European Commission

Education and Training Monitor 2013

Germany

Education and Training

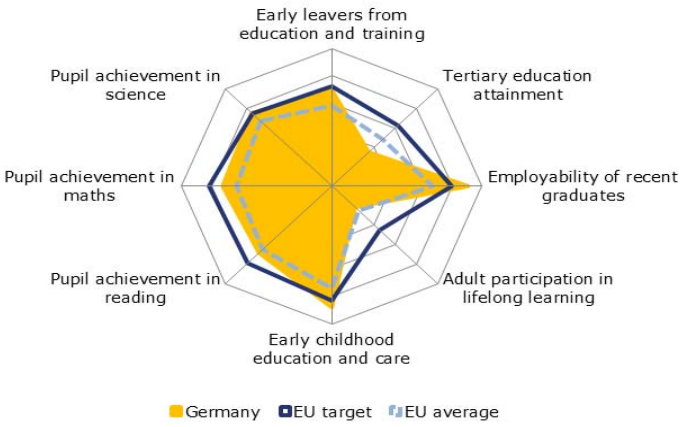
1. Key indicators and benchmarks

Europe 2020 headline targets			Germany 2009	Germany 2012	EU average 2009	EU average 2012	Europe 2020 target / Benchmark
1. Early leavers from education and training (age 18-24)			11.1%	10.5%	14.2% EU28	12.7% EU28	**EU target: 10%** National target: <10%
2. Tertiary educational attainment (age 30-34)			29.4%	31.9%	32.1% EU28	35.7% EU28	**EU target: 40%** National target: 42%[4]
ET 2020 Benchmarks							
3. Early childhood education and care (4 years old - year before start of compulsory primary)			96.0%	96.4% 11	91.7%	93.2% 11	**95%**
4. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading		18.5%	:	19.6%	:	**15%**
	Mathematics		18.6%	:	22.2%	:	**15%**
	Science		14.8%	:	17.7%	:	**15%**
5. Learning mobility	Initial vocational training (IVET)	**a.** Students participating in Leonardo da Vinci programs as a share of vocational students at ISCED 3	1.1%	1.1% 11	0.6%	0.7% 11	
	Higher Education	**b.** Erasmus inbound students as % of student population in host country		0.9% 11		1.1% 11	
		c. Inbound degree mobile students as % of student population in the host country		7.1% 11		7.0% 11	
6. Employment rate of graduates (age 20-34) having left education 1-3 years before reference year			85.3%	87.3%	78.3%	75.7%	**82%**
7. Adult participation in lifelong learning (age 25-64)			7.8%	7.9%	9.3%	9.0%	**15%**
Proposed ET 2020 benchmark							
8. Foreign languages skills	**a.** ISCED 2 students at proficiency level B1 or higher in first foreign language[1]		:	:	:	43.5% 11	
	b. ISCED 2 students learning two or more foreign languages		:	:	58.6%	60.8% 10	
Other ET 2020 Indicators							
9. Investment in education and training	**a.** General government expenditure on education (% of GDP)		4.4%	4.3% 11	5.5%	5.3% 11	
	b. Annual expenditure on public and private educational institutions per pupil/student in € PPS	ISCED 1-2	€ 5,399 08	: 10	€ 5,732 08	€ 6,021 10	
		ISCED 3-4	€ 8,031 08	: 10	€ 6,964 08	€ 7,123 10	
		ISCED 5-6	€ 12,050 08	: 10	€ 9,309 08	€ 9,168 10	
10. Digital competences	**a.** Pupils in grade 4 (ISCED 1) using computers at school		37.5% 07	51.0% 11	60.7% 07	64.7% 11	
	b. Individuals aged 16-74 with high computer skills[2]		28.0%	21.0%	25.0%	26.0%	
11. Entrepreneurial competences	Individuals aged 18-64 who believe to have the required skills and knowledge to start a business		40.0%	37.0%	42.3% a	42.0% a	
12. Vocational education and training	Share of vocational students at ISCED 3		53.2%	48.6% 11	49.6%	50.3% 11	
13. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification		:	2.2%	:	19.1% EU28	
	Medium qualification		:	2.0%	:	4.6% EU28	
	Low qualification		:	-4.2%	:	-20.2% EU28	
14. Low-skilled adults	Literacy		:	17.5%	:	19.9% EU17	
	Numeracy		:	18.4%	:	23.6% EU17	
	Problem solving in technology rich environments[3]		:	26.0%	:	26.9% EU13	

Source: Cedefop: 13 / EAC: 10a,b / European Survey on Language Competences (ESLC): 8a / Eurostat (Government finance statistics): 9a / Eurostat (LFS): 1, 2, 6, 7 / Eurostat (ISS): 10b / Eurostat (UOE): 3, 8b, 9b, 10c, 12 / IEA TIMSS: 10a / Global Entrepreneurship Monitor: 11 / OECD (PIAAC): 14 / OECD (PISA): 4

Notes: 07 =2007, 08 =2008, 09 =2009, 10 =2010, 11 =2011, e= estimate, a= unweighted average b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13, others: EU27
[1]= average of skills tested in reading, listening, writing, [2]= having carried out 5-6 specific computer related activities, [3]= Results cover people with scores below level 1 as well as people who have no computer experience or failed the ICT test [4]= Tertiary educational attainment: the national target is defined differently and includes postsecondary attainment qualifications at ISCED level 4/4a (following this national definition, the 2012 value is 43.3%)

Figure 1. Position in relation to highest (outer ring) and lowest performers (centre)



Source: DG EAC calculations on the basis of data from Eurostat (LFS 2012 and UOE 2011) and OECD (PISA 2009). *Note:* all scores are set between a maximum (the highest performers visualised by the outer ring) and a minimum (the lowest performers visualised by the centre of the chart).

2. Main challenges

Participation rates in all types of education and training have to increase in order to tackle the demographic change and to ensure that sufficient numbers of skilled people will enter the labour market. Germany is facing a shrinking workforce and shrinking young age cohort sizes, especially in the eastern parts. Shortage in skilled labour is bound to arise at medium and higher qualifications levels threatening the export oriented and skills intensive economy.

Germany is among those EU countries where the link between educational achievement and socio-demographic background is very strong. Educational failure threatens not only the supply with skilled and highly skilled labour in light of a shrinking workforce, but is considered to cause also huge public follow-up costs due to lower employability, higher costs for health and social transfers etc. Providing more equal access to education is also crucial with a view to more effective integration of people with a migration background and to full use of their human potential for the German society. Many low-achieving youth face difficulties in making a successful transition to initial VET.

The country specific recommendations agreed in the 2013 European Semester call to use the available scope for increased and more efficient growth-enhancing spending on education and research at all levels of government, as well as to raise the educational achievement of disadvantaged people and to increase the availability of fulltime childcare facilities and all-day schools.

3. Investing in skills and qualifications

Investing in education in times of economic crisis

After a period of slow growth[1] the increase of public spending on education in Germany remains at 4.3% in 2011. Spending remains still one percentage point below the EU average of 5.3% (2011).[2] Whereas spending on secondary and tertiary education is above the EU average spending, on primary education it is below[3].

The federal and Länder governments agreed in 2008 to increase spending on education and research to 10% of GDP by 2015, out of which 7% in education and 3% in research. In this context, the federal government agreed in 2008 to invest 12 billion euros more than previously planned between 2010 and 2013 - 6 billion euros in each of the two areas. Between 2010 and 2013, more than 13 billion additional euros for education and research were included in the budget on federal level. Germany seems to be well on track to achieve the national target and spent 9.5 % of GDP on education and research in 2011 according to the national statistics.

This is a positive development which needs to be continued at federal and Länder levels to ensure that the 10% target will be met. However, a government expert commission considered this target still inadequate to keep

1 Eurydice identified 8 countries including Germany showing constant slight growth in the period 2000-2010 [Funding of Education in Europe 2000-2012 (2013)].

2 However German figures of public expenditure tend to understate actual spending since not all spending in the context of VET, in particular private spending for dual VET, are registered.

3 Eurydice study on funding (2013) compares on the basis of purchasing power parity and per student.

with current trends of innovation.[4] In order to ensure catching up to the most advanced economies all entities available room could be used to set even more ambitious targets and to improve outcomes in education[5].

Skills and qualifications

Cedefop forecasts for 2020 foresee that Germany's skills needs for employment are expected to remain oriented towards highly skilled people, with a significant decrease of low qualification jobs (-6 percentage points in volume). One area that is likely to increase are personalized services catering to an aging population.

In terms of basic skills, 15-year olds' performance on PISA tests in reading and mathematics improved and are above the EU average. Results of pupils from disadvantaged backgrounds also improved slowly. In science results have surpassed the EU benchmark. In TIMSS this trend is less pronounced, results in mathematics at 4th grade improved only slightly between 2007 and 2011.

ICT skills of the population are close to the EU average. According to the 2009 PISA survey, 95% of German students have access to computers and the internet at school, and the ratio of computers to students aged 15 is 1 for every 11 students, which is below the OECD average. There is a national strategy on the use of ICT in school education ("*Schulen ans Netz*") which focuses on support and training for teachers and other educational staff, awareness-raising on chances and risks of new media and promotion of e-learning. The general national ICT strategy covers also the topics: e-Learning, ICT in schools, Digital-Media Literacy and e-skills development.

As regards entrepreneurship, due to low unemployment, emerging skill shortages and demographic trends, the number of entrepreneurs is expected to decline further[6], which could hamper Germany's future growth and innovation performance. At the same time, the number of individuals who believe to have the required skills and knowledge to start a business has declined between 2009 and 2012 by 2 percentage points. Closer cooperation with schools and universities and a systematic integration of "entrepreneurship" in school curricula could help reverse this trend.

The German national qualifications framework has been introduced in May 2013. A report referencing the German DQR to the European Qualifications Framework was presented on 4 December 2012 and finalised in June 2013. The development of the framework involved a broad range of stakeholders. The framework is comprehensive covering the different education sectors, further evaluations are planned.[7]

In 2011 the federal government adopted a law introducing a nationally standardized system for the assessment of professional qualifications acquired in foreign countries (Berufsqualifikationsfeststellungsgesetz). Based on individualised reviews EU and non-EU-citizens are entitled to receive a decision of equivalency of their professional qualifications acquired abroad in relation to comparable professions in Germany. In case of partial equivalency a full qualification may be achieved through targeted up-skilling.

The "Anerkennungsgesetz" for qualifications acquired in foreign countries entered into force in April 2012 and is expected to tap hidden human resources in Germany and attract qualified labour from abroad to Germany.

4. Tackling early school leaving and raising the bar in school education

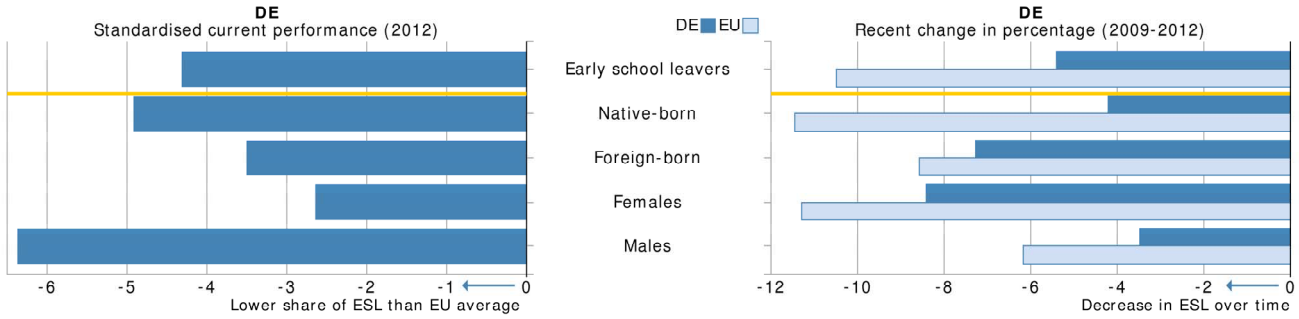
Concerning the Europe 2020 targets, the early school leaving rate in 2012 is better than the EU average (10.5% compared to 12.8%). Over the last years, it showed a steady, even if recently rather slow decrease (13.7% in 2006, 11.1% in 2009, and 10.5% in 2012). It is approaching the 10% national target for 2020. There is some progress in tackling educational disadvantage[8], including of migrants. However, further reducing early school leaving will require continuous efforts and is an important contribution to address the demographic challenge.

The Standing conference of the Länder education ministers (KMK) formulated a strategy to support low achieving pupils. Implementation at Länder-level differs, but there are several activities on-going.

Recent reforms in several Länder include among other reducing the number of educational tracks in lower secondary education from three to two and reducing grade repetition.

4 Expertenkommission Forschung und Innovation (2013), Gutachten zu Forschung, Innovation und Technologischer Leistungsfähigkeit Deutschlands.
5 SWD 2013, page 12.
6 DIHK Gründerreport 2013: http://www.dihk.de/themenfelder/gruendung-foerderung/unternehmensgruendung/umfragen-und-prognosen/dihk-gruenderreport.
7 See : Cedefop Analysis and overview of NQF developments in European countries. Annual report 2012.
8 PISA in FOCUS, "Are counties moving towards more equitable education systems?" specifically underlines progress in Germany (11 Feb 2013). The Chancenspiegel of IFS/Bertelsmann sees for all Länder still a clear need to invest in creating more equity while at the same time observing big differences between the different Länder.

Figure 2. Early school leavers of specific population sub-groups

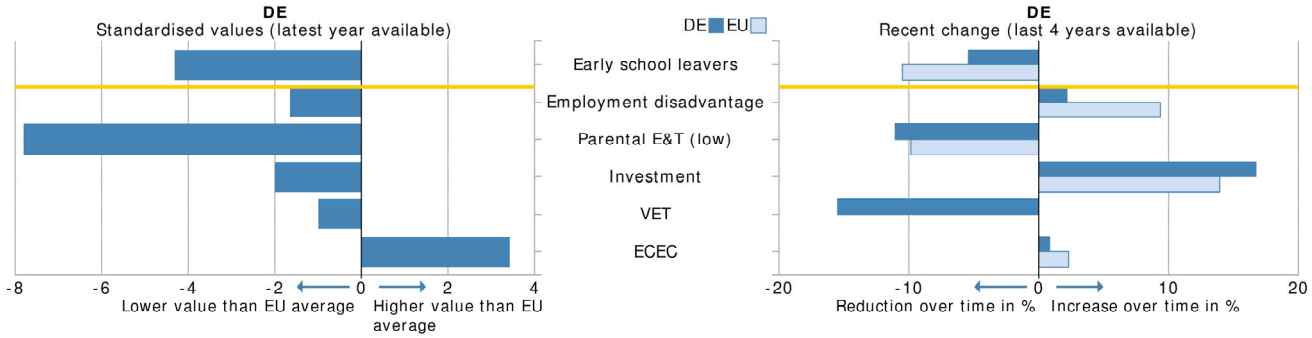


Source: JRC-CRELL. Note: ESL = early school leaving. See Annex 2 for further information.

Participation in early childhood education has increased further over recent years (96.4% in 2011) and has surpassed the EU benchmark (95%). Given the relevance of early childhood education and care to subsequent educational performance, the importance to ensure high-quality early childhood education[9] and care provision by, for example, improving the qualifications of staff, has to be underlined, including the provision of adequate funding.

Foreign–born have a higher chance to leave education early than native-born. This follows generally the European trend, however native-born are about two thirds less likely compared to the EU level. Young participating in VET are less likely to leave education early and the distinct component of VET might explain that the unemployment of early school leavers is 33.7%. This is below the EU level of 40.1%.

Figure 3. Early school leavers and sub-indicators



Source: JRC-CRELL. *Note:* see Annex 2 for an explanation of the sub-indicators.

Compared to the total active population Germany has considerably fewer teachers in primary and secondary education (1.6%) referenced to an EU average of 2.1%[10]. Close to 50 per cent of teachers both at primary and at secondary level are 50 years or older, posing a demographic challenge,[11] and there are less female teachers in secondary education (63.1%) than in primary education (85.5%) within a predominantly female workforce.

5. Encouraging participation in tertiary education and modernising higher education

As regards tertiary attainment, figures have increased by about 6 percentage points since 2006 to 31.9% (2012)[12]. This remains below the EU average 35.7% (2012), especially for females. However, Germany has already achieved its national target set in the Europe 2020 context, as it included in it also post-secondary level ISCED 4 qualifications (total ISCED 4, 5, 6, performance in 2011: 43.3%, above the national target set at 42%).

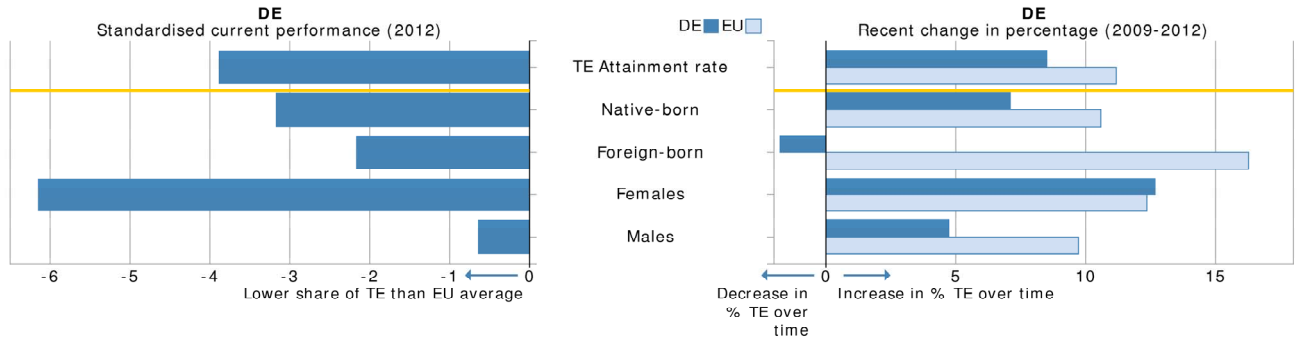
9 One example on Länder level is the Hamburg initiative "KITA+3 (2013-2014)" that reaches out to all stakeholders including parents providing inclusive pre-school education including language training for socially disadvantaged including migrants. Sachsen promotes in service training (2012-2014) in particular for management staff. Working group "Fachkräfte KITAs (ECEC Specialists)" was created in June 2012 to provide an interdisciplinary platform for the federal, regional (Länder) and local level as well as representative organisations. (All NRP 2013).

10 The lowest participation rate have Germany and Estonia with 1.6% each, compared to the highest in Latvia (3.5%) and Luxembourg (3.6%), Source Eurydice (2013), "Key Data on Teachers and School Leaders in Europe".

11 ISCED 1: 48%, ISCED 2+3: 50% Eurydice, Key Data (2013).

12 One reason is the double counting, if one individual holds both a bachelor and a master degree in the context of the Bologna reform.

Figure 4. Tertiary educational attainment of specific population sub-groups

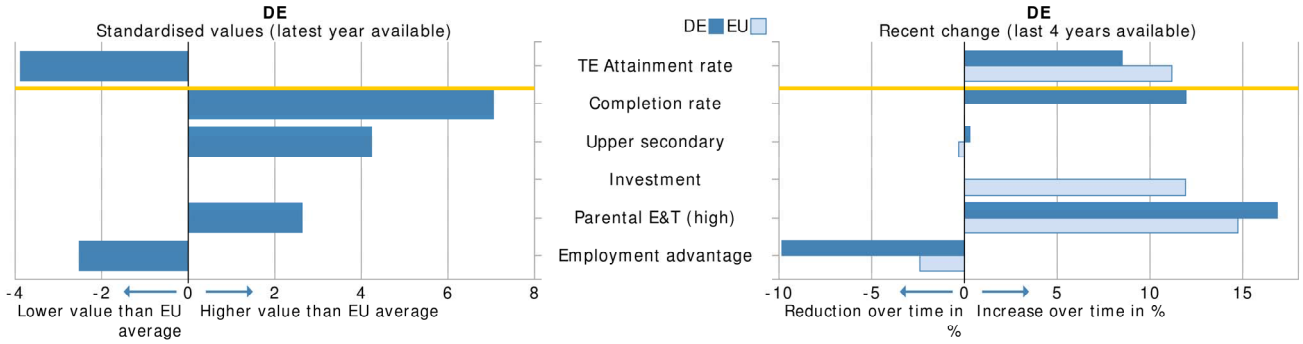


Source: JRC-CRELL. *Note:* TE = tertiary education. See Annex 2 for further information.

Foreign-born remain at a clear disadvantage at attaining a tertiary education degree as are female graduates compared to the EU level. Germany has increased the completion rate. Employment advantages of tertiary graduates are below EU average and further decreasing, mainly to the the good employment rate of upper-secondary graduates.

Students entering Higher education have increased by 5% in 2010 and by 17% in 2011 to 519.000 and dropped to 493.000 in 2012[13]. Compared to 2005 this is an increase by 39%. The bulk of this increase can be attributed to the fact that a reform of upper secondary education reducing it by one year in most Länder created double graduation cohorts.

Figure 5. Tertiary educational attainment and sub-indicators



Source: JRC-CRELL. *Note:* see Annex 2 for an explanation of the sub-indicators.

The Higher Education Pact (Hochschulpakt) aims to provide additional funding to expand study opportunities in reaction to the increasing demand for higher education. In this context the federal government will provide additional 7 bn euros from 2011 to 2015. Through the "Quality Pact for Teaching" (Qualitätspakt Lehre) 2 bn euros are made available until 2020 for improving study and teaching quality. Additional 250 mio euros are provided in the Federal Government-Länder competition "Advancement through Education: Open Universities" ("Aufstieg durch Bildung: offene Hochschulen") to promote the establishment and development of continuing academic education for new target groups at higher education institutions.

In order to open access to higher education more widely, the so-called *"Hochschulzugang für beruflich qualifizierte Bewerber"* now exists in all Länder, and is promoted through providing students the opportunity to obtain also financial support ("career advancement grants"). Though take up is still low at the moment, together with the rapid expansion of dual tertiary VET this may further contribute to increasing permeability between VET and higher education.

The employment rate of graduates has increased over recent years and is at 87.3% (2012) clearly above EU average 75.7% and is also above the 75% 2020-benchmark.[14]

6. Facilitating the transition from education to work and vocational training

The German VET system in particular dual VET facilitates the transition from education to work and is recognised as a key element contributing to Germany's relatively low youth unemployment rate. The main challenge is to ensure a successful transition between school and initial VET for low achievers. At the same time, the need to

13 Source Deutscher Bildungsbericht 2012, National Reform Programm (NRP) 2013.
14 Source: CRELL calculations based on Eurostat LFS data.

provide up to date skills in a context of rapid innovation and globalization for Germany's export oriented and skills intensive economy, requires continuous efforts to maintain the quality and attractiveness of the VET system, including for high achieving young people.

Current lead initiatives are the well- established "Ausbildungspakt" (national training pact), extended until 2014: it is designed to provide yearly 60.000 new apprenticeship places and to improve the transition from school to VET. The 2010 adopted "Bildungsketten" (chains of education) and 'Jobstarter Connect' provide early support and guidance for pupils at risk. They are part of the "Übergangssystem", which shall take care of those who face difficulties in the transition from school to work. However, there is growing awareness among stakeholders of the need to reform this overly complex and inefficient tool for transition. According to studies commissioned by the German trade union confederation[15], the target set in 2008 to reduce the rate of young adults without professional qualifications from 17% (2008) to 8.5% in 2015 will not be reached. However, the government addresses this shortcoming through a recently launched campaign[16].

The number of dual tertiary programmes, whereby students can acquire at the same time a VET and an academic qualification through combined in-company training and tertiary studies, are growing quickly and most of the Länder are actively promoting this trend.

7. Upgrading skills through lifelong learning

The Survey of Adult Skills (PIAAC[17]) shows that adults in Germany perform slightly above the EU average in literacy and in particular in numeracy. In problem solving in technology-rich (ICT) environments, German adults (aged 16-65) score close to the EU average.

There is a large age variation in literacy proficiency, with the youngest generation scoring significantly better than the oldest one. The gap in literacy proficiency between the foreign- and native-born is slightly above the EU average. Germany is also one of the countries with the strongest association between socio-economic background (education level of parents) and literacy proficiency among young people.

While at EU level employed people have on average higher skills both in numeracy and literacy than the unemployed, the gap is even more pronounced in Germany. The Survey of Adult Skills also shows that 18% of German adults (aged 16-65) have low skills, close to the EU average in literacy and lower than the EU average in numeracy. However, low skilled adults in Germany are 7 times less likely to participate in job-related learning than high skilled adults[18].

Participation of adults in lifelong learning is below EU average (7.9% vs. 9% in 2012) but has slightly increased as opposed to the decreasing EU average[19]. 73% of enterprises provided training to their employees in 2010. This is above the EU average of 66%. Close to half the staff (47% compared to EU 48%) profited from training with somewhat less training hours per participant compared to the 25 hours EU average.

With a view to basic skills of adults a scientific study revealed that an estimated 7.5 Mio Germans are (functional) illiterates. Bund and Länder have agreed in 2011 to implement a strategy to fight basic skills deficiencies ("*Grundbildungspakt*").

The German national qualification system so far only takes into account the system of formal education in Germany. This creates a huge challenge to non-formal education providers in both youth and adult learning. Therefore there is a drive towards the validation/certification of skills and competences acquired in non-formal and informal contexts.

The "Qualifizierungsinitiative für Deutschland" concluded by the Federal government and the Länder in 2008 to bundle initiative for tackling inequalities and up-skilling vast populations includes benchmarks for all stages of lifelong learning from early childhood to adult education[20] and investment in E&T (see section 2). However most of the agreed targets will not be met by 2015[21] and also the initiative as such seems to have lost attention on the political stage. Recent initiatives linked to it were: increased cooperation among the German Länder as well as on federal level, recognition of professional foreign qualifications a National Strategy against illiteracy , a quality offensive for teacher training ("Qualitätsoffensive Lehrerbildung") and an initiative to ensure the availability skilled workers for industry ("Fachkrâftesicherung" and several actions on federal level only.[22]

---

15 DGB, Expertise "Bildungsgipfel-Bilanz 2012 2012 – Die Umsetzung der Ziele des Dresdner Bildungsgipfel vom 22.10. 2008 (December 2012).

16 AusBILDUNG wird was – Spätstarter gesucht.

17 Volume I of the Education and Training Monitor (chapter 6) provides an overview of the results of the survey. Skills levels are presented either in terms of average score points or proportion of adults at a given proficiency level in literacy or numeracy (level 1 to 5) or problem solving in technology-rich (ICT) environments (level 1 to 3 or no ICT experience).

18 At EU level, low skilled adults are 5 times less likely to participate in job-related learning than high skilled adults.

19 The national German "Adult Education Survey (AES) indicator" provides additional data.

20 ECEC: 35% of children below 3 should have a place by 1.08.2013; ESL rate should be reduced from 8% (2008) to 4% in 2015; young adults without professional qualifications should be reduced from 17% (2008) to 8.5% in 2015; 40% of an age cohort should start tertiary education by 2015; participation in adult learning should be increased from 43% (2008) to 50%.

21 DGB, Expertise "Bildungsgipfel-Bilanz 2012 2012 – Die Umsetzung der Ziele des Dresdner Bildungsgipfel vom 22.10. 2008 (December 2012).

22 "Aufstieg durch Bildung – Die Qualifizierungsinitiative für Deutschland" Bericht zur Umsetzung 2012 by KMK and GWK.