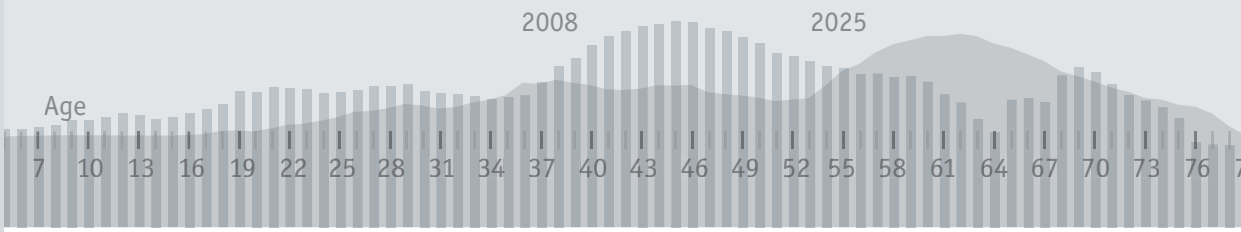
Authoring Group Educational Reporting

Education in Germany 2010

An indicator-based report including an analysis of demographic challenges for the education system

Summary of important results



Commissioned by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany and the Federal Ministry of Education and Research

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Preface

"Education in Germany" is an indicator-based report which has been published at two-year intervals since 2006. It covers all levels of education and combines a comprehensive review with a specific thematic focus. The current volume for 2010 focuses on analysing demographic challenges for the education system. It was jointly commissioned by the Standing Conference of *Länder* Ministers of Education (KMK) and the Federal Ministry of Education and Research and was drawn up by a group of authors who bear joint responsibility for it. The members of the Authoring Group are leading representatives of the following scientific and statistical organizations: the German Institute for International Educational Research (DIPF), the German Youth Institute (DJI), the Higher Education Information System (HIS), the Sociological Research Institute at Göttingen University (SOFI), the Federal Statistical Office and the statistical offices of the *Länder.*

The national education report is a major instrument of education monitoring in Germany alongside the international student performance surveys PISA, TIMSS and PIRLS, the national review of the achievement of the education standards of the *Länder* in school years four, nine and ten, and *Länder* specific assessments of student performance. It provides concise information about the current situation in the German education system, its performance and major problems, about lifelong learning processes, and about the development of education in Germany from an international perspective. The reports are addressed to different target groups in educational policy, administration and practice, in science and training, and in the general public.

The national education reports are characterized by three basic features:

- They are designed on the basis of an *educational concept* whose goals are reflected by three dimensions: individual self-direction, social participation and equal opportunities, and human resources.
- Following the *lead concept of lifelong learning,* they consider all sectors and levels of education and provide information about the scope and quality of the programmes offered by various institutions and about participation in such programmes.
- They are based on *indicators* from official statistics and representative social science surveys which, if possible, cover the developments in recent years and decades and involve comparisons at national and international level.

These quality and relevance standards, however, also reflect the limitations of the national education report. It covers the current problems of educational development only to the extent to which solid data are available. The national education report 2010 is based on the same set of core indicators as the preceding two volumes and in this way enables comparison over time with varying focuses. The specific informative value of educational reporting is derived from this updatability. In addition, the third volume includes further indicators relating to new topics, e.g. special needs support at schools, the quality of university studies, and the social profiles of participants in continuing education.

The reports as well as the indicator concept and the complete set of data on which they are based are available at **www.bildungsbericht.de** (in German, with main findings in English).

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The Authoring Group Educational Reporting is responsible for the content of the german national education report 2010, upon which this summary is based.

Content

Introduction

For the first time, the 2010 education report includes a prospective analysis of the demographic challenges for education in addition to considering the current developments and circumstances in the German education system. This analysis covers different projections of expected developments and the scope for action in the education sector and the labour market and assesses their importance for learners and for staff and funding requirements in education.

Demographic change will have far-reaching consequences in the education sector: The number of people under 30, who play an important role in the areas of child care, school, vocational education and higher education, will decline from 25.5 million to 21.3 million by 2025. This means a decrease by 2.6 million, or 15%, in the total number of learners (including family day care for children), who accounted for 16.7 million in 2008. By 2025, the working-age population will have decreased by 10%, from 54.1 million to 48.8 million. At the same time, the number of people aged 65 and older will increase by 21%, from 16.7 million in 2008 to 20.2 million in 2025. This trend in the population age structure will continue and even increase after 2025. The challenges and opportunities which demographic change entails for the education system have been thoroughly analysed in this year's educational reporting.

Before describing these findings in greater detail, the most important results regarding current developments and circumstances in education will be presented in four chapters dealing with the following four aspects:

- What changes have occurred in the context of education? (Population and economic development, family environment in which children and young people are growing up)
- What developments can be observed when it comes to the resources provided for education? (Educational expenditure, participation in education, educational opportunities and institutions, and education personnel)
- What developments have occurred at the procedural level of education? (Transition, quality assurance/evaluation, education period)
- What trends can be observed when it comes to the results of education? (Final qualifications, skills, and returns on investment in education)

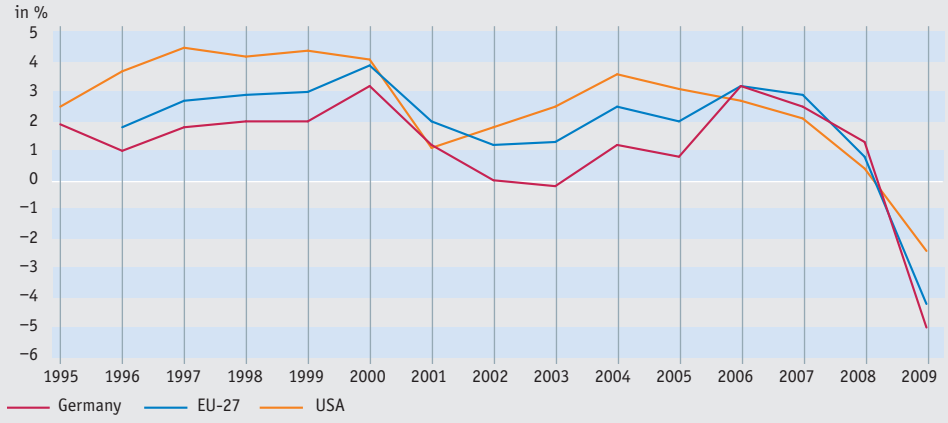
Contexts of Education

The number of births continues to decline while the number of young people with a migration background is increasing: 683,000 babies were born in 2008 compared with 830,000 in 1991, which represents a decrease by 18%. On the other hand, there is a marked increase in the number of children and young people with a migration background, particularly in metropolitan areas.

Nearly one in three children under 18 is exposed to social, financial and/or cultural risks: Roughly 29% of the 13.6 million children under 18 faced at least one type of risk in 2008. Of these, 1.1 million children lived in single-parent families, which means that nearly one in two children in single-parent families is at risk. In families with a migration background, the number is 1.7 million children (42%). Since 2000, the percentage of children affected by all three types of risk at the same time has remained largely constant (3.5%), although there are marked differences between the *Länder*. These children and young people can be expected to have altogether less favourable educational prospects.

The economic and financial crisis clearly reduced the room for manoeuvre in public budgets: Germany experienced a real decrease of 5% in economic performance in 2009 as a result of the global financial and economic crisis (Figure 1). Following a budget surplus of 4.7 billion euros in 2007, the public sector had to cope with a deficit of 79.3 billion euros in 2009. This also reduces the scope for education policy.

Figure 1: Real GDP growth rate in Germany, the EU and the U.S.A. 1995–2009 (in %)



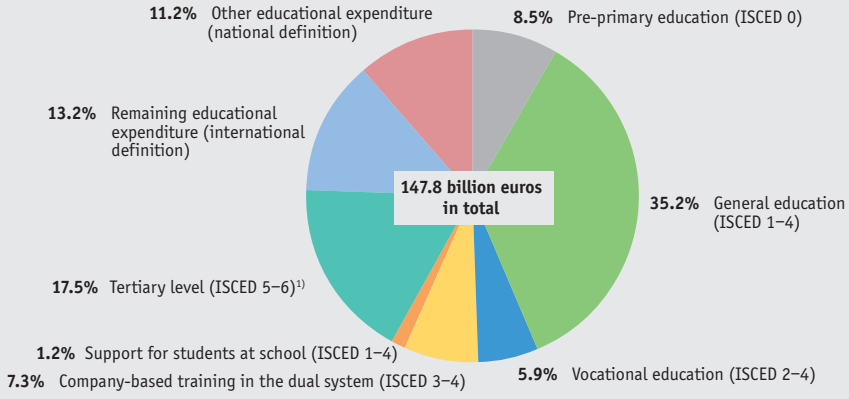
Source: Eurostat website, national accounts

Resources and Opportunities

Educational Expenditure

Expenditure in education as a percentage of GDP continued to decline until 2007 and rose again in 2008: 147.8 billion euros were spent on education in Germany in 2007. Nominally, this represents an increase by about 22 billion euros compared to 1995. However, since educational expenditure increased less strongly than economic growth, educational expenditure as a percentage of gross domestic product (GDP) dropped from 6.8% in 1995 to 6.2% in 2008. Measured against its economic strength, Germany spends less on education than the OECD average. *Figure 2 gives an overview of expenditure on education in Germany in 2007 for different educational levels.*

Figure 2: Educational expenditure in Germany in 2007 by level of education (in %)



1) Including research expenditure of higher education institutions
Source: Federal Statistical Office and statistical offices of the Länder, national education budget 2007

Expenditure per learner is increasing: Annual spending per state school student increased from 4,300 euros to 5,000 euros between 1995 and 2007. At constant prices, spending in the western *Länder* declined by 7%. In the eastern *Länder* (excluding Berlin), expenditure per student increased by 17% in real terms, since it was not reduced proportionally to the decline in the number of learners.

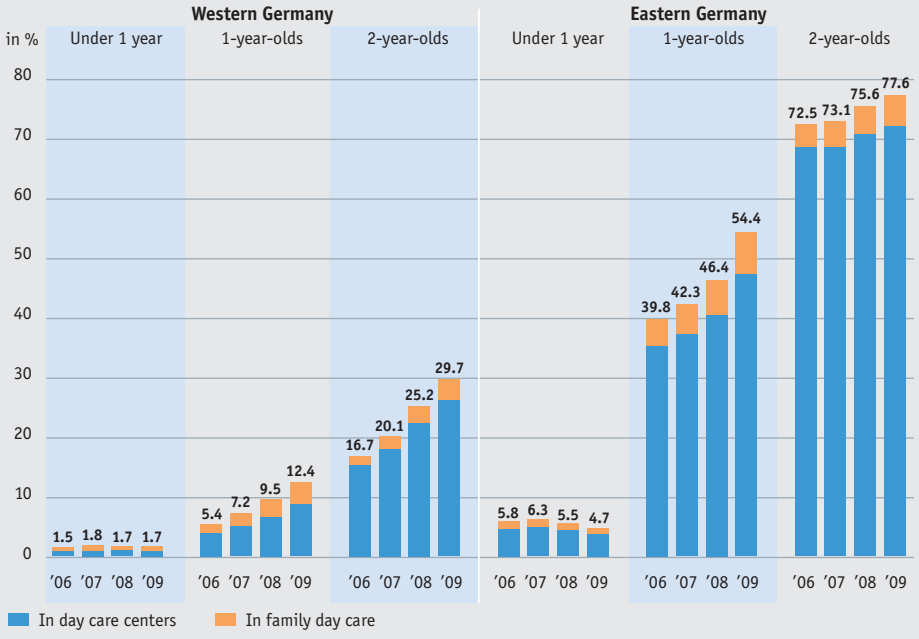
Participation in Education

Increasing educational participation among children under the age of 3; high participation in day care in the 4-5 age group: Participation in education among children below the age of 3 has increased by 6% in eastern Germany and 7% in western Germany in the period from 2006 to 2009 (Figure 3). This increase was mainly realized through the refurbishment of existing establishments. According to EU-SILC, however, fewer children under 3 attend day care in Germany than in other countries. Among 4- and 5-year-olds, participation in education has been at more than 95% nationwide since 2008.

More and more students are receiving special support outside of special needs schools. At the same time, the number of students at special needs schools is increasing: In 2008/09, 1.1% of all pupils at primary and lower secondary level had special developmental and educational needs that were met at general schools (0.5% more than in 1999). There are currently 3,302 special needs schools in Germany, with approximately 400,000 students (4.9% of all school students). This represents an increase of 0.4% since 1999. Germany has more pupils in special needs schools than any other EU country. Boys in particular are significantly overrepresented at special needs schools.

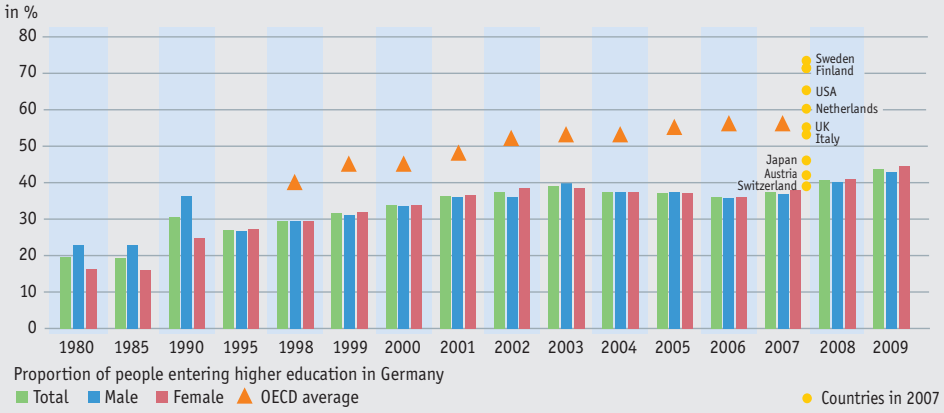
Participation in out-of-school learning activities remains strongly dependent on background and school type: Participation in non-compulsory activities has remained relatively constant among students between the ages of 14 and 19 (36% in 2009). It remains comparatively low (24%) among young people with a migration background. Students attending an eight-year *Gymnasium* (grammar school) tend to be less involved in non-

Figure 3: Participation in education (day care and family day care) in the under-3 age group in western and eastern Germany between 2006 and 2009 according to age (in %)



Source: Federal Statistical Office and statistical offices of the Länder, child and youth aid statistics, own calculations

Figure 4: Higher education entry rates* from 1980 to 2009 according to gender and in comparison with selected countries (in %)**



* *For Germany: national definition of the academic year (summer semester and subsequent winter semester) and including colleges of public administration; for international reference values: international definition of the academic year (summer semester and preceding winter semester)*

** *Provisional figures for 2009*

Source: Federal Statistical Office and statistical offices of the Länder, higher education statistics; OECD: Education at a Glance

compulsory activities than students at a nine-year *Gymnasium*. Students at half-day schools participate more frequently in such activities than students at all-day schools.

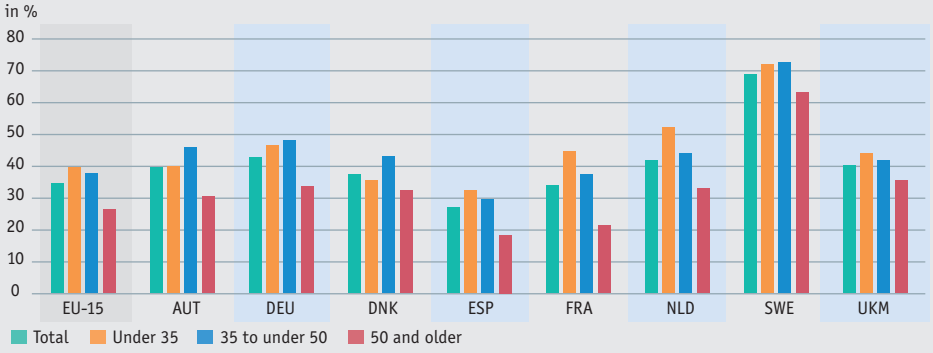
An increasing number of students attend private institutions: The number of learners at private institutions increased from 2.2 million in 1995/96 to 2.6 million in 2008/09 – an increase of 22%. Over the same period, the number of learners at public institutions went down by slightly less than 720,000 students (a decline of 5%). The number of learners at private institutions increased particularly strongly at primary, upper secondary and tertiary level. The percentage of students at private schools increased from 6.9% in 2006/07 to 7.6% in 2008/09. The percentage of private schools increased from 7.9% to 8.9% over the same period.

Almost 1.2 million new entrants to vocational training: Approximately 560,000 young people took up training under the dual system in 2008. The number of new entrants to the vocational school system remained unchanged (211,000 in 2008). In the transitional system – i.e. measures of non-school institutions and school programmes that do not lead to formal vocational qualifications – the number of new entrants declined to 397,000, dropping below 400,000 for the first time since 2000.

Targets of Higher Education Pact I reached in 2009: In 2009, 43.3% of the year group started university, significantly exceeding the 40% target (Figure 4). If limited to students with German nationality, the percentage of university entrants is approximately 6% lower, bringing it below the target.

Women and older employees significantly underrepresented in continuing vocational training in companies: Continuing vocational training in companies is the most important sector of continuing training from a quantitative point of view. Women and older members of staff are significantly underrepresented in this sector (Figure 5). However, women of all ages and levels of education are at least as likely to participate in continuing vocational training outside companies as their male peers.

Figure 5: Participation in continuing training in 2007 according to country (selected EU countries)* and age group (in %)



** EU-15 excluding Luxembourg and Ireland; provisional figures for France*
Source: Eurostat, AES 2007, own calculations

Educational Opportunities and Institutions

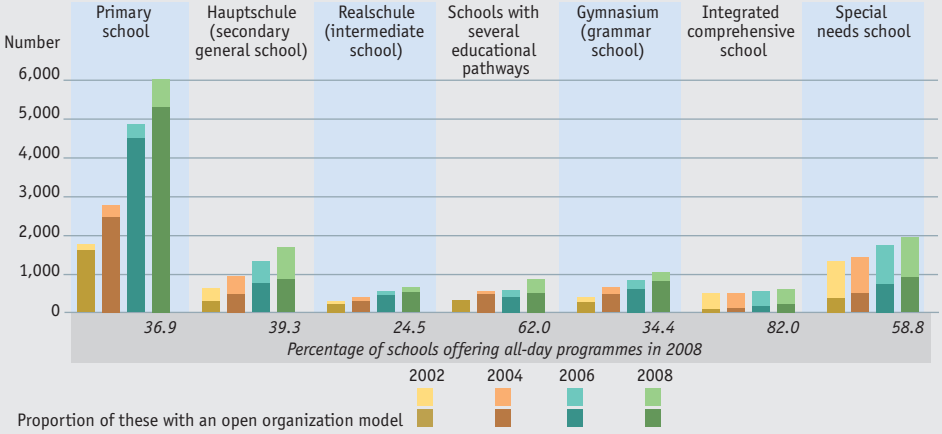
The number of schools offering all-day programmes continues to rise; mainly with open organization models: Approximately one in four students attend all-day school programmes. This number has doubled in recent years. In total, 42% of all administrative school units at primary and lower secondary level offer all-day programmes. However, this mostly takes the form of an open (non compulsory) organization model (Figure 6).

There are still shortages on the training place market, despite a slight improvement. The availability of training places differs according to industry sector: Although the number of traineeships offered by companies declined in 2008 and 2009, the slight improvement recorded in 2007 remains in place (Figure 7) because demand has been dropping even more sharply than the number of training places offered (for demographic reasons). Taking into account the unplaced applicants from previous years, there is a shortage of training places in all occupational fields. General developments differ depending on the industry in question.

Structural reform of higher education well underway: The introduction of the two-cycle degree structure (Bachelor's and Master's degrees) has essentially been completed for new university entrants, except for programmes that still finish with a state examination. It is not yet clear how many graduates of Bachelor's degree courses will proceed to Master's degree level in the long term. In the first few years, the transfer rate was very high.

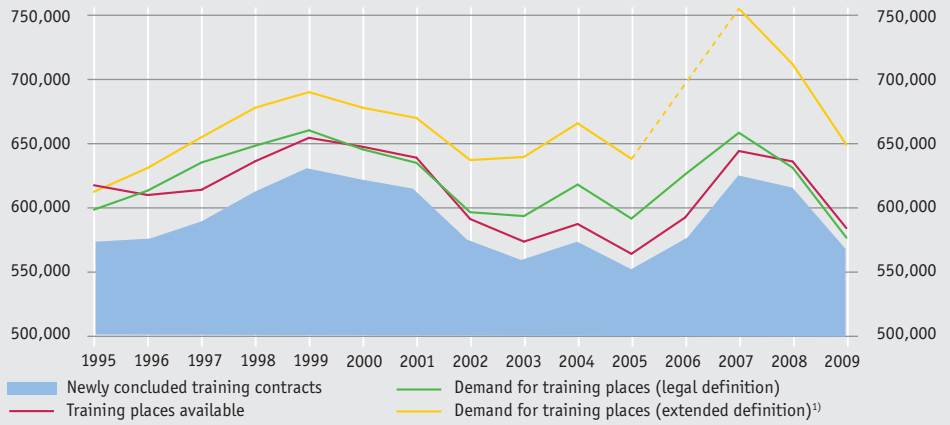
Despite the significant increase in the Federal Employment Agency's continuing education measures, there continue to be problems with integration into the labour market: The Federal Employment Agency has again significantly increased its offering of continuing vocational education measures since 2006, particularly short-term measures (under 6 months). When it comes to integrating the participants of these measures into the

Figure 6: Quantitative development of all-day programmes at primary and lower secondary level according to school type* from 2002 to 2008



** Not including orientation stage independent of school type and Waldorf schools*
Source: KMK Secretariat (2010), general schools offering all-day programmes in the German Länder

Figure 7: Training contracts concluded, supply and demand for training places under the dual system from 1995 to 2009



1) New contracts and unplaced applicants from alternative educational routes (e.g. secondary schools, training preparation measures) who continue to seek a training place (the latter group only for western Germany and West Berlin until 1997); no figures available for 2006

Source: Federal Employment Agency, results of the training market statistics (not including licensed local education providers), figures as of 30 September; Federal Institute for Vocational Education and Training, survey of newly concluding training contracts as of 30 September, own presentation

labour market, however, the success rate was still below 50% in 2008 and featured the usual inequality patterns: Women, older people and participants in eastern Germany are less successful in entering the labour market.

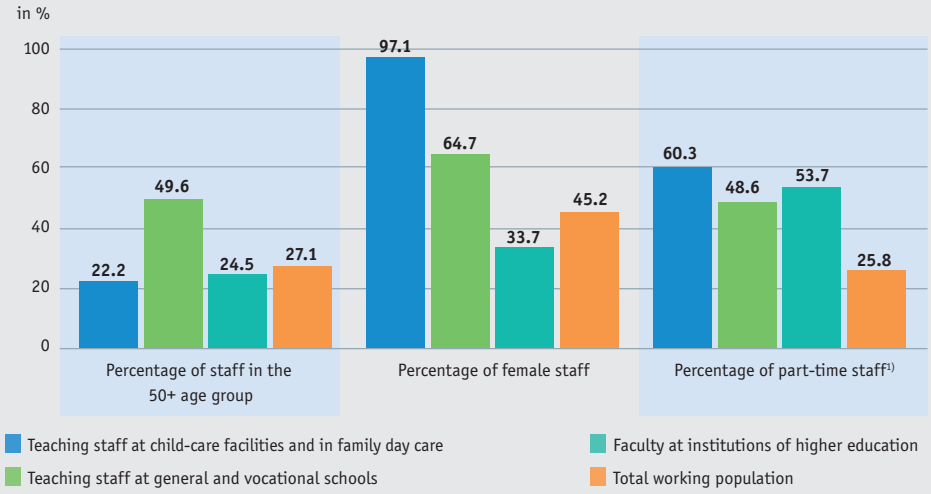
Education Personnel

Great demand for qualified teaching staff to replace retired teachers at schools and universities: 40% of all teaching staff in Germany and 50% of all school teachers are aged 50 or older (Figure 8). After Italy and Sweden, Germany has the third-highest proportion of school and university teachers aged 50 and above. This figure is significantly higher than the proportion of people in this age group within the working population as a whole (27%).

Low proportion of teachers with a migration background: In 2007, approximately a quarter of all learners but only 7% of all teachers within the formal education system had a migration background. The proportion of people with a migration background is about three times as high among the general working population with a higher education qualification as it is among teaching staff.

New record number of teachers at day care facilities, but significant differences in staffing schedules between the *Länder:* Approximately 360,000 teachers were employed in day care facilities in 2009. The expansion of day care facilities for children under the age of 3 has led to a significant increase in the number of staff in this area since 2006 – with differences in staffing schedules between the *Länder*. At 3.2%, the share of nursery teachers with a higher education qualification remains low. Despite the increase in the number of family day carers who have at least completed a 160-hour course, 55% of family day

Figure 8: Structure of teaching staff in comparison to the working population as a whole in 2008 (in %)

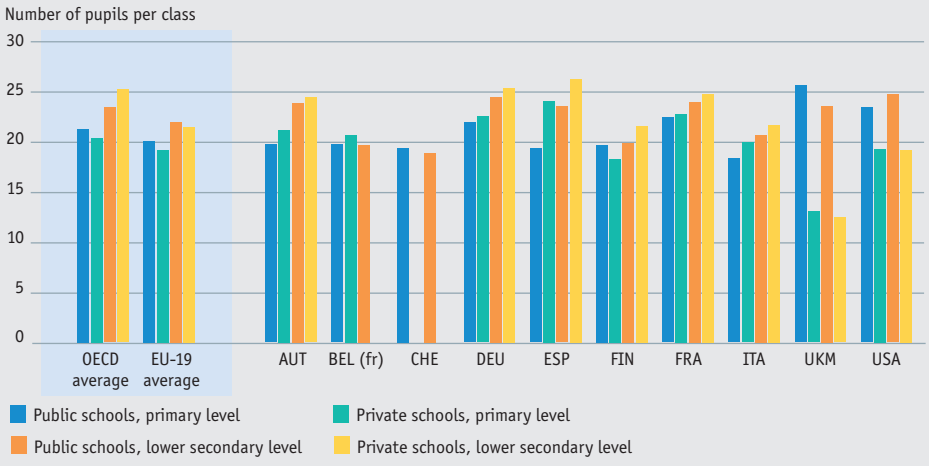


1) In the microcensus, the classification into part-time/full-time teaching is made by the respondents themselves.
Source: Federal Statistical Office and statistical offices of the Länder, education personnel records 2007/08, microcensus 2008

carers in western Germany and 36% in eastern Germany do not have the required minimum qualification.

Teacher working hours and class sizes in Germany about average by international standards: The number of learners per teacher is relatively high at all three school levels in Germany. However, class sizes in Germany are about average compared to other countries (Figure 9). At primary level, the number of hours of teaching per school year (806) is close to the OECD average. At lower secondary and upper secondary level, the number of hours of teaching per school year (758 and 714, respectively) is 7% to 9% higher than the OECD average.

Figure 9: Average class size in selected OECD countries in 2007 according to school level and maintaining authority (in %)



Source: OECD (2009), Education at a Glance, p. 426

Procedural Aspects

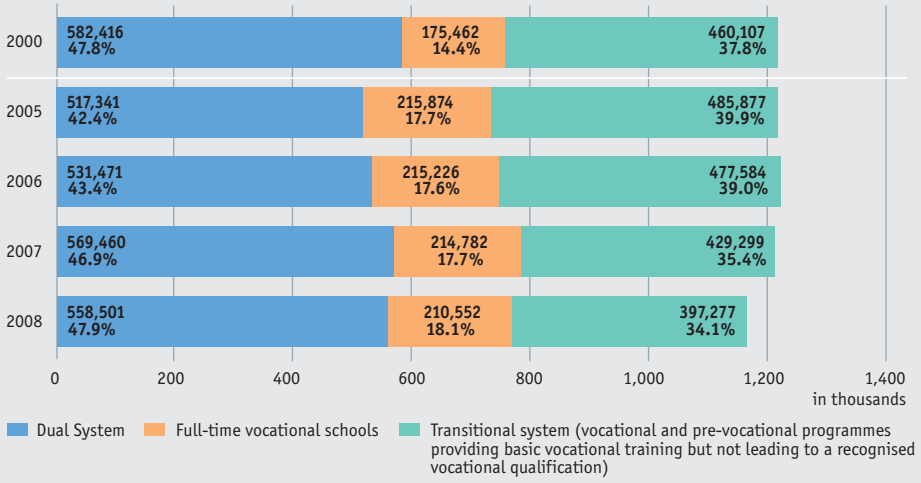
Educational Pathways and Transitions

Number of transitions to school types providing higher qualifications on the rise, but young people with a migration background remain more likely to attend school types offering lower qualifications: The number of students attending a *Hauptschule* (secondary general school) continues to decline. There is a persistent trend towards the *Gymnasium*. The transition from the 9-year to the 8-year *Gymnasium* has initiated a far-reaching transformation of teaching at the *Gymnasium*. There are still social inequalities in the transition from primary to lower secondary school. This is reflected by the fact that children with a migration background attend a *Hauptschule* twice as often as children without a migration background – even within the same socio-economic class.

Drop in the number of students who repeat a year: The number of students who had to repeat a year was reduced from 2.7% to 2.2% overall across all three school levels. This decline was particularly striking at lower secondary level – from 3.6% to 3.1%.

The transitional system declined in importance for the first time since 2000, but young people with a migration background who only have a *Hauptschule* certificate (or lower) still find it very difficult to enter vocational training: Although the proportion of young people who entered vocational training via the transitional system declined in 2007 and 2008, it remained high at more than a third (34%; Figure 10). Despite slight improvements in access to vocational training, the situation remains extremely difficult for young people whose highest qualification is a *Hauptschule* certificate or lower, and this applies

Figure 10: Distribution of new entrants among the three sectors of the vocational training system in 2000 and from 2005 to 2008



Source: Federal Statistical Office and statistical offices of the Länder, own calculations and estimates based on school statistics; Federal Employment Agency, participants in selected employment policy measures who receive financial support for continuing training under the German Social Code (SGB); data of December 2007 (2000–2006) / March 2010 (2007–2008)

particularly to young people with a migration background. In 2008, within the group of young Germans without a migration background who showed an interest in undergoing vocational training, three quarters of those who had not completed *Hauptschule,* and about half (48%) of those who had, entered the transitional system. In the group of young people with a migration background, these numbers were 88% and 67%, respectively.

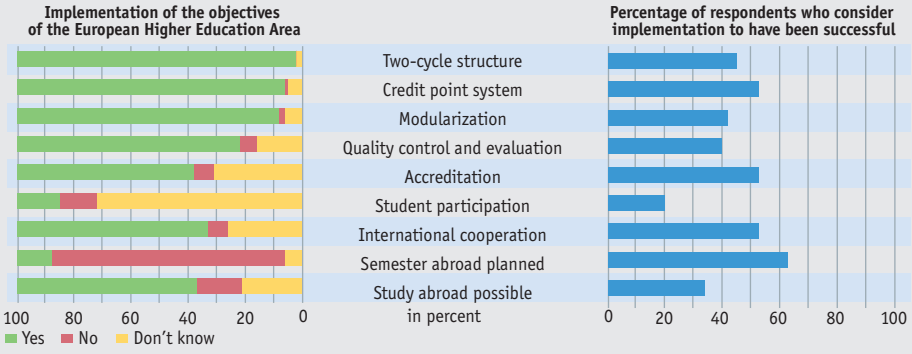
Increase in the number of new university entrants in 2009; young people from academic backgrounds more likely to go to university: Higher education entries reached a new high in 2009. Compared to 2006, it has gone up by 23%. Even in the eastern German *Länder*, where the number of people qualified to enter higher education has dropped sharply for demographic reasons, higher education entries is nevertheless rising slightly. The tendency to pursue higher education has remained stable; approximately three quarters of those who are qualified to enter higher education in any given year actually choose to do so. Even with the same *Abitur* results, young people with at least one parent who completed university are far more likely to go to university than those from a non-academic background. This basic fact has not changed significantly in the last decade.

Quality Assurance and Evaluation

In total, 17 methods to measure language proficiency in German are used in 14 *Länder*: The language proficiency of 4- to 6-year-olds is assessed in 14 *Länder* using 17 different methods. In almost all *Länder*, children who are considered to need language support have to attend compulsory extra language tuition. These measures take up between 2 and 15 hours per week for a period of 3 to 18 months. Recommendations on what sort of language support children should receive from nursery school teachers, primary school teachers or other qualified staff during this time are only available in some *Länder*.

One fifth (140,000) of all training contracts terminated in 2008: The number of terminations has remained relatively constant, but differs significantly depending on the area of training (it is highest in the skilled trades and lowest in the civil service). This suggests that the rate of terminations is not primarily linked to economic development or supply

Figure 11: Students' opinions* about the implementation of the Bologna Process in the 2007/08 winter semester (in %)



** Only students in Bachelor's degree programmes (n = 1.636)*
Source: University of Constance, Research Group on Higher Education, student survey 2008

and demand issues. Young people (particularly young men) whose highest qualification is a *Hauptschule* certificate (or lower) are most strongly affected by this.

Implementation of the Bologna reform viewed critically: University students tend to be critical of the structural reform of university studies. They are especially sceptical of the internationalization aspects (Figure 11). Particularly in Bachelor's degree programmes, only a small number of students have spent periods abroad so far.

Undergraduate dropout rate slightly down: The overall university dropout rate has increased slightly, to 24%. At Bachelor's degree level, it dropped from 30% to 25%. At this level, students tend to drop out at an early stage, citing as reasons the excessive workload and performance and motivation problems.

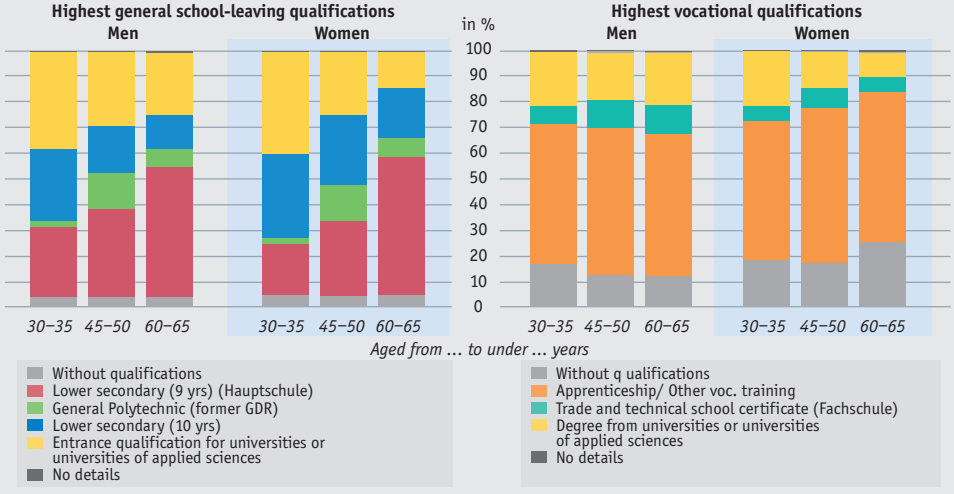
Results and Outcomes

Continuous increase in the level of qualification, particularly in the case of women: The trend towards university entrance qualifications and university degrees is continuing, whereas the percentage of people leaving secondary general school after year nine (*Hauptschule* leaving certificate) is declining (Figure 12). In contrast to the trend for women, a comparison of the figures for men aged 30 to under-35 with men aged 60 to under-65 shows a standstill in the number with a university degree (21.0% compared with 20.3%) and a rise in the number of men without vocational qualifications among the younger group (16.6% compared with 11.8%). Of the group of people aged 30 to under 35, 39% have university entrance qualifications but only 21% a university degree.

Higher achievement and reducing the influence of social background remain a challenge: The performance of 15 year-olds in the PISA reading test improved almost everywhere between 2000 and 2006. This improvement is statistically relevant in five *Länder*. Despite the increase in skills of young people with a low socio-economic status, further efforts are still needed to reduce the linkage between social background and achievement.

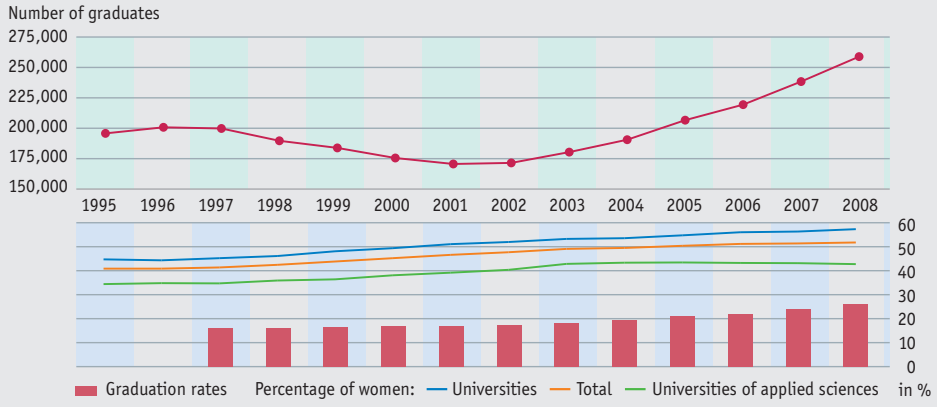
Relatively constant levels of school-leaving qualifications with an increasing share of qualifications from vocational schools; drop in the share of school-leavers without a lower secondary (*Hauptschule*) certificate: There was a marked increase in the number of people gaining university entrance qualifications (*Allgemeine Hochschulreife*) between 2004 and 2008 from 28% to 32%, whereas the figures for people with a *Hauptschule* certificate (51%), a lower secondary certificate after year ten (29%) and entrance qualifications for universities of applied sciences (*Fachhochschulreife*) (14%) remained constant. These figures include more and more young people who have gained such qualifications, or even

Figure 12: Education qualifications among the population in 2008 according to age groups and gender (in %)



Source: Federal Statistical Office and statistical offices of the Länder, Microcensus 2008

Figure 13: Graduates with a first degree 1995 to 2008 (number) as well as percentage according to gender and share of graduates (in %)



Source: Federal Statistical Office and statistical offices of the Länder, Higher Education Statistics

higher qualifications, at vocational schools after having failed to achieve them at general schools. The percentage of school-leavers without a *Hauptschule* certificate was 8.5% in 2004 and fell to 7.5% of 15-to-17-year-olds in 2008. However, this trend is only to be found in the West German *Länder*.

High number of higher education graduates with good employment prospects; one in six higher education graduates does a doctorate: All in all, more than 260,000 graduates left higher education with a first degree in 2008, 15% of them with a Bachelor's degree (Figure13). Analyses generally showed that there were good prospects of finding suitable employment following a higher education degree course. The percentage of women among higher education graduates has been above 50% since 2005; women account for almost 60% of higher education graduates. The percentage of women among people with a doctorate is also increasing, although at 42% it is still a good deal lower than the share of women among higher education graduates. Between 23,000 and 26,000 doctorates have been completed each year in Germany over the last ten years. The number of doctorates thus fluctuates considerably less than the number of graduates.

Share of persons with a tertiary degree is higher in other EU states: In 2008, 28% of the 30 to under-35 year-olds in Germany had a tertiary degree (higher education and other post-secondary institutions); this is lower than the EU average (31%). It is striking that Germany has not been able to increase the share of persons with a tertiary degree to the same extent as many other EU states during this decade.

A high level of qualification not only leads to greater individual benefits but also benefits society as a whole: University study in particular pays off for society via higher tax yields. Furthermore, a higher level of education also contributes to social integration and to a more positive assessment of one's own situation. An individual's economic position – in terms of a higher rate of employment, longer period of full-time employment and better income situation – depends primarily on their vocational qualifications; whereas the level of participation in the field of political, social and cultural life is influenced more by general educational qualifications.

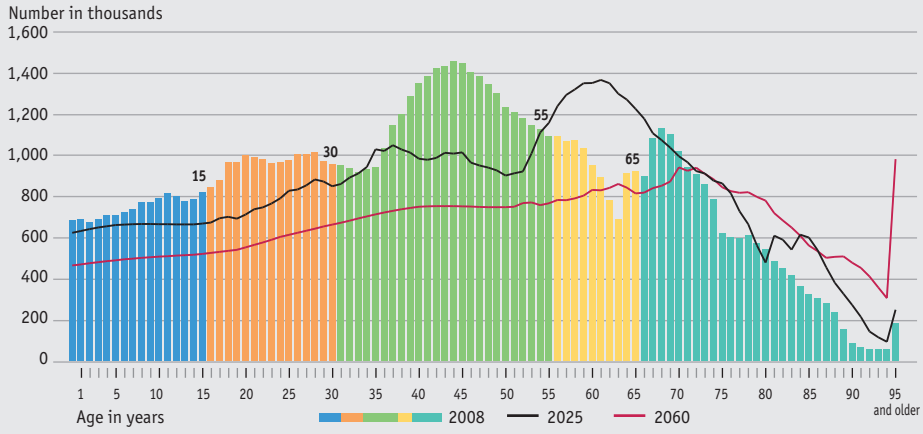
Demographic Challenges for the Education System

Considerable regional differences regarding the effects of demographic change: The overall number of people participating in education will develop along very different lines up to 2025 depending on groups of *Länder* and levels of education. The fall in the relevant age groups for secondary level II and tertiary education is particularly steep at approximately 20%. New needs are arising in the field of continuing education as the number of people over 65 increases. *Figure 14 shows the population structure in 2008 and projections for 2025 and 2060 according to age in years.*

Drop in staffing and financial requirements under a status quo projection: Assuming a constant relationship between the number of participants in education, on the one hand, and staffing and financial requirements within the levels of education, on the other, one can expect the following developments: The number of 1.14 million full-time teachers in 2008 will fall to one million in 2025. Here it should be noted that the reduction will actually affect more people due to the large number of part-time staff and will vary between the levels of education and individual *Länder*. According to the education budget, 147.8 billion euros were spent on education in 2007. Under the status quo projection, demographic change will unleash a potential of almost 20 billion euros in 2025 compared with 2007.

Projections on manpower supply and demand up to 2025 suggest only limited gaps in the supply of staff but distinct bottlenecks with regard to personal services: All in all, there will be a balance between supply and demand for manpower. However, this does not preclude larger bottlenecks regarding individual qualifications and occupational fields. As far as the development of a workforce with specific qualification levels is concerned,

Figure 14: Population structure in 2008 and projections for 2025 and 2060* according to age in years (in thousands)



** 12th Coordinated Population Projection, Basic Variant*
Example: The 960,000 30-year-olds in 2008 (in orange) will be 47 years old in 2025 (black line) and their number will have fallen to approx. 952,000. In 2060 (red line), approx. 684,000 of them will be alive and have reached the age of 82.
Source: Federal Statistical Office and statistical offices of the Länder, Population Statistics 2008

Figure 15: Manpower demand and supply for the four main groups of qualifications up to 2025

Source: Helmrich, R./Zika, G. (2010): BIBB/IAB Projections of Qualifications and Main Occupational Fields. Brief expertise commissioned by DIPF, own presentation

there will continue to be a fall in demand for unskilled and low-skilled work and a rise in highly skilled activities which presuppose university training (Figure 15). Medium-level qualifications will probably remain relatively constant or show a slight decline. According to the predictions, the share of the workforce without vocational training will continue to fall between 2005 and 2025. It is likely to become even more difficult for people who have not completed vocational training to find a job in future because their number will exceed demand by approximately 1.3 million by 2025. Viewed according to occupational fields, the most serious staff bottlenecks are to be expected in the personal services sector. There will be a particular need for more qualified staff in the health and social occupations at the medium and highest levels of qualification.

Taking into account the specific developments and intended changes, the key results for the individual levels of education are as follows:

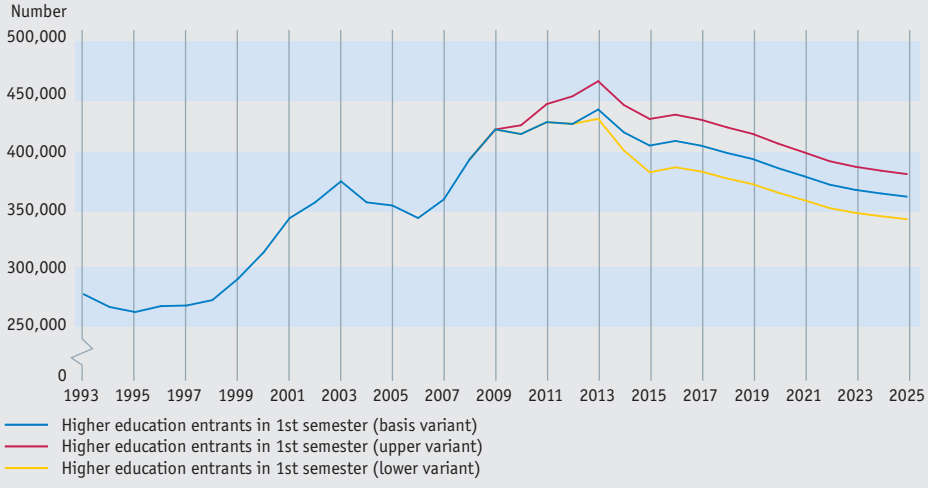
Expected fall in the number of places required for children of nursery school age; however twice the present number of under-three-year-olds in day care to be expected by 2013 in the western *Länder* (excluding Hamburg, Bremen and Berlin): In the pre-school sector, the drop in the birth rate is offset by the expansion of day care places for under-three year-olds. Nevertheless, the eastern German *Länder* must expect a considerable fall in the demand for places (by 19–21%) and staff (by 20–25%) up to 2025. The resulting financial leeway would be approximately sufficient to adapt the very much less favourable staffing ratio in the eastern *Länder* to the situation in West Germany. Beyond the fall in demand for nursery school places in the western *Länder* (excluding Hamburg and Berlin), measures

will have to be taken to expand care for under-three year-olds in day care centres or family day care. This would lead to additional staffing and financial requirements if care services had to be provided for more than 35% of under-three year-olds. Due to the rise in the number of children, the city-states of Hamburg, Bremen and Berlin must increase their range of services for both under-three year-olds and three to six year-olds. The West German *Länder* (including the city-states) will need at least an additional billion euros in order to finance the agreed expansion of day care by 2013; should there be additional demand, this figure may more than double by 2025.

Fall in the number of students in the school sector: The total number of pupils and students at general schools will fall from 9 million in 2008 to 7.3 million by 2025. The West German *Länder* (excluding the city-states) will be particularly affected by this drop in numbers. Under status quo conditions, the reduction in the need for staff and funding in the school sector will amount to roughly one fifth by 2025. The present analyses did not aim at calculating the additional funding needed to improve the quality of school education. However, numerous measures resulting from the seven fields of action of the KMK (Standing Conference of *Länder* Ministers of Education and Cultural Affairs) have only been implemented inadequately in the past. The emerging financial leeway will thus be needed in particular for improvements in the school system.

Relative consistency in the medium-level vocational training sector with possible shifts from the dual system of education and training to the vocational school system and a reduction in the transitional system: A projection based on the need for manpower forecasts that the number of new entrants to dual training and the vocational school system in 2025 will be a mere four percent below the current level. Based on the target of the 2008 Education Summit of halving the percentage of young people without vocational training to 8.5%, this presupposes a sharp reduction in the number of unserved applicants and in the transitional system. In contrast to the status quo projection, this projection

Figure 16: Variants of the projections for the number of higher education entrants* 1993 to 2025



** Including colleges of public administration and vocational academies (from 2010)*
Source: Federal Statistical Office and statistical offices of the Länder, Higher Education Statistics, Education Projection 2010 – preliminary results

forecasts staff reductions and savings only in the transitional system in 2025. These savings should be used for long-term improvements in career orientation and training preparation in schools.

Demand for higher education will remain at a very high level until 2025 at least: The follow-up of the Higher Education Pact for the period 2010 to 2020 foresees an additional 275,000 new entrants by 2015. According to the status quo assumptions, capacities will be needed for a further approximately 64,000 new entrants by 2015 (Figure 16). The continued increase in students over the coming years means that staff and financial requirements of the higher education system will remain at current levels or above until about 2018. Only then could a decline set in, should the new tasks of universities in the field of continuing academic training, courses for foreign students and the elderly, which are regarded as important, not be taken into consideration as additional tasks.

Changes in the age structure of participants in continuing education: Unless efforts are increased to encourage continuing education for older employees and to provide training for adults without vocational qualifications, the growing group of older people, who have only taken part in continuing education to a limited extent in the past, would mean a sharp reduction in the number of people participating in continuing education by 2025. In view of society's increasing need for continuing education in all age groups following initial training, efforts should be made to extend the range of measures available in this field, with a corresponding increase in staff. Apart from such extension, it would also be wise to enhance the professionalization of staff working in continuing education.

Central Challenges

The findings on current developments and constellations in the education system as well as the results and deliberations concerning the future of education against the background of demographic change point to a number of central challenges which will be decisive for the viability of the German education system.

Stronger measures must be taken to deal with the increasing rift between the education biographies of those children and adolescents who make successful use of existing educational opportunities and those where disadvantages tend to accumulate: The paths taken in the different phases of a person's education biography vary particularly according to gender, social background and migration status and lead to disparities in educational involvement and thus to differences in educational and life opportunities. These increasingly segregative factors contrast with the inclusion and integration mission of the education system. A central challenge therefore is to grant all young people social and societal participation by providing them with a level of education which corresponds to the level of societal development.

Measures to impart knowledge and skills and targeted educational support, assistance and guidance must be more closely linked at all levels of education: The educational and the support and guidance functions of the education system are closely interrelated. This is currently not sufficiently taken into account. In particular, public educational establishments are increasingly taking over tasks traditionally performed by the family as state provision is extended to cover additional phases of education. At all levels of education, it is important to do justice to the growing cognitive demands of a knowledge-based society as well as to meet expectations regarding continuous support and guidance for all participants in education.

The potential resulting from fewer participants in education represents a decisive basis for tackling the problems and challenges described above: Demographic change will accelerate many developments and processes of reform in education. This provides both chances and creative opportunities. Structures and organizational forms of lifelong learning can be developed or newly designed in order to be prepared for future challenges. Therefore, the resources for education must be kept at the current level, and even increased where new tasks are to be addressed. This can only be achieved if the Federal Government, the *Länder* and local authorities give long-term political priority to education.

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(DIPF – German Institute for International Educational Research)
Deutsches Jugendinstitut
(DJI – German Youth Institute)
Hochschul-Informations-System GmbH
(HIS – Higher Education Information System)
Soziologisches Forschungsinstitut an der Universität Göttingen
(SOFI – Sociological Research Institute)
Federal Statistical Office and statistical offices of the Länder

The German Institute for International Educational Research (DIPF) is responsible for coordination.

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