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PART 6/28

COMMISSION STAFF WORKING DOCUMENT

Education and Training Monitor 2022

Accompanying the document

**Communication from the Commission to the European Parliament, the Council, the
European Economic and Social Committee and the Committee of the Regions**

on progress towards the achievement of the European Education Area

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Education and Training Monitor 2022

GERMANY



The Education and Training Monitor's country reports present and assess the main recent and ongoing policy development at all education levels in EU Member States. They provide the reader with more in-depth insight of the performance of countries with regard to the EU level targets agreed within the EEA. They are based on the most up-to-date quantitative and qualitative evidence available.

Section 1 presents a statistical overview of the main education and training indicators. Section 2 focuses on how the Member State has addressed or is addressing one of its education challenges. Section 3 covers early childhood education and care. Section 4 deals with school education policies. Section 5 covers vocational education and training and adult learning. Finally, Section 6 discusses measures in higher education.

The Education and Training Monitor's country reports were prepared by the European Commission's Directorate-General for Education, Youth, Sport and Culture (DG EAC), with contributions from the Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL).

The document was completed on 30 September 2022
More background data at:
<https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/en/>



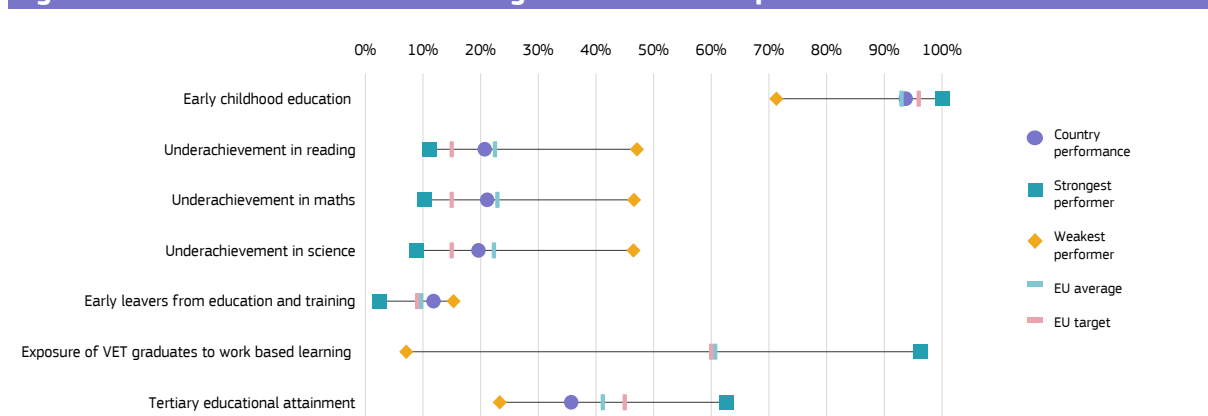
1. Key indicators

Figure 1: Key indicators overview

			Germany		EU	
			2011	2021	2011	2021
EU-level targets			2030 target			
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96 %	95.8% ^{13,d}	93.7% ²⁰	91.8% ¹³	93.0% ²⁰
Low achieving eighth-graders in digital skills		< 15%	29.2% ^{13,t}	33.2% ¹⁸	:	:
Low achieving 15-year-olds in:	Reading	< 15%	18.5% ⁰⁹	20.7% ¹⁸	19.7% ⁰⁹	22.5% ¹⁸
	Maths	< 15%	18.6% ⁰⁹	21.1% ¹⁸	22.7% ⁰⁹	22.9% ¹⁸
	Science	< 15%	14.8% ⁰⁹	19.6% ¹⁸	18.2% ⁰⁹	22.3% ¹⁸
Early leavers from education and training (age 18-24)		< 9 %	11.6%	11.8% ^b	13.2%	9.7% ^b
Exposure of VET graduates to work-based learning		≥ 60 % (2025)	:	96.2% ^u	:	60.7%
Tertiary educational attainment (age 25-34)		≥ 45 %	27.6%	35.7% ^b	33.0%	41.2% ^b
Participation of adults in learning (age 25-64)		≥ 47 % (2025)	:	:	:	:
Other contextual indicators						
Equity indicator (percentage points)			:	20.1 ¹⁸	:	19.30 ¹⁸
Early leavers from education and training (age 18-24)	Native		10.3%	9.2% ^b	11.9%	8.5% ^b
	EU-born		:	31.6% ^b	25.3%	21.4% ^b
	Non EU-born		:	27.6% ^b	31.4%	21.6% ^b
Upper secondary level attainment (age 20-24, ISCED 3-8)			75.5%	77.1% ^b	79.6%	84.6% ^b
Tertiary educational attainment (age 25-34)	Native		28.6%	36.2% ^b	34.3%	42.1% ^b
	EU-born		:	36.5% ^b	28.8%	40.7% ^b
	Non EU-born		:	33.5% ^b	23.4%	34.7% ^b
Education investment	Public expenditure on education as a percentage of GDP		4.3%	4.7% ^{20,p}	4.9%	5.0% ²⁰
	Public expenditure on education as a share of the total general government expenditure		9.5%	9.2% ^{20,p}	10.0%	9.4% ²⁰

Sources: Eurostat (UOE, LFS, COFOG); OECD (PISA). Further information can be found in Annex I and at [Monitor Toolbox](#). Notes: The 2018 EU average on PISA reading performance does not include ES; the indicator used (ECE) refers to early-childhood education and care programmes which are considered by the International Standard Classification of Education (ISCED) to be 'educational' and therefore constitute the first level of education in education and training systems – ISCED level 0; the equity indicator shows the gap in the share of underachievement in reading, mathematics and science (combined) among 15-year-olds between the lowest and highest quarters of socio-economic status; b = break in time series, p = provisional, u = low reliability, : = not available, 09 = 2009, 13 = 2013, 18 = 2018, 20 = 2020.

Figure 2: Position in relation to strongest and weakest performers



Source: DG Education, Youth, Sport and Culture, based on data from Eurostat (LFS 2021, UOE 2020) and OECD (PISA 2018).

2. A focus on equity in education

Educational outcomes and choices remain heavily influenced by socio-economic and migrant background. This finding has not significantly changed during the last two decades. The German education report 2022¹ identifies three different socio-economic risk factors for educational success: low-skilled parents, unemployment and family poverty². Among children without migration background, 16% are affected by at least one risk factor and 1% by all three. For children with a migrant background, this multiplies to 48% and 8% respectively³. Over 40% of children under 6 had a migrant background in 2020 (Autor:innengruppe Bildungsberichterstattung, 2022). According to a recent study, the performance of pupils at the end of the fourth grade in reading and mathematics has continued to fall in recent years, and the link between performance and socio-economic background has become stronger (Stanat, 2022).

Reducing educational inequality remains a key challenge. Although the education system allows students to pass between the different educational tracks and access higher education without an *Abitur* (school-leaving exam), these possibilities are still underutilised (Autor:innengruppe Bildungsberichterstattung, 2022). During the last decade, German *Laender* (federal states) have reformed the number of tracks in secondary education, mostly reducing them to two, with one geared towards an academic pathway and the other towards vocational education. Young people from

disadvantaged backgrounds choose academic education pathways far less often than their more advantaged peers. Only 13.9% of the most disadvantaged pupils expect to complete tertiary education – the lowest value in the EU – while in the EU average is 43.4% (OECD (2019 Vol II)⁴. This is partially linked to an accumulated performance gap of up to 1 year of learning already during primary school, less self-confidence and self-limiting aspirations both of disadvantaged young people and their parents (Autor:innengruppe Bildungsberichterstattung, 2022 and OECD 2019 Vol II).

Early childhood education and care (ECEC) cannot fully mobilise the potential of children due to low participation, a shortage of places and quality issues. High-quality ECEC might be the most important phase in education, offering children from a disadvantaged background a good start⁵. The participation rate of under 3-year-olds has remained around 30% over the last 5 years, with disadvantaged children participating 4.3 percentage points (pps) less often⁶. According to the Education Report 2022, the participation gap for those under 3 between low and high social economic status amounts to 20 pps, and between those with and without a migrant background to 12 pps; for 3- to 6-year-olds, this was 16 pps and 11 pps respectively. Despite federal support to expand the ECEC offer and improve quality (Good ECEC Act / Gute-KiTa-Gesetz) the staff/children ratio improved only slightly and staff education levels remained broadly unchanged. Staff ratios They are much more favourable in the west of the country compared to the east (Education Report 2022). According to a recent study among 1 000 ECEC

¹ The German education report, published every 2 years, is a key scientific reference for education in Germany. (Autor:innengruppe Bildungsberichterstattung, 2022)

² Around 12% of all children have low-qualified parents; 9% and 20% are affected respectively by unemployment and poverty. The risk of poverty increases proportionally with the number of children per household: one child: 34%, two 41%, three and more 59%.

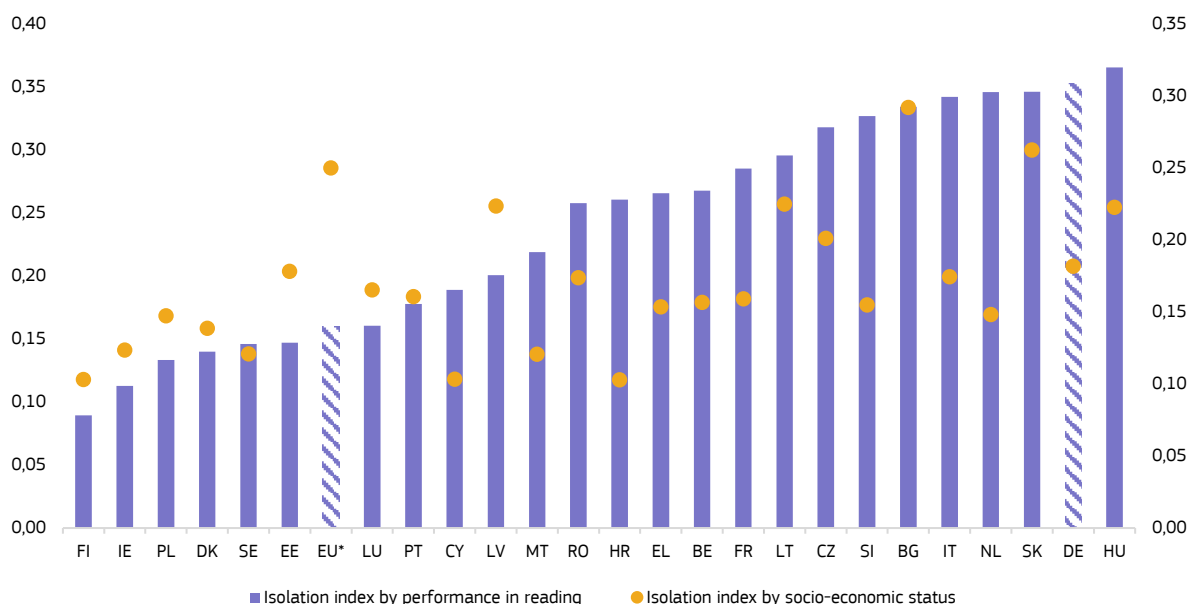
³ 61% of children with parents born abroad face at least one risk level, and 33% have low-qualified parents.

⁴ The difference remains significant even when accounting for differences between education systems.

⁵ Council Recommendation of 22 May 2019 on High-Quality Early Childhood Education and Care Systems <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019H0605%2801%29>

⁶ Children at risk of poverty or social exclusion attended ECEC much less in 2019 – 26% compared to 32% of children at no risk – and in 2020 13.1% compared to 17.1%. This includes children with a migrant background.

Figure 3: Isolation index of disadvantaged students and low-achieving students, PISA 2018



Source: OECD PISA 2018. Note: The left axis indicates isolation by socio-economic status, and the right axis indicates isolation by performance in reading. The isolation index measures whether students of a certain type (here disadvantaged students and low-achieving students) are more concentrated in some schools. The index is related to the likelihood of a representative of this type to be enrolled in schools that enrol students of another type. It ranges from 0 to 1, with 0 meaning no segregation and 1 full segregation. OECD, PISA 2018, Vol. II.

institutions, 80% of respondents considered ECEC places in large towns and cities inadequate; over 50% cited a lack of skilled staff to be able to fully use existing capacities, and 60% found that staff/children ratios were insufficient (Der Paritätische, 2022).

Language proficiency is an important prerequisite for succeeding in school.

According to PISA 2018, the difference in language proficiency between immigrant students who speak German or another language at home was 70 points, more than double the EU average (30.4) and equivalent to almost 2 years of schooling. Children who do not speak German at home (68% of all children with a migrant background) could benefit most from ECEC. The share of 3- to 6-year-olds who do not speak German at home and attend ECEC has improved by 5 pps since 2008, rising to 21% in 2021. Nevertheless, the share of children with a migrant background who attend ECEC continues to lag behind. All 16 *Laender* use their own methods to identify language skills; they increasingly move to

language support that is integrated into the daily routine of the institution instead of being supplementary. The German vocabulary of children from an advantaged background remains richer during their lifetime compared to the vocabulary of disadvantaged ones⁷. The younger a child starts ECEC, the more progress it can achieve in language development, especially in terms of vocabulary. Pisa 2018 clearly shows that students with weak performance in reading remain highly concentrated in certain schools and that this concentration is also linked to the socio-economic status of their parents (Figure 3). This further limits the likelihood of them improving their language skills.

All-day schooling could offer chances in primary education. In primary education, there is an increasing trend towards private education as well as the risk of segregation. Pupils make the

⁷ Autor :innengruppe Bildungsberichterstattung 2022

most progress in languages and mathematics during primary school (Autor:innengruppe Bildungsberichterstattung, 2022). The right to a place in an all-day primary school as of 2026/27 could provide more equal opportunities as these schools are designed to provide the same support to each child, irrespective of their background.

The full integration of pupils with special needs in general education is progressing slowly, with clear differences by Land. In 2020, 44% of students with special needs were integrated in mainstream schools, which is around twice the figure for 2010. Their share differs by Land. The preference for inclusive schooling is provided by law in more than half of the Laender, under the condition of available financial and spacial capacities. However, financial and space constraints seem to exist in schools. The Laender also differ in terms of the additional financial and special teaching support provided. Only Saarland does this systematically (Education Report, 2022).

3. Early childhood education and care

Germany's increase in places is outstripped by demand. In 2020, 93.7% of children between 3 and school age attended ECEC – around the EU average (93%), but still below the EU-level target of 96%⁸. Participation of children under 3 has increased over time, levelling during the last 7 years around 30%, still below the Barcelona target of 33%. Around two-thirds attend ECEC for 30 hours or more a week, which is still well below the EU average. In 2021, Germany had 3.8 million approved ECEC places – 84 000 more compared to the previous year. The rate of expansion and demand differs by Laender. Since 2013, all children under 3 have the legal right to a place in ECEC. However, in 2021 available places were still 13 pps behind the identified needs in the west of the country (44%) and 31% in the east. The Education Report 2022 therefore expects this legal obligation to be met only in 2025 in the east

and in 2028 in the west. Between 244 000 and 310 000 additional places for under 3-year-olds and between 158 000 and 272 000 places for 3- to 6-year-olds are needed by 2030⁹.

Issues with service quality remain. Germany has taken significant measures to improve the quality of services. Federal investments of EUR 5.5 billion were made available to the Laender between 2019 and 2022 (Gute KiTa Gesetz). According to the annual monitoring report, some progress has been made notably in several quality areas including on staffing ratios and managerial framework conditions (BMFSFJ 2021). However, a recent study involving over 4 800 ECEC managers identified a decrease in the quality and quantity of available staff compared to the previous year. According to the study, at least 57% of the managers of institutions polled for the under 3 age group and at least 75% of those for the 3-6 age group considered staff/child ratios to be below scientifically recommended levels. Over half of the managers indicated that they would operate with less staff than required (in terms of supervision) for more than a fifth of the time, with 16% of them operating with less staff for more than three-fifths of the time (DLKLK, 2022).

Lack of qualified staff remains an issue, and has been made worse by the recent pandemic. In 2021, 675 000 people (540 000 full-time equivalents) worked in formal ECEC, excluding childcare provided e.g. by childminders. Of these, 68% were trained in general vocational schools (*Fachschulen*), 14% in specialist vocational schools (*Berufsfachschulen*) and 6% obtained higher education degrees. These shares remained relatively stable between 2011 and 2021, with a positive increase in academic qualification. An acute shortage of staff triggered broader enlarging access to ECEC professions. This trend was at least temporarily strengthened during the COVID-19 pandemic (Autor:innengruppe Bildungsberichterstattung, 2022). While the Bertelsmann Stiftung (2022) identifies the need

⁸ Eurostat, educ_uoe_enra21.

⁹ Kinderbetreuung kompakt 2021

for more than 100 000 additional staff up to 2030 “Fachkräftebarometer Frühe Bildung 2021” identified a need between 70 000 and 150 000.

COVID-19 showed the overall resilience of the ECEC system, but at the expense of staff. Studies underlined the crucial role of ECEC in limiting negative effects on children, families and communities. Children from a disadvantaged background were given priority access to ECEC services during all phases of the pandemic. Germany’s integrated ECEC systems appeared to be more resilient as they could also rely on well-established trans-institutional cooperation (and established monitoring procedures through self-assessment at local level) (European Commission 2021b). While closures and reopening increased the stress levels of staff and management, the pandemic only caused a structural absence of up to 10% of staff (DKLK 2022, Deutsches Jugendinstitut 2022).

4. School education

Germany’s rate of early leaving from education and training is stagnating, with socio-economic and migrant background having a distinct negative impact. Germany’s rate has remained around 10% since 2012, while in the EU it declined from well above 10% to below 10%. After methodological adjustments in 2021, it was 11.8%, 2.1 pps above the EU average and still a long way from the 9% EU-level target. The gender gap tripled to 3.6 pps from 2012 to 2021. At 26.3%, young people with low-educated parents leave seven times more often than their peers with highly educated parents (3.7%). This is close to the EU average (26.1%) Boys from a disadvantaged background (29.6%) leave a third more often than girls (22.8%)¹⁰. Young people with a migrant background leave education and training more than three times more often than their native-born peers, with a negative trend to the fore.

¹⁰ LFS ad hoc module.

Performance in basic skills is above the EU average, but has weakened over time. Overall, performance in 2018 PISA is above the EU average, particularly in science (OECD, 2019 Vol. I). In 2018, Germany had more top achievers in science (10%, +3.7 pps), reading (11.3%, +2.8 pps) and mathematics (13.3%, +2.3 pps) than the EU average. The share of low achievers remained below the EU average in 2018 in all three areas tested and is also already below the EU-level target (15%). While the competences of German pupils have remained relatively stable compared with 2015, they have weakened significantly compared to 2011¹¹ (European Commission, 2021a). National testing (Stanat, P. et al (2022).) shows that fourth grade (10 year old) pupils’ skills in the German language and mathematics continue to decline. Testing started in 2011 at five-year intervals, with an even larger loss recorded over the last 5 years in reading This translates to a learning loss of one-third of a school year in reading and one-fourth in mathematics (IQB, 2022). In addition, international testing confirms a growing disadvantage for young people from weak socio-economic and migrant backgrounds (see Section 2).



Box 1: Team teaching

The aim of this European Social Fund project was to compensate for social disadvantages. Individual and group work can enrich everyday school life with elements of social learning. Students experience opportunities for equal participation in the classroom. Running from 2015 to 2022 with a budget of EUR 8.2 million, the project reached 17 schools and 5 000 students in 2020.

The project combines competence development with socio-educational support for students. A social emotional learning specialist accompanies a class throughout the entire

¹¹ Schwippert et al, (2020), p. 84.

teaching day (lessons and breaks) and works together with various teachers. This provides the specialists with a deep insight into the socio-educational challenges of a class and enables them to react promptly. Recognising emerging conflicts and classroom disruptions means they are reduced and resolved more quickly. In addition, the teachers become more confident and receive additional support, which improves their job satisfaction and health.

<https://www.teamteaching.de>

Education for sustainable development is well established. Education for sustainable development has been part of education for more than three decades¹², and was reinforced during the UN Decade for Sustainability and related UNESCO action¹³. Sustainability has become part of the training for ECEC staff and teachers. The sustainability competence is being built up, starting in ECEC as a cross-sectional issue¹⁴. The interim report on education for sustainability from 2019 observes that, despite differences between the Laender, sustainability has been structurally introduced in all schools. It is also supported by additional individual activities that implement the UNESCO Global Action Programme on Sustainable Development. In all Laender, curricula contain sustainability and global warming mostly linked to other subjects. However, they do not yet follow a uniform concept. The same goes for teacher training.

German students grasp the concept of sustainability well, but hesitate to put it into practice, while those from disadvantaged backgrounds do significantly worse. According to PISA 2018, 20% of 15-year-olds are 'advanced all-rounders', i.e. they score the highest in the four environmental sustainability competence areas.

This puts Germany in a leading position in the EU, above the EU average of 13%. However, looking at sustainability values reveals a slightly differentiated picture, putting German students far below the average on actually caring about the environment or doing something like actively saving energy. Young people from disadvantaged backgrounds do significantly worse in both OECD 2022 studies on sustainability, indicating that German initial education fails to equip many of them with the core competences. One of the activities to improve learning on sustainability is the 'National Award – Education for Sustainable Development'. This recognises innovative learning and teaching opportunities, and is awarded three times a year¹⁵.

Germany is strengthening its strategic orientation towards digitalisation of education and increasing related federal investments. German education ministers updated their 2016 'Education in a digital world' strategy with additional recommendations on 'teaching and learning in a digital world' at the end of 2021¹⁶. The document builds on experience from the pandemic and underlines the importance of teaching quality and school development when implementing new technologies. The Digital Pact for Schools comprises EUR 6.5 billion federal support to a programme to digitise schools. More than half of the original EUR 5 billion had been spent by the end of 2021 as envisaged. EUR 1.5 billion has been added due to the pandemic, with one-third each earmarked to support IT administrators in schools and to provide laptops to students as well as to teachers. The latter was also financed by the Recovery and Resilience Facility in addition to a unique meta platform on digital learning that encompasses existing platforms in Germany.

¹² Compare decisions by the Standing Conference of the Ministers of Education and Cultural Affairs (Kultusministerkonferenz / KMK) as early as 1980 on environment and teaching.

¹³ Final report

¹⁴ Rahmenlehrplan

¹⁵ <https://www.bmbf.de/bmbf/shareddocs/pressemitteilungen/de/2022/03/300322-BNE-Preise.html>

¹⁶ https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2021/2021_12_09-Lehren-und-Lernen-Digi.pdf

Attracting, training and recruiting enough teachers will be a challenge in the coming years.

Several factors such as more pupils, expanding all day school places as well as replacing retiring teachers could cause even more teacher shortages, to varying degrees depending on the *Laender* and school level. Around two-fifths of German teachers in primary and secondary education (ISCED 1-3) are 55 or older¹⁷. The latest forecast up to 2035 puts the annual need for new teachers in general and in professional education at 34 100 individuals (Autor:innengruppe Bildungsberichterstattung, 2022). After recruiting all recent graduates from teacher training, 1 600 posts a year will remain unfilled, creating a cumulative gap of 23 500. Since KMK figures do not yet take into account additional staffing requirements caused by Russia's aggression against Ukraine and all additional needs arising from all-day school and inclusion, the real gap might even be higher (Autor:innengruppe Bildungsberichterstattung, 2022). While upper secondary education could face an oversupply after 2025, other levels of education face a serious undersupply. Lower secondary schools are expected to be able to recruit only 72% of the required staff. This could compound existing teacher shortages, predominantly in science, technology, engineering and mathematics (STEM) subjects (Autor:innengruppe Bildungsberichterstattung, 2022). Even if salaries are favourable compared to other countries worldwide, it could still be a challenge to get enough young people to opt for a teaching career, which is generally not considered attractive.

Continued professional development becomes more important as more teachers have no pedagogical training.

The share of teachers being lateral entrants (*Seiteneinsteiger*) and are recruited each year has more than doubled from 4% in 2015 to 10% in 2020. The share of lateral entrants varied widely by *Laender* in 2021/22. Berlin continuing to lead the way by taking on 60% of all newly recruited teachers as lateral entrants, while Bavaria with close to zero

lateral entrants¹⁸. This poses challenges on how to integrate these teachers, who often lack a regular teaching degree, and to ensure adequate in-service training. Procedures and approaches differ by *Laender* and often have an ad hoc character. Strong continued professional development is a precondition to ensure the quality of teaching and keep teachers up to date on evolving concepts of competences, for instance on digital pedagogy (study and use of digital technologies in teaching and learning).

5. Vocational education and training and adult learning

Demand for skilled workers remains widespread, and vocational education and training (VET) has a key role in this regard.

Nearly half of upper secondary pupils are enrolled in VET programmes¹⁹ (48.8% in 2020, similar to the EU average), and VET graduates have excellent employment prospects (91.6% employed in 2021, compared to 76.4% across the EU). Both the federal government and *Laender* support stakeholders in increasing the supply and quality of VET, as well as strengthening reskilling and upskilling. The lack of qualified staff continues to be the main factor hampering innovation and digitalisation among small businesses. Problems in finding skilled staff also affect education in the school-based vocational training system, which now trains people mainly in health, education and social occupations (85%). Even if education and healthcare occupations have increased by 16% and 14% respectively since 2012, the National Education Report states that this increase still falls far short of the growing demand for skilled workers in these fields.

Germany has launched funding opportunities to incentivise training activities. With the

¹⁷ Eurostat, educ_uae_perp01.

¹⁸ <https://deutsches-schulportal.de/bildungswesen/quereinstieg-ins-lehramt-von-der-notmassnahme-zur-normalitaet/>

¹⁹ Eurostat, educ_uae_enrs05.

Excellence Initiative for Vocational Education and Training, the Federal aims to provide the necessary boost in attractiveness and modernity in initial, continuing and further training. Hereby, the Excellence Initiative does not only focus on promoting excellent minds and a more international orientation of vocational education and training, but also promotes excellent and innovative vocational training programs in equal measure. In January 2019, the BMBF launched the competition "Shaping the future - innovations for excellent vocational education and training" (InnoVET) to increase the attractiveness, quality and equivalence of VET through innovation and excellence, with a focus on higher VET. 17 so called innovation clusters are funded (2020-2024) in which regional and sector-specific stakeholders develop and test innovative initial and continuing training programmes. The Work of Tomorrow Act, in response to structural change, expanded the Federal Employment Agency's funding to increase the employability of the active workforce during the digital transformation. For adults pursuing their first vocational qualification, the law created the right to financial support under specific conditions.

The participation rate in adult education increased slightly. The rate went up to 7.7% in 2021, but remains significantly lower than the EU average of 10.8% (participation in the last 4 weeks). The education and labour market policy has been focusing on adult learning in recent years, especially during the pandemic. This – at least temporarily – severely restricted the range of continuing education on offer (Autor:innengruppe Bildungsberichterstattung, 2022). In particular, adult education centres, which rely more on face-to-face events, were only able to implement a small part of their planned events. Participation in continuing education remained at a high level overall (57% for 18- to 69-year-olds). Repeated lockdowns made the population learn in a more self-organised way. A record of just over two-thirds of 18- to 69-year-olds have therefore learned informally. For 2030, Germany has set itself the target of 65% of adults in training every year, a massive improvement from 46% in 2016.

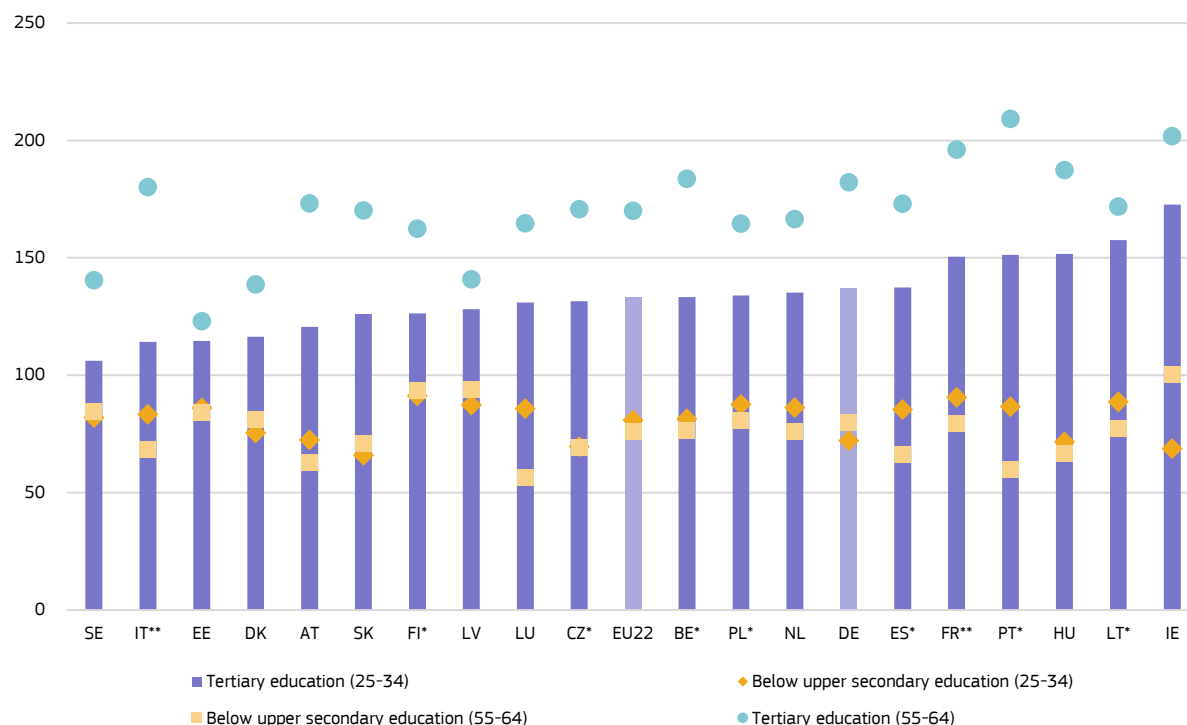
Germany has been promoting the digital transformation of vocational training. In April 2020, the Federal Ministry of Education and Research launched the innovation competition INVITE (Digital Platform for Continuing Vocational Education and Training). The framework promotes innovative digital access, with AI-supported processes preferred so that the general public can easily and quickly track the continuing education offer. Within the framework of INVITE ToolChecks, the broad public is invited to try out the INVITE prototypes and at the same time provide their feedback for a user-oriented further development of the prototypes.

6. Higher education

Tertiary education attainment is increasing, but remains low. Tertiary education attainment continues to increase but, at 35.7%, lags far behind the 45% EU-level target and the 41.2% EU average. This is also due to a very strong VET sector. Foreign-born young people have a tertiary education attainment rate of 34.3%, only 1.9 pps below the native-born, a minimal difference compared to other EU Member States. While the gap between rural areas and cities increased after 2010 (to -15.8pps), it started to decrease to 14.6 pps in 2021. Berlin remains the Land with the highest tertiary attainment (51.1% in 2021), Sachsen-Anhalt still lags behind at 23.5% – the lowest level in 2021. Nearly as many men as women study, with a gender gap of only 3.8 pps – this is much higher in most other EU countries

Enrolment numbers have stagnated after a period of continuous growth. In 2020, 761 219 academic students were newly enrolled at ISCED level 6 or 7, 8.2% less than in 2019. While 29% of men choose STEM subjects at Bachelor's level, only 9% of women do so. The share at Master's level is 24% and 12% respectively, an imbalance also identified by OECD (2021). In 2020, the share of new students has not much improved; This indicates that promoting STEM studies is not yet

Figure 4: Relative earnings by educational attainment, 2019



Source: OECD, EAG 2021. Note: ISCED 3= 100; data for EL and SI not available; **= 2017, *=2018

fully successful. OECD (2021) compares earnings in different age brackets. Compared to the EU, starting salaries for non-tertiary professional qualifications are low in Germany, but increase during one's career. German academic degrees guarantee already from the beginning a modest premium, but with a more significant increase over time. As a result, 25- to 34-year-olds with tertiary education have a clear earnings premium of 37% (+4 pps compared to the EU average) compared to their peers with upper secondary education. During one's career, it increases to 82% for 55- to 64-year-olds compared to 70% in the EU (Figure 4).

More and more students combine work and study, and enter higher education via alternative pathways. The trend towards dual studies – combining higher education with in-company training – increased fourfold between 2004 and 2019 (CHE 2022a). The number of entrants to higher education without an *Abitur*, the school-leaving exam granting access to higher education (CHE 2022b), also increased. Both pathways are still fairly negligible, with a 4.2%

share of dual students and a 2.2% of students without an *Abitur*. However, they both seem to indicate a trend towards more varied educational pathways.

Germany aims to increase participation in tertiary education by offering more support to students. The government is taking steps to increase student numbers by planning to revamp student support. As a first step, the federal grants and loans system (BAföG) has been overhauled by increasing its scope, expanding needs rates significantly and raising the age limit from 30-35 years²⁰ to 45. In addition, the possibility of residual debt relief after 20 years is being expanded (BMBF 2022b). In response to the pandemic, an emergency aid instrument is currently being devised.

²⁰ Maximum age for starting a Master's degree was 35 years.

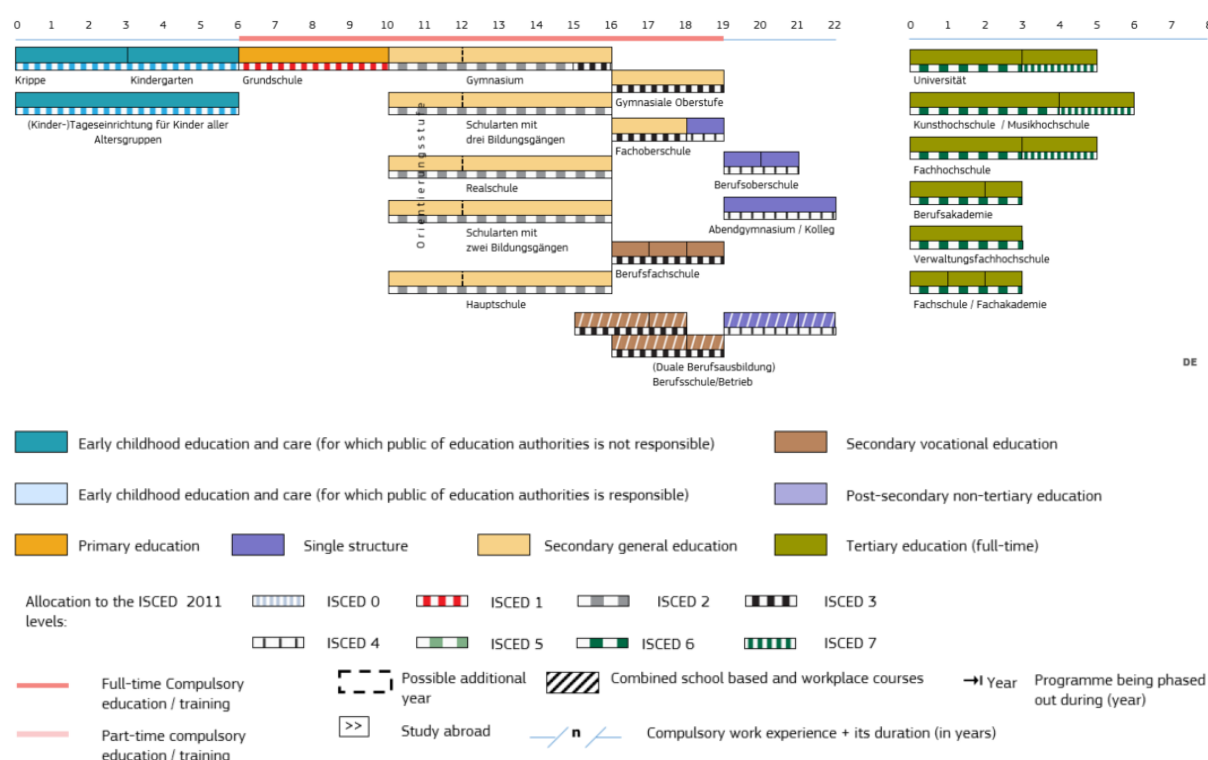
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Annex I: Key indicators sources

Indicator	Source
Participation in early childhood education	Eurostat (UOE), educ_uoe_enra21
Low achieving eighth-graders in digital skills	IEA, ICILS
Low achieving 15-year-olds in reading, maths and science	OECD (PISA)
Early leavers from education and training	Main data: Eurostat (LFS), edat_lfse_14 Data by country of birth: Eurostat (LFS), edat_lfse_02
Exposure of VET graduates to work based learning	Eurostat (LFS), edat_lfs_9919
Tertiary educational attainment	Main data: Eurostat (LFS), edat_lfse_03 Data by country of birth: Eurostat (LFS), edat_lfse_9912
Participation of adults in learning	Data for this EU-level target is not available. Data collection starts in 2022. Source: EU LFS.
Equity indicator	European Commission (Joint Research Centre) calculations based on OECD's PISA 2018 data
Upper secondary level attainment	Eurostat (LFS), edat_lfse_03
Public expenditure on education as a percentage of GDP	Eurostat (COFOG), gov_10a_exp
Public expenditure on education as a share of the total general government expenditure	Eurostat (COFOG), gov_10a_exp

Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2022. The Structure of the European Education Systems 2022/2023: Schematic Diagrams. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union. Notes: Full-time compulsory education/training ends at the age of 18 or 19 depending on the Länder.

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