Education and Training MONITOR 2018 Germany
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Education and Training Monitor 2018

Germany
Volume 2 of the Education and Training Monitor 2018 includes twenty-eight individual country reports. It builds on the most up-to-date quantitative and qualitative evidence to present and assess the main recent and ongoing policy measures in each EU Member State, with a focus on developments since mid-2017. It therefore complements other sources of information which offer descriptions of national education and training systems.

Section 1 presents a statistical overview of the main education and training indicators. Section 2 briefly identifies the main strengths and challenges of the country’s education and training system. Section 3 looks at investment in education and training. Section 4 focuses on citizenship education. Section 5 deals with policies to modernise school education. Section 6 discusses measures to modernise higher education. Finally, section 7 covers vocational education and training, while section 8 covers adult learning.

The manuscript was completed on 1 September 2018.
Additional contextual data can be found online (ec.europa.eu/education/monitor)
1. Key indicators

<table>
<thead>
<tr>
<th>Education and training 2020 benchmarks</th>
<th>Germany</th>
<th>EU average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early leavers from education and training (age 18-24)</td>
<td>9.5% 10.1%</td>
<td>11.2% 10.6%</td>
</tr>
<tr>
<td>Tertiary educational attainment (age 30-34)</td>
<td>31.4% 34.0%</td>
<td>37.9% 39.9%</td>
</tr>
<tr>
<td>Early childhood education and care (from age 4 to starting age of compulsory primary education)</td>
<td>97.4% 13 96.6% 16</td>
<td>94.2% 13 95.3% 16</td>
</tr>
<tr>
<td>Proportion of 15 year-olds underachieving in:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>14.5% 13 16.2% 15</td>
<td>17.8% 12 19.7% 15</td>
</tr>
<tr>
<td>Maths</td>
<td>17.7% 12 17.2% 15</td>
<td>22.1% 12 22.2% 15</td>
</tr>
<tr>
<td>Science</td>
<td>12.2% 12 17.0% 15</td>
<td>16.6% 12 20.6% 15</td>
</tr>
<tr>
<td>Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISCED 3-8 (total)</td>
<td>90.0% 90.9%</td>
<td>76.0% 80.2%</td>
</tr>
<tr>
<td>Adult participation in learning (age 25-64)</td>
<td>8.0% 8.4%</td>
<td>10.8% 10.9%</td>
</tr>
<tr>
<td>Learning mobility</td>
<td></td>
<td></td>
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<tr>
<td>Degree mobile graduates (ISCED 5-8)</td>
<td>: 4.9% 16</td>
<td>: 3.1% 16</td>
</tr>
<tr>
<td>Credit mobile graduates (ISCED 5-8)</td>
<td>: 12.9% 16</td>
<td>: 7.6% 16</td>
</tr>
</tbody>
</table>

| Other contextual indicators | | |
| Education investment | | |
| Public expenditure on education as a percentage of GDP | 4.2% 4.2% 16 4.9% 4.7% 16 |
| ISCED 1-2 | €7 176 | €7 145 15 | €6 494 d 15 |
| ISCED 3-4 | €9 510 | €9 824 15 | €7 741 d 15 |
| ISCED 5-8 | €12 614 | €12 864 15 | €11 187 d 15 |
| Early leavers from education and training (age 18-24) | Native-born | 8.3% 8.1% | 10.4% 9.6% |
| Foreign-born | 19.5% 23.1% | 20.2% 19.4% |
| Tertiary educational attainment (age 30-34) | Native-born | 32.0% 34.4% | 38.6% 40.6% |
| Foreign-born | 29.3% 32.8% | 34.3% 36.3% |
| Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year) | ISCED 3-4 | 87.7% 89.1% | 70.7% 74.1% |
| ISCED 5-8 | 93.1% 93.0% | 80.5% 84.9% |

Sources: Eurostat (see section 10 for more details); OECD (PISA).
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.
On tertiary education attainment, Germany includes post-secondary education (ISCED 4) in the measurement of progress towards its national Euro 2020 target of 42%. When included, Germany has reached 48.8% in 2017.
On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.
Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015).
Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).
2. Highlights

- Spending on education remained flat as a share of GDP while increasing challenges call for sustained long-term financial efforts.
- Citizenship education is well established in schools and elsewhere and is responding to new challenges, such as radicalisation.
- Primary students' performance worsened in key competences such as reading and maths. Social and immigrant backgrounds remain decisive for performance.
- Teacher shortages impact negatively on education and call for additional efforts to raise the attractiveness of the profession.
- German universities report the third-highest rate of incoming students in the EU, from Europe and beyond.

3. Investing in education and training

**Germany’s spending on education remains below the EU average.** Spending as a share of GDP remained unchanged in 2016 at 4.2% compared to an EU average of 4.7%. Out of overall government expenditure, 9.5% went to education, also below the EU average (10.2%). However, real growth compared to 2015 was 2.6%. Owing to the federal structure of the country, the bulk of Germany’s education expenditure is borne by the federal states and the municipalities.

**Upward education spending is a long-term investment.** To tackle the low level of education expenditure in Germany by international comparison (Destatis, 2017), experts advise on targeted spending increases rather than simply increasing the volume of spending (IW, 2017). An overall spending target of 10% of GDP for research, innovation and education combined has been raised to 3.5% of GDP for research and innovation alone. For education, the government announced specific investments of EUR 2 billion to further expand all-day schools, 3.5 billion for early childhood education and care (ECEC) and 3.5 billion for digital education (German Government, 2018).

**Particular investment needs arise from demographic developments and changed work patterns.** While the population is aging over the long term (European Commission, 2017a), a growing young population over the next 10-15 years due to higher birth rates and immigration necessitates increased expenditure for ECEC and for school education. Neither ECEC provision nor all-day offers are sufficient to meet projected needs. Estimates for necessary additional investment to further increase quantity and quality range from EUR 18 billion until 2025 for ECEC and all-day care (Rauschenbach et al., 2017) to EUR 24 billion until 2021 for ECEC alone (Bertelsmann, 2018). At municipal level, investment needs in schools and adult education currently amount to EUR 32.8 billion, the second highest expenditure item after traffic infrastructure (Kfw, 2017).

4. Citizenship education

**Citizenship education is taught widely at all levels of education.** The Standing Conference of the Ministers of Education and Cultural Affairs (KMK) has issued guidance on education on human rights, democracy, media literacy, history, politics and intercultural education which apply to all federal states (European Commission, 2018a). The topic is both taught as a separate subject and integrated into other subjects. Competences defined in the curriculum include thinking critically (taught already at primary school and also in secondary VET); fostering a sense of belonging; respecting other cultures and religions; and democracy, including knowledge of international

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1 Since 2011 Germany has had a country-specific recommendation to increase investment in education in the context of the European Semester (Council of the European Union, 2018).
organisations (European Commission, 2018a). Citizenship education features also highly in extracurricular activities, where the OECD reports for Germany one of the highest shares of schools offering volunteering or service activities among OECD countries (OECD, 2016).

Recent initiatives address current societal challenges. The national programme ‘Live Democracy’, which has run since 2015, funds projects to prevent radicalisation and promotes democracy at a local, regional or national level. In 2018, EUR 115.5 million have been earmarked for initiatives under the programme, including for the prevention of Islamic extremism in schools. More than 170 specifically trained social workers, called anti-mobbing professionals or respect coaches, will be deployed in schools across Germany. They will train young people in discussion culture to enable them to withstand radical propaganda.

Citizenship education extends beyond the school context. Germany has an impressive network of one federal and 16 state agencies for political education. They provide analyses, studies and teaching material to teachers, schools and the public at large on political and societal issues. These issues include national, European and international politics and history; migration; populism; left- and right-wing extremism; Islamism; education; and the environment. To promote democracy through education, the German Society for Democratic Education brings together expert educational researchers and practitioners, publishers, parents and students. The ‘voluntary social year’ and the ‘voluntary environmental year’ established in 2008 as federal programmes have their origins in the 1950s. They enable young people no longer attending school to work mainly in the social and environmental sector but also in culture, politics, sports, at home and abroad, and in this way help improve both their personal development and professional orientation.

5. Modernising school education

Early school leaving remains stable. In 2017, the share of young adults (18-24) having left school with at most lower secondary education was 10.1 %, i.e. at the national target of 10 %. Early school leaving is higher in cities (10.3 %) and towns and suburbs (10.7 %) than in rural areas (8.5 %), most likely owing to the higher concentration of schools with socio-economic challenges in urban environments. The higher risk of early school leaving for foreign-born students compared to native-born remained the same at 23.1 % vs 8.1 %.

Participation in ECEC is above the EU average but supply still does not meet demand. In 2016, a total of 96.6 % of children aged between four and compulsory school age were enrolled in ECEC compared to 95.3 % in the EU. Reflecting the recent creation of places in the early care sector, the participation of under-3 year-olds in ECEC rose from 25.9 % in 2015 to 32.6 % in 2016. National data suggest the demand-supply gap ranges from 7.3 percentage points in eastern to 14.8 percentage points in western federal states (Federal Ministry of Family Affairs, 2017). Regional and local disparities exist with regard to child-teacher ratios, which are overall much higher in East Germany. Hours of coverage are also higher in East Germany where the majority of ECEC places in 2016 (77 %) were for 35 hours and more per week, compared to 43 % in West Germany (Ländermonitor).

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2 https://www.jugendmigrationsdienste.de/respekt-coaches/
Figure 1. Children in formal childcare by age group

Source: Eurostat, EU-SILC survey. Online data codes: ilc_caindformal and educ_uoe_enra10

Free ECEC provision is increasing. Several federal states across the political spectrum (Berlin, Brandenburg, Mecklenburg-West Pomerania, Lower Saxony and Rhineland-Palatinate) have entirely or partly abolished ECEC tuition fees, while others are planning to do so. The main reason is the recognition of ECEC facilities as educational institutions providing more than pure care tasks. There is some debate on whether scrapping or reducing fees may impede further expansion of places and quality improvements. The increased financial support from central government (see section 3) is meant to support federal states’ efforts to improve quality and quantity and reduce fees (German Government, 2018).

Performance of primary students worsened. A 2016 national survey measuring fourth graders’ skills in reading, listening, spelling and maths showed on average worse performances in all areas compared to 2011 (Stanat et al., 2017). The survey highlights a strong connection between skills level and social and immigrant background. However, the higher share of students with a migrant background among fourth year primary students (from 9 % in 2011 to 34 % in 2016) is not the only explanation for the worsening of performance as it deteriorated for native-born students too. PIRLS, focusing on reading skills of fourth graders, also emphasises social disparities with regard to reading competences (Hußmann et al., 2017). It showed that while the share of high performers rose from 8.6 % in 2001 to 11.8 % in 2016, so did the share of low achievers, with almost one fifth (18.9 %) reaching only the lowest or second lowest competence level. By international comparison Germany has fallen behind since 2001 when only four EU countries scored significantly better: in 2016 it was 13.

3 In 2018 Germany received a country-specific recommendation to ‘improve educational outcomes and skills levels of disadvantaged groups.’ (Council of the European Union, 2018).
Integration of refugee children is more difficult when they are concentrated in specific schools. In 2017 new asylum seekers dropped sharply to 198,317 from 722,360 in 2016 (BAMF, 2018a). The number of unaccompanied minors remains high, amounting to 30,874 by December 2017 and 54,962 if counting those that just recently reached legal age (BAMF, 2018b). Most of them are channelled into vocational education and training (see section 7). Since 2015, welcome classes and parallel support classes with a focus on language teaching for newly arrived migrant children have been developed at all school levels (BAMF, 2018b). Placing refugee children in schools in challenging socio-economic environments has been criticised. While teachers there are usually better trained to deal with diversity, lacking contact with students without a migrant background or from stable families without behavioural or motivational problems renders the integration of refugee children more difficult (SVR, 2018).

Inclusive education of special needs students is a long-term challenge. While schooling of special needs students in mainstream education has increased overall, the majority of special needs students continue to attend special needs schools in 12 federal states. Due to educational tracking, considerably more special needs students are integrated in the less academic tracks. Regional differences also exist with regard to diagnosing children (Autorengruppe Bildungsberichterstattung, 2018). Examples of successful integration, such as a school winning the national school prize in 2018, exist alongside demands to pause further integration of special needs students in mainstream schools mainly because of a lack of personnel, preparation and support for teachers.

Policy-making is focusing on digital skills. In 2017, 68% of Germans reported having at least basic digital skills, a share unchanged since the previous year, placing Germany seventh among EU Member States (EU average 57%) (European Commission, 2018). The political attention to digitalisation, including infrastructure and skills, is high, with a newly established post of state minister for digitisation. For schools, the DigitalPakt Schule, announced in 2016, was endorsed by the new government. It stipulates that the federal government will invest EUR 5 billion in digital infrastructure in schools within the next 5 years. The federal states will in return provide necessary teacher training and curricula updates.

Media literacy is underrepresented in digital training. Various initiatives by federal states aim to strengthen continuing professional development on digital skills, which teachers judged...
inadequate according to a study on digital education (Schmid, 2017). Both teachers and pupils rate media competence, including data protection and ethics, as highly important (BITKOM, 2015). While media competence is a policy priority, shortcomings and big regional differences appear to exist with regard to news and the ability to analyse and contextualise them, which might compromise effective education on fake news at schools. A small-sample survey by the Technical University of Dresden (Hagen et al., 2017) showed that usage of online and social media for news consumption is hardly present in curricula, and that news literacy forms a minimal part of initial teacher training, resulting in a lack of basic skills and knowledge on the subject.

Box 1: Teachers face multiple challenges

Primary schools in Germany have to cope with increasing numbers of children due to demographic changes and immigration. Education experts predict that almost 105 000 new primary teachers will have to be hired by 2025 — 60 000 to replace retiring teachers, 26 000 to cope with increasing pupil numbers and 19 000 for the extension of all-day schooling — while only 70 000 teacher graduates can be expected until then (Klemm; Zorn, 2018). Official needs forecasting by the KMK was last published in 2015. It will be updated in autumn 2018 to account for the trend change. Furthermore, past policy decisions such as the closing of teacher study programmes and hiring freezes will take time to reverse.

Cancelled classes across school types are considered a major problem related to teacher shortages. Estimates range from 5-7 %, but exact monitoring remains the exception⁵. Career changers receiving fast-track and on-the-job training are a common response, and represent in some regions the majority of new hirings (GEW, 2017). However, they often lack the competences acquired through a fully-fledged initial teacher education. Different accreditation procedures for teacher candidates and career changers also create tensions.

Teachers’ unions draw attention to heavy workloads due to replacement teaching necessary to compensate shortages, but also inadequate physical working environments because of overdue renovation all of which affect the attractiveness of the profession. A representative survey among school directors revealed that in the last 5 years 48 % of German schools reported cases of psychological violence against teachers such as mobbing, direct verbal aggression and harassment. At a quarter of all schools (26 %) teachers were subject to physical violence. Experts disagree whether there is an actual increase in incidents or merely more media attention, and have called for better monitoring of the issue.

6. Modernising higher education

Tertiary educational attainment remains stable. The long-term increase in higher education enrolment continues, with a slight increase in tertiary education attainment of 34 % in 2017 compared to 33.2 % in 2016⁶. The employment rate of recent tertiary graduates continued at 93 % in 2017 to be above the EU average (84.9 %). Of the 556 800 graduates in 2016, 58.2 % obtained a bachelor’s degree, 37.5 % a master’s and 5.3 % (29 000) a PhD. As in most EU countries, the most common undergraduate studies were in business, administration and law (26.7 %) followed by engineering, manufacturing and construction (25 %). At master’s level, this order was broadly maintained, with 20.1 % and 18.7 % respectively, followed by arts and humanities (16.9 %) and natural sciences, mathematics and statistics (11.9 %), where Germany had the highest shares of graduates in the EU in both fields. Conversely, most PhDs were in natural sciences, mathematics and statistics (28.6 %), followed by health and welfare (26.6 %) and engineering, manufacturing and construction (12.7 %). Across all levels, Germany maintained it first position in the EU for science, technology, engineering and mathematics graduates (36 % compared to the EU average of 25.7 %).

German students are highly mobile. Germany is the only country in the EU where all higher education institutions are legally required to provide mobility opportunities for all students

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⁵ Saxony collects relevant data.
⁶ Eurostat data.
(European Commission, 2018c). Consequently, the share of credit-mobile students is significant, with 12.8% of students studying for some period abroad in 2016. The most popular destinations for credit-mobile students were France, followed by the United Kingdom and Spain. German students are also increasingly likely to obtain academic degrees abroad, while at the same time the country remains an attractive place of study for foreign students. In absolute numbers, Germany has the highest outward degree mobility in the EU and the third highest inward degree mobility after the UK and France. Outgoing students are clearly fewer than incoming students who come from diverse geographical backgrounds including China, Russia and India (European Commission, 2018c).

Social factors still play a decisive role in participation in higher education. Only about a quarter (27%) of higher education students in Germany have parents without tertiary education, the second lowest share in the EU after Denmark (DZHW, 2018). Studies show that the reasons for this are not confined to the higher education system, which has become more permeable in recent years, but also reflect selective processes early on in educational biographies (Kracke et al., 2018). School-based university entry systems like Germany’s are usually effective with regard to labour market transition but have the lowest participation rates of disadvantaged students (European Commission, 2017b). The OECD has classified Germany as one of the countries with low social mobility with regard to earnings, occupation and education (OECD, 2018).

A large share of students work while studying. As in many EU countries, financial support from family and partners accounts for half of students’ funding, whereas self-earned income makes up 34% and national public student support 12% (DZHW, 2018). While tuition fees are low or non-existent, accommodation costs are the biggest burden on students’ finances and have risen substantially in recent years. 71% of all students have either regular or occasional jobs during term time, the highest share in the EU (DZHW, 2018). The value of individual national public support is high compared to other EU countries, while the share of students receiving student support is smaller than the European average (DZHW, 2018). The government plans to extend the public support system for students (BAFöG), with higher grants and loans to be provided to more students (German Government, 2018).

Access to medical studies will be reformed. In Germany the demand for study places in medicine greatly exceeds the supply, with 45 000 applications for 9 000 places in 2017/18. In December 2017, the German constitutional court ruled that access to medical studies would have to be reorganised within 2 years. Standardised admission procedures have to be introduced, the waiting time for applicants capped and the limited choice to six universities abolished. The ruling also has implications for school policy as federal states are called upon to ensure the nationwide comparability of school leaving (Abitur) grades.

7. Modernising vocational education and training

Germany continues to promote very high quality in VET. The employment rate of recent VET graduates was at 91.3% in 2017, the highest in the EU. However, the proportion of upper secondary students (ISCED 3) in VET decreased slightly to 46% in 2016, below the EU average of 49%. As a response to an increasing trend towards academic education, Germany has continued to promote dual VET among learners and employers through information tours, workshops and guidance sessions in schools, and youth, vocational and training fairs. However, despite slight increases in the number of people searching for training places (by 0.4%), offered training places (1.5%) and training contracts (0.6%) in 2017, the number of unfilled apprenticeship positions rose further compared to 2016 due to the difficulty of matching demand and supply (BMBF, 2018).

Digital skills are strengthened in VET. The first digital learning transfer networks between companies, chambers and universities (DigiNet) were launched in October 2017. EUR 10 million was provided to purchase digital equipment and fund pilot projects to modernise teaching and learning. Provisions were established to help people with disabilities participate in initial VET and continuing VET programmes using digital media (Cedefop, 2018).

7 Data from 2014/15.
Students with a migrant background face larger obstacles in VET education. Measures providing training to people with a migrant background, including refugees, comprised German language training, individual analysis and competence assessments, personalised guidance to take up an apprenticeship or internship, and support to companies who employ refugees. The national report on VET education found that people with a migrant background still face larger systemic obstacles. They are only half as likely to start VET as people without a migrant background (27.6% v 55.8%). Particular difficulties exist for persons from Turkish or Arabic backgrounds even though they made the most effort to find apprenticeships (BMBF, 2018).

8. Promoting adult learning

Upskilling and reskilling of the workforce is needed. Adult participation in learning lies at 8.4% (EU average 10.9%) affecting particularly the low-skilled (see Box 2). In 2015, 77.3% of German companies (EU-28 average 72.6%) provided vocational training to their employees and 38.1% of employees participated in this training (EU-28 average 40.8%). The majority of German enterprises indicated that the main skills needed to develop the enterprise are team working and customer handling skills. Skills shortages increasingly hamper economic development. Economic simulations suggest that the lack of about 440,000 skilled workers is slowing down economic growth by about 0.9% (IW, 2018).

Box 2: Several upskilling measures are under way

Several projects are being implemented which are relevant for the Upskilling Pathways Council Recommendation (Council of the European Union, 2016). The federal state of Baden-Württemberg launched ‘Upskilling 4 All’, a one-year project for low-qualified employees aged 25+. The Federal Ministry of Education has provided EUR 583,000 to finance a three-year project (‘CHANCEN NUTZEN!’) to help low-skilled adults get a recognised vocational qualification. The Ministry also provided EUR 1,500,000 to fund ‘VALIKOM’, a three-year pilot initiative to coordinate the validation of job-related competences, targeting people aged 25+ irrespective of their employment status and any previous qualifications.

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10. Annex I: Key indicator sources

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Education and Training Monitor 2018 – Country analysis

October 2018
11. Annex II: Structure of the education system


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