - Literatur, Stellungnahmen und Empfehlungen https://www.bildungsserver.de/schule/lehrkraeftemangel-in-deutschland-12997-de.html

([83]) https://www.schulministerium.nrw/dualer-master-am-berufskolleg

([84]) Anreize für Lehrkräfte in ländlichen Regionen https://deutsches-schulportal.de/bildungswesen/anreize-fuer-lehrkraefte-in-unbeliebten-regionen/

([85]) Ziegler, https://www.bildungsserver.de/fisonline.html?FIS_Nummer=3326434

([86]) Side-entrants are people who have not completed a teacher training study programme and who are appointed to the teaching profession without having undertaken a practical teacher training placement. In contrast, career changers are required to undertake a practical teacher training placement.

([87]) Federal states recruiting side entrants as teachers https://www.bildungsserver.de/schule/quereinsteiger-seiteneinsteiger-1573-de.html

([88]) https://www.destatis.de/DE/Presse/Pressemitteilungen/2025/06/PD25_N030_212.html

([89]) Empfehlungen zum Umgang mit dem akuten Lehrkräftemangel Stellungnahme der Ständigen Wissenschaftlichen Kommission der Kultusministerkonferenz https://www.kmk.org/fileadmin/Dateien/pdf/KMK/SWK/2023/SWK-2023-Stellungnahme_Lehrkraeftemangel.pdf

([90]) Bildungsserver, Berufsbildende Schulen - Entwicklungen beim Lehrkräftebedarf https://www.bildungsserver.de/berufliche-bildung/berufsbildende-schulen-entwicklungen-beim-lehrkraeftebedarf-8154-de.html#Lehrkraeftebedarf_an_berufsbildenden_Schulen._Prognosen

([91]) Alliance for Teachers of the Stifterverband https://www.zukunftsmission-bildung.de/lehrkraefte

([92]) Career changers entering vocational school teaching supported by the Alliance for Teachers of the Stifterverband https://www.stifterverband.org/insights/bildung-kompetenzen/zukunftsmission-bildung/neue-wege-ins-klassenzimmer

([93]) Anreize für Lehrkräfte in ländlichen Regionen https://deutsches-schulportal.de/bildungswesen/anreize-fuer-lehrkraefte-in-unbeliebten-regionen/