

The Future of European Education and Training Systems: Key Challenges and Their Implications

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European Expert Network on Economics of Education (EENEE).*

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Future Challenges for European Education and Training Systems

With the Lisbon Strategy, education and training (E&T) entered the centre stage of European policy making. It was realized that lifelong learning is a key driver of the Lisbon Strategy as expressed in the integrated guidelines for both employment and, as part of the knowledge triangle, for growth, affecting innovation, competitiveness and sustainable development. The leading challenges in the field of E&T were embedded in the existing policy framework and open method of coordination supporting the Lisbon process as documented in the “Education and Training 2010 Work Programme”. Now, there is need to think forward about what European E&T systems will look like beyond 2010, and to develop the strategic basis for the follow-up to the Lisbon Strategy post 2010.

As a basis for the European Commission’s forward thinking, this report provides first ideas on future perspectives for European E&T systems in the medium and long term, based on the existing knowledge in the economics of education. Given the nature of the topic which is oriented far into the future, this task by necessity has to be mainly a brainstorming exercise. Against this background, the report distils four key challenges for the future of European E&T systems and provides a first discussion of their possible implications for a strategic framework for E&T policy in Europe beyond 2010. The four key challenges that we identify are:

- I. Demographic and Population Change
- II. New Forces of Global Competition
- III. A Long-Run Perspective on Social Cohesion
- IV. Enacting Innovation under Given Political Realities

These key challenges are main drivers that are going to affect how European E&T systems will look like in 2020. Each of them will have substantial implications for policy and for the possible consequences of different policy options that European policymakers have at hand. For each of the four key challenges, we identify four important areas where they will have profound implications for European E&T systems and policy. Addressing these critical factors constitutes a pivotal part of the strategic challenge for the future of European E&T systems.

Key Challenge I: Demographic and Population Change

The Challenge

Ageing of the population is a leading phenomenon in all the European countries and will be aggravated in the coming decade until 2020. The enlargement of the EU did not change this trend because the new Member States in Eastern Europe show the same demographic patterns as the other Member States. This new age structure in Europe affects almost all parts of society such as health systems, consumer structures and also E&T systems. Trend scenarios of Eurostat (2007a) show that between 2005 and 2015, the number of children aged 14 years or younger will decrease by about 15 million in the EU 25. At the same time, the population aged between 55 and 64 years will increase by about 4 million. Until 2050, the population aged above 80 years is supposed to augment to 51 million in the EU 25, a doubling of the 2005 number. The share of old people in the population will be significantly higher in Europe than in other world regions such as Asia and Africa.

The reasons for these developments are twofold. First, there is a considerable reduction in fertility all over Europe, leading to lower birth rates. The fertility rate decreased from 2.7 children per family in 1964 to 1.4 in 1999. Second, life expectancy has increased substantially over the last decades. In the past 45 years, life expectancy at birth increased by about eight years for men and women. The contributions of modern medicine to a longer life are one important reason for these changes.

Therefore, Europe has to deal with a reduction in the working age population and a higher share of people of retirement age. To overcome the social and economic consequences of these evolutions is a key challenge for European politics until 2020, and not least for E&T systems. In addition to general needs for adjustments, an increasing share of the elderly in society may also be associated with reduced willingness to spend money on education (Cattaneo and Wolter 2007).

In the field of E&T, the necessary alignments to the changing population structure require adjustments at all levels and systems of E&T (Section I-A). The future workforce of Europe will be recruited increasingly from the older population. This raises the need for an improved training system especially for this group because economic growth in Europe will deeply depend on their performance in the labour market (Section I-B). The aging process affects all groups of society. Because teachers constitute a crucial part of a high-quality education system, Section I-C explicitly concentrates on their aging process. The most important

challenge in this field is how to ensure high quality in the existing teacher force and simultaneously recruit new young talents for this job.

The ageing process is only one part of the new population structure in the next decades. In addition, the future population of the European countries is characterized by large flows of migration to and from the EU 25. Important driving factors for this development are the economic attractiveness of the target countries (pull factor) and social and economic problems in the respective home countries (push factor). On the one hand, if Europe receives young high-skilled workers from outside of the EU, this trend can help to overcome the problems arising by an ageing workforce described above. On the other hand, Europe may lose high-skilled workers due to the so-called brain drain to countries outside the EU. Section I-D describes both aspects of migration and their consequences for the E&T system in greater detail.

Implications for European E&T Systems

I-A Efficient Adjustment of Overall E&T Systems

Adjusting education and training during times of fast demographic changes is a general challenge of the overall E&T system. It is obvious that, especially in the short term, reallocations of all inputs in the E&T system are necessary to create an efficient distribution of resources. Europe is confronted with a considerable cohort size change in the near future. Reduced birth cohorts first affect the pre-school and primary school systems. On the one hand, policymakers have to carry out the necessary cutbacks in terms of financial resources and other endowments if there are lower birth rates. In general, a smaller total number of teachers may be needed because of the decline of the school population.

On the other hand, there is need to ensure sufficient supply in all regions of the countries even if there is a reduction in the amount of children. Responding to smaller cohort sizes by closing schools and by consolidating schools in rural areas with others in more urban regions could increase the risk of disregarding adequate supply in some rural regions.

Rather than shifting resources to other policies (cf. Section IV-A), released budgets by lower costs in the schooling system can be used for those levels of E&T where the demographic change implicates higher resources. That is particularly the case for training issues which aim to improve the competitiveness of the older workforce in the global economy.

I-B Training the Elderly

Given the current structure of labour force participation, the ageing of the European population is likely to affect total labour supply. It will also affect labour productivity if workers aged 50 or older are less productive than workers younger than 50. Investment in human capital formation is often seen as a key policy to retain the older in the labour market and to upgrade their productivity (see OECD 2006). Training can also help in principle those in the older age cohort to partially compensate the foreseeable decline in their relative wage, induced by the increase in their supply relative to the supply of younger workers (see Brunello 2007).

In spite of the potential importance of training, training incidence declines substantially with age. One reason for this is that the time left in the labour market is often too short to recoup the costs of the investment, especially if these costs are borne by the employer. By altering the time left to retirement, pension reforms that reduce the implicit tax on continued work and increase the minimum retirement age can improve the incentives to invest (see Bassanini et al. 2007). Another reason for the declining incidence of training with age is that education and training are complements (learning begets learning, see Heckman 2000), and the older generations are typically less educated than the young. This problem is particularly severe in Southern Europe. If we consider the cohort aged 35 to 54 today – which will be aged 48 to 67 in 2020 – less than 60 percent of this age cohort has attained at least upper secondary education in Spain, Italy, Portugal, Greece and Ireland. In sharp contrast, this percentage is well above 80 percent in Germany, Denmark, Sweden and Norway.

In spite of the lower training incidence among older workers, it is not clear why and how governments should intervene in the training market. Compared to the young, older workers are less likely to face liquidity constraints that prevent them from investing. Nor is it clear why public resources should be directed to train the old and poorly educated, with benefits that are usually rather poor, rather than to the young and better educated, for whom the expected benefits are higher (see Heckman 2000; see also Section III-A).

The complementarity between education and training suggests that training incidence among the older can be raised if measures are taken to ensure that basic literacy and skills are acquired. An example in this direction is the Norwegian Competence Reform, which establishes a legal right for adults to the education required to attain upper secondary education. Oddly, these policies are more widespread in Northern Europe, where there is relatively less need compared to Southern Europe.

More generally, if desired training policies need to be designed to reduce deadweight losses while providing adequate incentives to targeted individuals. A good system of vocational training and continuing education needs to be adapted to market needs and help people keep their skills up to date. There is dire need to understand better whether and how those who failed at school can be re-educated (at age 30 to 50) to move between industries and firms.

I-C Aging of the Teacher Force

Demographic change does not only affect the population at large, but also – and particularly – the teaching profession. In the average OECD country, 26% of primary-school teachers and 31% of secondary-school teachers are aged over 50 years (OECD 2005). European countries with particularly large fractions of teachers aged over 50 include Germany (47%), Denmark (45%) and Sweden (43%) in primary school and Germany (49%), Italy (48%) and Sweden (44%) in secondary school. As few as 5% of teachers in Italian lower secondary schools are younger than 40 years. Marked trends towards an ageing teaching workforce are also evident in France, the Netherlands and the United Kingdom.

An ageing teaching force means that teaching experience increases, but also that additional efforts may be required to update existing skills. While research does not generally find important effects of teacher age or experience on student learning, experience of burn outs of teachers may be an issue. The ageing of teachers is also related to the important issue of teacher quality more generally (see Section II-B).

Existing recruitment concerns in many European countries may be aggravated by an increased prevalence of teacher retirement. This may require additional action in terms of training and recruiting new teachers in order to avoid teacher shortages.

Finally, because most countries at least to some point link teacher pay to teacher age or experience, the ageing of the teaching force has a tendency to increase the education budget per student. These increased costs of schooling may limit the manoeuvring space due to reduced student cohorts.

I-D Migration: Brain Drain and Brain Gain

The emigration of high-skilled people to countries outside the European Union, in particular to the United States, is a phenomenon that can be observed all over Europe. Especially young university graduates are attracted by better working conditions and higher wages abroad so that they leave their home countries. This loss of high qualified talents and professionals is a

major risk for Europe's position as a competitive, knowledge-based region in the world economy because this brain drain is linked to location decisions of high-technology industries and the respective jobs in these sectors. The brain drain aggravates the problems of demographic change by particularly pulling away young professionals who could make important economic and social contributions to the European economy.

There is need to identify the push factors for the emigration of young high-skilled talents out of Europe's E&T systems. This is, above all, a challenge for tertiary education because students and researchers constitute the main part of these emigrants. Therefore, providing an attractive framework to retain these talents in Europe is the major task. The building of "centres of excellence" which concentrate on making progress at the leading edge of current knowledge and innovation may be one element in this (see also Section II-D).

But addressing the main drivers of the brain drain is only one challenge. E&T systems in Europe should also see the perspectives and opportunities coming along with global labour markets. So it is not sufficient to hold high-skilled individuals in Europe, but a focus should also lie on gaining back European professionals already working or studying outside of the EU and, additionally, on attracting new talents from countries outside of the EU. The respective pull factors for this brain gain can be found in a tertiary education that is open to students and researchers from abroad and encourages academic and scientific exchange between Europe and other countries and regions.

Key Challenge II: New Forces of Global Competition

The Challenge

Besides the overall trend that globalization will proceed during the coming decades, a considerable shift in the distribution of the economic powers in the world can be observed. Whereas during the past decades of the 20th century Europe, North America and Japan were the most important players in the world economy, some emerging regions and countries are supposed to take over the leading role as future major forces during the coming decades. Especially the economic development of the so-called BRICs (Brazil, Russia, India and China) seems to be the driving force behind this change in the global economy.

Forecasts by leading economists suggest that China in particular may increase its share of world GDP from 11% today to 40% in 2040 (Fogel 2007). At the same time, the stark

forecasted decline of the European Union (EU 15) from 21% today to 5% in 2040 has been deemed “the most unsettling of the forecasts” by Nobel Laureate Robert Fogel (2007, p. 2).

Projections indicate that, within the next 40-50 year, the overall GDP of the BRIC countries could exceed those of the largest EU countries, the United States and Japan (OECD 2007a). Over the past 15 years, the trade volume grew by over 50% as a proportion of GDP in Russia, nearly doubled in China and more than doubled in Brazil and India (Eurostat 2007b). The BRICs are thus one of the most important trading and investment partners of the EU-25. Moreover, the returns to investment in these countries are the most profitable ones among all investments outside the European Union. Obviously, these facts show that almost all firms, and hence workers, in the EU have to compete directly or indirectly in the global world and its emerging key players.

For the EU countries, these future perspectives are challenging because the industry structure has to change in order for the countries to maximize the growth potential opened up by globalization. This in turn raises many challenges in the field of E&T.

First of all, the ongoing offshoring and investment of European firms in the BRIC countries reveals the comparative advantages of these emerging economies, particularly in labour-intensive jobs. This may put additional strain on the declining demand for lower-skilled labour in the European Union. Without changes in the E&T systems, unemployment rates will rise among low-skilled labour and wage differentials will increase. Future European policies for E&T systems should therefore strengthen the European advantages in offering a high-skilled labour force and increase efforts in augmenting the quality of schooling and training all over the lifecycle. Countries like India and China are starting to catch up on the supply of high-skilled workers, possibly leading to more changes in the working life and industry structure and thereby aggravating the need of modernizing education and training in Europe in order to ensure high living standards for all. Section II-A outlines the most important issues and measures emerging in this field.

A key aspect in maintaining the competitiveness of education and training in Europe is the quality of the teaching force (Section II-B). Several changes and incentives may help to improve the quality of the teaching force in Europe in order to improve the educational outcomes of all participants in the system. Furthermore, governance structures of European E&T systems have to adopt in order to deliver globally competitive outcomes (Section II-C).

The challenge is to create an administrative environment that enables the necessary reforms and facilitates future evaluations of the taken measures.

If Europe wants to strive in light of the future global economic forces and catch up to the world technological frontier, its E&T systems have to generate new knowledge and technologies. Section II-D discusses the challenge of generating an E&T system, especially at the tertiary level, that encourages innovative ideas and entrepreneurship.

Implications for European E&T Systems

II-A Strengthening High-Skilled Labour to Face New Global Competition

In general, the emerging economies of the BRICs have a comparative advantage in producing labour-intensive goods, while the industrialized countries of Europe have a comparative advantage in supplying goods which require more high-skilled labour. But the BRICs are also starting to become a rival in the supply of high-skilled workers. Therefore, Europe's strategy in E&T has to concentrate on retaining and strengthening its leading position as a knowledge-based economy in order to face the competition of the BRICs. Low-skilled workers and especially people who dropped out of school without any degree (see Section IV-B) will find it hard to compete in the global low-skilled labour markets and will be increasingly faced with unemployment. This creates a leading challenge over the whole lifecycle. Research increasingly shows that the basis for a high-skilled labour force already starts with a high-quality educational environment in early childhood and also includes an improved strategy for lifelong learning. Particularly, there is a need to have sustainable funding mechanisms for all these steps of education which are flexible enough to deal with the continuing demographic changes to be expected in the future (see Section I-A).

Increased mobility of workers and students within the European Union may prove crucial to maintain and develop Europe's advantage in providing a high-skilled labour force. EU-wide mobility may facilitate the availability of high quality education on a broader basis for all people in the European Union. As a by-product of internal mobility, important language skills could further improve the position of European workers and students. This requires further development of the framework of the Bologna Process until 2020 and beyond.

II-B Focus on Teacher Quality

Research corroborates the common sense that teachers are extremely important for student achievement (e.g., Rivkin et al. 2005). The variation across teachers in terms of their impact

on student achievement seems to be of the same order of magnitude as the impact of family background. A high-quality teacher workforce is therefore crucial for the performance of E&T systems as a basis for future global competitiveness.

Some countries experience that many teachers leave schools for more attractive alternatives. In a medium term perspective, it is important to keep the high-quality teachers within teaching. More importantly, in both the medium and long term perspective it is essential to recruit talented students into the teacher education and provide them with a relevant education. This is particularly important in light of the aging of the teacher workforce (see Section I-C). In order to recruit talented students, teaching must be regarded as an attractive profession. Under the globalization process, the working conditions and career possibilities have changed for most workers. It may be important to allow for similar changes also for teachers. The working conditions for teachers today differ markedly from other professions with about the same amount of education, and this fact will probably not be regarded as an advantage for potential students in the future. For example, the availability of on-the-job training and career possibilities within the teacher profession may be regarded as more important in the future than it has been in the past. Making teacher jobs more similar to other jobs will in turn require more flexible work loads and wages. For example, in many countries it is difficult to recruit teachers in natural science, which calls for appropriate compensations in terms of higher wages or other means.

It is a common view that teacher education needs to be reformed. This is probably true in many countries, but research has not established credible evidence on which type of education is most successful. Contrary, research indicates that the general type and amount of education of teachers do not have a major impact on student achievement. A lot more well-founded research is needed to provide the basis for evidence-based reform of teacher education.

In general, an important ingredient in improving teacher quality lies in a strengthened focus on providing the right incentives to schools and teachers, so that behaviour that is conducive to students' actual learning is rewarded and behaviour detrimental to student learning is sanctioned. This requires new institutional arrangements and incentive schemes in the governance of schools and E&T systems more generally.

II-C Governing the E&T System to Be Globally Competitive

Education is mostly publicly provided in most countries. But when market forces are out of play, other incentives are crucial in order to stimulate efficiency and high student

achievement. Intrinsic motivation of the actors in the education system is without doubt important, but relying only on intrinsic incentives is a risky strategy for such a large and important industry as education. At least there is no reason to believe that the intrinsic incentives are of similar intensity for different cohorts of teachers. Thus, an active and evidence-based governance of education are likely to be crucial to improve the performance of E&T systems in order to make it globally competitive.

The evidence-based approach calls for experiments and evaluations at all levels of education and training. Often it is hard to know what the best policy is, so that it is crucial to have a strategy for evaluation instead of relying only on abstract approaches. Evaluations in turn must be based on data of the outcomes that are regarded as the most important tasks of schools. The appreciation of the importance of evidence-based policy must be followed by collection of vital and comparable data on the functioning of schools.

Governance must mainly rely on external incentives. Mobilizing the private sector will contribute in this direction by introducing elements of markets. This must, however, be done in a careful way to ensure that low-performing students also profit from individual choices. Within public sector schools, decentralized decision-making will utilize local knowledge, increase the influence of parents who care about the progress of their children, and make inefficient use of tax money more visible. However, decentralization may fail because of information problems, given that school outcomes are hard to observe. Therefore, national (or EU based) accountability systems will help to overcome information problems and make decentralization effective. In particular, it is important to identify bad schools in terms of achievement growth in order to promote cohesion. Evaluations of programs and outcomes at all levels of education and training can provide the broad public with access to reliable comparative information, within and between countries.

II-D Education for Innovation

Human capital plays a prominent role in modern theories of economic growth, and empirical evidence strongly supports the key role of education in economic growth (Hanushek and Wößmann 2007). High levels of human capital are necessary for sophisticated production processes of goods and services as well as the innovation of new products and processes. The latter aspect is of particular importance as new growth theories emphasize that long-run growth is driven by innovation. Innovation, however, requires research and development (R&D) as well as skills. In order to conduct R&D, the E&T system must supply individuals

with the necessary skills. This is typically the task of institutions of higher education. R&D employees need to have obtained very specialized and particularly high quality qualifications.

As a consequence, the challenge for any education system is to efficiently organize its structure and to allocate resources such that a sufficient supply of labour is guaranteed for both the production and the R&D sector. For an innovative economy in a globalized world, it is mandatory to increase efforts to enhance the quality of education at the top end of the educational distribution.

This might be of particular importance for the EU. Recent contributions to the growth literature argue that growth-enhancing policies and institutions depend strongly upon technological development, because the engines of growth vary with the stage of development (e.g., Aghion and Howitt 2006). While growth of economies close to the technological frontier can only be driven by innovation, economies further away from that frontier can also grow based on imitation.

Such an argument could explain why EU growth rates have fallen as it has moved closer to the technological frontier. As a consequence, the EU faces the challenge to adjust its higher education system in order to increase economic growth. This would require higher spending on R&D and higher education as well as reforming the structure of the higher education system. In particular, it raises the question whether the foundation and the support of elite institutions in higher education could be beneficial in terms of creating a more innovative economy or whether a broader supply of medium-range institutions is more conducive to growth – a question on which empirical evidence is mostly lacking. The challenge of sustaining growth near the technological frontier also requires fundamental changes in the governance of European higher education institutions, which require more autonomy, less state intervention and more competition. Finally, in order for R&D to be successfully transformed into actual innovation, another important focus will have to lie on educating people to be entrepreneurs for future innovation.

Key Challenge III: A Long-Run Perspective on Social Cohesion

The Challenge

The new forces of global competition described above will create increasing pressures for the maintenance of social cohesion within Europe. Because the distribution of education is crucial

for societal inequality (e.g., Nickell 2004), the education system is also a key institution affecting social cohesion. Europe is therefore faced with the additional challenge of taking a long-run perspective on improving social cohesion by appropriate developments in the E&T systems. Expected future decreases in the demand for unskilled labour in the EU will additionally foster the importance of education for societal inequality. Hence, increasing the educational level of the lowest quintile of the “ability” distribution as well as improving the equity of the educational system are major challenges for educational policies in the 21st century.

Differences in parental background are a key determinant of differences in initial knowledge levels at school entry and of differences in the learning process at early stages of the educational career. Moreover, empirical research has shown that returns to educational investments are highest at early stages and, in particular, for children from disadvantaged families (cf. Cunha et al. 2006; Wößmann and Schütz 2006). Early intervention in the educational system therefore becomes a matter of ensuring equal opportunities as well as a matter of improving efficiency. The adequate policy response must be to strengthen early childhood education through a generalization and strengthening of pre-school education (Section III-A). This fosters equal opportunities for all children and ensures that investments in the educational system are made where the returns are highest. It is therefore important to generally implement and institutionalize early childhood education especially for those who are disadvantaged and do not experience an educationally stimulating environment at home. Such policies must be flanked with establishing quality control mechanisms in pre-school education and day care.

In addition to ensuring an early start with equal opportunities, individuals have to be encouraged to stay in education for an adequate time (Section III-B). As education becomes even more important as a determinant of social and economic well-being in the future, it is of utmost importance to tackle the problem of early school leaving. Due to skill-biased changes in the demand for labour, the uneducated are increasingly faced with dangers of unemployment. Hence, policies must be promoted that assist those likely to drop out of school until they reach an adequate level of education. Designing such policies must be supported by increased research efforts on early school leaving, as too little is known about the determinants of dropping out of education.

Both securing an adequate early childhood education and providing incentives to stay in education are of crucial importance especially for socially disadvantaged groups. In particular,

this is the case for individuals with a migration background (Section III-C). As the number of people living in the EU with a migration background is expected to increase in the future, integration of this group of the population will become even more of a challenge. Education can serve as the basis of social integration and as the best guarantee possible against exclusion, unemployment and discrimination. Hence, it is crucially important to design educational strategies to better assist children of immigrants in schools.

While securing equal opportunities is primarily a matter of assisting children from disadvantaged groups in the population, it is not the economical parental background alone that matters. A socially and economically disadvantaged background also stands for additional important drivers such as the appreciation of education and the value parents give to their child's education. Hence, the "thirst" for education must be fostered (Section III-D). The benefits of receiving a good qualification must be better communicated and visualised to both parents and students.

Implications for European E&T Systems

III-A Need to Strengthen Early Childhood Education

Empirical studies have revealed two important facts: Returns to education are highest at early stages of the educational process, and receiving institutionalized pre-school education is mostly beneficial for children from socially disadvantaged groups of the population (cf., e.g., Cunha et al. 2006). Hence, strengthening early childhood education is a matter of both efficiency and equity.

In terms of efficiency, the goal must be to design pre-school education such that children are confronted with learning in a playful manner. Creating high-quality education at the pre-school level can act as a multiplier for future educational returns and potentially raise overall achievement at later stages.

In terms of equity, the goal must be to secure an adequate pre-school education for everyone. While institutionalized early childhood education is already widespread in many European countries, it is often precisely the group of children not attending pre-school education that would gain the most from it. A particular example would be children of immigrants (cf. Section III-C). Quite often these children are disadvantaged at school entry simply because of language problems. A generalized and institutionalized early childhood education could substantially reduce these disadvantages.

The success of a generalized system of day-care and pre-school institutions crucially depends on the implementation and maintenance of educational standards already at this level. While this is unlikely to be achievable through tests at this early stage, it is all the more important to design strategies to ensure quality control in pre-school education.

III-B Addressing Early School Leaving

Low achievement in school and early school leaving are among the most important factors explaining social exclusion (see Tsakloglou and Papadopoulos 2002). Individuals who fail to learn in school and achieve any recognised qualifications will inevitably face enormous difficulties in securing employment in the labour market and are most unlikely to progress into higher or vocational education to enhance their life chances. Statistics compiled by Eurostat reveal high early school-leaving rates across the EU. Moreover, in several countries these rates show signs of an increasing rather than decreasing trend.

Simultaneously, the phenomenon of “Not in Employment, Education or Training” (NEET; cf. Istance et al. 1994) is growing in all European countries. For example, it is estimated that in Britain alone 1.1 million people are part of this growing group of people who have left full-time education at the earliest opportunity with little or no educational qualifications. This large group of young people are a massive social and economic drag on society that is vastly disproportionate to their numbers.

The persistently high rates of early school leavers in the EU and the associated high risks of unemployment, marginalisation and, ultimately, social exclusion incur considerable individual, social and economic costs. Deteriorating job prospects for the low-skilled threaten to raise these costs further. Equally important, facing up to a shrinking and ageing workforce (cf. Key Challenge I) it is of utmost importance that the EU succeeds in making full use of the human resource potential that the youth represents. Each youngster needs to acquire basic competences to be capable of learning, working and achieving fulfilment in a knowledge-based economy and society.

In EU member states, about 20% of young people aged 15 achieve only the lowest level of proficiency in the fundamental domain of reading literacy (according to the PISA survey). Reducing early school-leaving rates and improving achievement levels in school would foster the employability and adaptability of young underachievers and, hence, contribute to raising labour force participation and economic growth, while ensuring social inclusion.

Although early and sustained intervention is commonly seen as the most cost-efficient way of tackling the problem of early school leaving, there are other tools as well. The employability and adaptability of young underachievers may be enhanced also through vocational training provided by active labour market policies and company-provided training.

A major reason for the failure to reduce early school leaving is that the action undertaken by Member States is often piecemeal with policies mostly consisting of special measures to support the most vulnerable students outside the mainstream E&T system. One other crucial factor hampering progress in this field is the limited evidence-based knowledge available on the complex patterns underlying early exits and subsequent under-performance in life in general and in working life in particular.

III-C Immigration: Integration through Education

Currently, 18.5 million people with a migration background live in the EU. In the future this number is expected to rise as Europe partly depends on immigration to counter a shrinking workforce. Hence, integrating immigrants into the European societies is of key importance and one of the major challenges of the 21st century. Integration is an economic necessity because immigrants need to be sufficiently integrated into the labour market to ensure positive effects for economic growth. Moreover, it is a social and ethical necessity to provide immigrants with the opportunity to become fully integrated into their host society.

Education obviously plays a central role in the integration of immigrants into the European societies. Education and training of immigrants are the best foundation for social integration and the best guarantee possible against exclusion, unemployment and discrimination. The challenge of integrating immigrants is closely linked to the problem of early school leaving as a large proportion of school drop-outs are children of immigrants. This statistical fact is most likely driven by low intergenerational mobility and thus reflects a vicious circle that needs to be broken for reasons of efficiency as well as equity.

Ensuring equal opportunities for immigrants, however, can only be achieved by improving integration of immigrant children in schools. Hence, an effort must be made to design and implement policies that guarantee an optimal integration. Moreover, the earlier in the education process this investment is made, the more productive it will be. Therefore, the challenge of integrating immigrants is also closely linked to the need to strengthen early childhood education, in this case with a particular focus on strengthening language skills for the respective host country.

III-D Creating the Thirst for Education

As every teacher knows, you cannot educate those you cannot motivate. In particular, in many cases teachers have to come up against their students' sense that the classroom is not for them. The foundations for such an attitude are laid early and, to a large extent, outside of school. The consequences of it can be fatal. Failing to create a thirst for education already at very early stages in life can lead to subsequent under-performance in school and eventually early school drop out. Moreover, in a rapidly changing economy, adaptability and permanent acquisition of new skills and knowledge is more important than ever to ensure success on the labour market. In this regard a thirst for education that is created at early stages and maintained throughout life fosters life-long learning and forms the basis of the modern knowledge society.

It is therefore a key challenge to create a general appetite for learning in Europe. This is particular important for disadvantaged groups in the population. The economics literature finds overwhelming evidence for an inter-generational transmission mechanism in terms of educational levels. However, the dependence of schooling outcomes on parental background cannot be entirely explained by genetics. Neither can it be attributed to liquidity constraints in educational systems that are largely publicly financed. At least to some extent, the disadvantage that children with poor socio-economic background face in modern school systems seems to stem also from the low value that their parents place on education. If parents have low appreciation of education themselves, children often start off school with low levels of knowledge, receive less assistance at home, are less motivated to study and are more likely to suffer from a downward pull of peer pressure.

Creating the thirst for education is of course not an easy task that can be directly implemented, and it is not obvious how educational policies can address this challenge. On the one hand, it simply demands a better understanding of students and parents of how important education is for success on the labour market in the 21st century. Policies can help in communicating and disseminating this understanding. On the other hand, the thirst for knowledge can be awakened within the educational system. Early childhood education can slowly introduce children at an early stage to learning in a playful manner, which can lay the foundation for an increased motivation to study also at later stages. Moreover, teaching methods play a prominent role when it comes to providing education that can enthuse and engage.

Key Challenge IV: Enacting Innovation under Given Political Realities

The Challenge

The previous challenges have indicated that there is dire need for the implementation of innovation and reform in the E&T systems. For this to happen, political realities have to be faced. The delivery of education and training services is not taking place in a vacuum. Given the historical dominance of the public sector in running schools and training centres, it is strongly influenced by political decisions regarding the institutional setting and the allocation of funds. There are several groups of stakeholders involved in the E&T process, each with divergent interests and goals. For example, students may be expected to want easy access to obtaining a diploma that leads to jobs; teachers and professors to want higher pay; and politicians to want votes that will keep them in office (Psacharopoulos 2007). In such a world, there is no automatic insurance that the best reform innovations will actually be enacted.

Partly as a result of this, many education systems face the problem of inertia, in that no major reforms take place to address fundamental structural problems. Most reforms deal with minutia or consist of “fire fighting” in sub-sectors of the system. Budget allocations to and within education generally do not vary substantially over time (e.g., OECD 2007b). Moreover, education has to compete with other political priorities, and given the long-term character of its benefits, it often loses in the fight for political preference against projects with more obvious short-term benefits that accrue within a given voting period (Section IV-A).

Actual practice diverges strongly from research findings in the economics of education (Section IV-B). The financing of higher education can serve as an example. There is a general agreement in the research community that tuition-free higher education is not only inefficient (internally and externally) but also inequitable, while a combination of tuitions fess with income-contingent loans would improve both on the efficiency and the equity of outcomes (e.g., Mishan 2002; Barr 2004). Yet in many countries of continental Europe, tuition fees are a taboo, and where they have been implemented, such fees cover only a small fraction of the true resource cost of a student place (cf. OECD 2007b). The reasons for such disconnect between evidence and practice may be sought in the political economy of rent seeking. Universities are disproportionately attended by the offspring of higher-income families (HIS 2005), who may lobby politicians for the continuance of free education, and politicians may succumb for the sake of not losing votes. Research-based policy fails to be enacted because political considerations override evidence-based decisions.

Another example where political realities often deter necessary substantive innovation in E&T is the predominance of efforts aimed at quantity over efforts aimed at quality (Section IV-C). For example, in order to satisfy the demand for free higher education while maintaining the same budget, mass university education has flourished at the expense of excellence. Witness to this effect is the repeated low rankings of continental European universities in international league table (Institute of Higher Education 2007).

Overcoming inertia in order to achieve real reforms is thus another fundamental challenge for European E&T systems (Section IV-D). The challenge is that, if given political trends continue, European education and training systems are unlikely to achieve the important goals to be set for 2020 or beyond.

Implications for European E&T Systems

IV-A Competing Policy Priorities

Education is but one of the many activities that need to be funded. Hospitals, prisons, national defence and roads need to be funded as well. How much will each be funded, and who will pay the bill is a complex issue not amenable to easy mechanical programming solutions. There is no obvious and straightforward rule for finance ministers on how to allocate spending in order to maximize social welfare.

Because of voting cycles, politicians are often short-sighted and focus on priorities that yield short-run benefits. However, education and training are investment decisions whose benefits tend to accrue over a long time distance into the future. As a consequence, despite the substantial evidence of the huge economic returns to quality education (cf. Hanushek and Wößmann 2007 for a survey), necessary reforms may fail to be enacted because other policies promise higher short-term returns that may yield more votes in the next election. While the fruits of other political projects may be more visible in the short run, stakeholders interested more in the long-run well-being of societies have to build the pressure that politicians do not sacrifice large long-term benefits for society to short-term visibility of political results.

IV-B Enacting Research-Based Policy

The awareness of the importance of basing policies on sound research in order to see real results is growing all over Europe. However, more often than not, short-term considerations of politics override the search for the best solutions evidenced by research also within the area of E&T policies. Today, there are many firm research results in the education economics

literature that fail to be enacted. If Europe wants to really face the challenges of the future, E&T policies will have to be better grounded in research.

To start with, in most EU countries this requires a much better data base on education processes and outcomes. Europe also has to build the research excellence using the best methodological tools to generate evidence on the success of educational reforms. Europe-wide interaction, research collaboration and international comparison can help produce the best research knowledge. In addition, because initial conditions are different in each country, further country-specific research on the relevant policy issues would add to the knowledge which kind of reforms are most promising in the different countries.

Most importantly, decision-making procedures on E&T policies have to ensure that reforms are grounded in well-designed research evidence. The EU may play a helping role in holding national governments accountable to important insights from research.

IV-C Focus on Quality

The most common evaluation of education systems is in terms of quantitative indicators, such as how many students are enrolled or graduate. This also applies to the set of benchmark indicators used by the European Commission to judge progress towards the Lisbon objectives (European Commission 2006). However, a stream of research evidence points to the importance of the quality of education, rather than its mere quantity (Hanushek and Wößmann 2007). Therefore, to be successful in the future, European E&T policies should prioritise on the learning outcomes of students, securing that students learn the required skills rather than just spend time in the E&T system.

IV-D Overcoming Inertia

To overcome the limitations created by the different political realities described above, Europe needs real innovations in the E&T system. The challenge of enacting policies that lead to real improvements requires new mechanisms that enable major reforms to address the fundamental structural problems that exist. Unfortunately, there is no easy or obvious solution to this challenge.

One way in which the European Commission could help to overcome political inertia in Member States might be to document and expose, country by country, what is lost in terms of economic strength and societal equality by following political inertia relative to implementing fundamental structural changes in the E&T systems based on research results. Publicizing in

the media research results on the detrimental effects of neglecting necessary reforms in European E&T systems may eventually influence voters to require from politicians to adopt the much needed structural changes in education and training.

Concluding Remarks on Possible Future Scenarios

This report has highlighted four key challenges – demographic change, global competition, long-run social cohesion and political inertia – that European education and training systems will have to face in order to flourish in the future. Each challenge brings about a whole set of implications for European E&T systems that will require political attention for a long time to come.

It is self-evident that such a future-oriented exercise has a brainstorming character that contains a lot of vagaries. There is no scientifically rigorous way of saying how European E&T systems will look like in 2020 and what the key challenges will be at that time. There are a lot of possible future scenarios – some more bleak, some more friendly – and we abstain from speculating about things for which there is no rigorous basis to argue from.

But there is no doubt that facing demographic changes that are already foreseeable, prospering in global competition and addressing threats to social cohesion are among the important challenges that will have to be addressed by European societies over the medium and long term, and unless real changes are enacted in the political decision-making processes on E&T systems, there is a clear danger that Europe will not succeed in facing these challenges.

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