

National Review of Educational R&D SWITZERLAND



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OVERVIEW

The review of Switzerland's educational R&D system is the fifth in a series of reviews carried out by the OECD/CERI since 2001. The previous reviews reported on educational R&D systems in England, New Zealand, Mexico and Denmark. The OECD published the first two reviews in a single volume: *New Challenges for Educational Research* (OECD/CERI, 2003).

This OECD/CERI activity is intended to review the extent to which the educational R&D system within a country is contributing effectively to the creation, collation and distribution of a knowledge base on which practitioners and policy makers can draw. The aim of this review is broader than that of an educational R&D review exclusively focused on the quality of the research delivered. The focus of this review is on the evaluation of the contribution of educational R&D to the knowledge base of education in the emerging learning society, to improve both the process of decision-making at policy level and educational practices.

Procedure

The analytical framework for this review draws on previous OECD/CERI work on knowledge management and its application to educational R&D (OECD/CERI, 2000, 2004a). The first three reviews were instrumental in the development of a template that reviewers adapted and applied to the Danish system (OECD/CERI, 2004b). The review team for Switzerland took this template as a starting point. Building on the suggestions and criticisms received so far (Schuller, Jochems, Moos and Van Zanten, 2006), as well as incorporating the adjustments required to fully account for the Swiss educational landscape and developments in R&D, the review team further refined and restructured the template as an analytical tool. The resulting template is presented in the first section of this report. A future OECD/CERI seminar will evaluate these theoretical developments and discuss them in the broader context of the role played by educational R&D in the provision of evidence for decision-making at a policy level, for improving educational practices and for enhancing the theoretical basis of the knowledge base in education.

In order to prepare for the review, the contracting authority, the Swiss Council for Educational Research (CORECHED),¹ commissioned the Swiss Coordination Centre for Research in Education (SCCRE) to design the whole programme for the review and make the necessary preparations, including the Country Background Report (Swiss Coordination Centre for Research in Education, 2006). Professor Stefan Wolter, of the University of Bern and SCCRE Director, acted as national co-ordinator for the review together with Stefan Denzler-Schircks, who authored the Country Background Report. This background report provided a good deal of information on the management and

¹ For a complete list of the abbreviations used in this review see Annex 2.

steering of knowledge in education, the organisation and production of such knowledge, and its applications and outcomes in Switzerland. As a result, the reviewers were able to better prepare themselves to understand and analyse the Swiss system. At the same time, this background report was widely circulated in Switzerland and most of the people interviewed, if not all, had the chance to familiarise themselves with it, supplement the data provided in it and respond to its main conclusions. Although as with prior reviews some of the original sources may be outdated, thus highlighting the need for more information on educational R&D, this background report proved to be crucial to the success of the whole process. The review team explicitly wishes to acknowledge its high quality and the work done by its author in collecting data from different sources and providing an easily comprehensible account of the complexity of the Swiss system of educational R&D, including both its main achievements and its perceived weaknesses.

Other than the background report, the most important sources of information and insights were the people interviewed by the review team during five days (see Annex 1 for the complete list of interviewees). These interviews and the corresponding visits to institutions and organisations in the cities of Bern, Zurich, Neuchatel and Geneva were coordinated by Stefan Wolter and Stefan Denzler-Schircks, after consultation with CORECHED and members of the review team. Both accompanied the review team throughout the visits. At each visit, the review team was always warmly received, and the interviews were conducted in an atmosphere where the concerns of hospitality did not prevent participants from having sound, even passionate, discussions about the role of research in policy-making and in improving educators' practices. The review team wishes to express its thanks to all those who participated and hopes that the contents of this report contribute to the national debate on this matter by adding new insights and suggesting possible courses of action, however challenging or provoking they may seem.

The review team was composed of: Rudolf Tippelt, Professor of Education at the University of Munich, who acted as chairperson; Andrew Pollard, Professor of Education at the University of London Institute of Education and Director of the Teaching and Learning Research Programme in the United Kingdom; and Marijk van der Wende, Professor at the Center for Higher Education Policy Studies, University of Twente and at the Vrije Universiteit Amsterdam. OECD/CERI Senior Analyst Francesc Pedró assisted the review team during the whole process and coordinated the drafting of this report.

Definitions

Recognising the analytical work done for the previous OECD/CERI reviews, it is worth summarising the definitions both of educational research, basic and applied, and of development that have been adopted for this report.

Research is defined as the process of knowledge creation that conforms to the agreed scholarly standards intended to warrant its validity and trustworthiness. In this report, *basic research* is differentiated from *applied research*. The former is driven by curiosity and an inherent interest in a phenomenon or problem, while the latter is consciously designed to solve a problem in policy or practice. In both cases, the process of knowledge creation is carried out within the framework of a theory, which might be either validated or challenged by new research.

Development is defined as any form of knowledge creation designed to improve practice. Thus, the main purpose of development is to facilitate change in a particular context. A number of educational developments are teacher-lead activities and consist of

enquiry-based activities that take place within schemes for the professional development of teachers.

The basic assumption underlying this report is that educational R&D activities can be organised in such a way so as to constitute a system. In this context, the basic purpose of such a system is to develop, organise and disseminate knowledge that illuminates the understanding of the education system and nurtures its continuous improvement by providing supporting evidence either for the policy and decision-making process or for educational practice.

ANALYTICAL FRAMEWORK

Participation by a country in this OECD review process implies the acceptance of some basic principles. Among these, in our opinion, are broad commitments: to participatory democracy; to openness and the availability of knowledge for public debate; to recognition of difference and diversity; to a balancing of rights and responsibilities as citizens; to transparency in the allocation of resources and opportunities; and to the role of education in enhancing personal fulfilment, citizenship, social and cultural inclusion and economic growth.

With such principles in mind, we note some of the academic criticisms (Schuller, Jochems, Moos, & Van Zanten, 2006) which have been levelled at the “generic template” for the assessment of educational research systems which was developed for the review of Denmark’s educational R&D system (OECD/CERI, 2004b). The criticisms included suggestions that the generic template:

- Offered a single model, with the implication that this represents “best practice” for all countries – thus contributing to international homogeneity.
- Was over-determined by the OECD’s emphasis on economic priorities and concern for technical efficiency in markets, and did not relate education knowledge production and its application to democratic and other political contexts.
- Assumed that the existence of shared aims, values and commitment to education was an applied “consumer-led” discipline rather than reflecting a “curiosity-led” interest.
- Was not contextualised in relation to any particular country or its educational research – for instance, concerning the working conditions and or the motivations of researchers.

Our emphasis on/assumption of contemporary democratic principles affirms that it is appropriate to consider both the production and use of educational research in a country, and to assess how its effectiveness and contribution to that society could be improved. Indeed, Van Zanten’s commentary on the four previous reviews undertaken by the OECD points to the explosion of potential sources of evidence in the modern world and the risks of distortion, confusion and misapplication which follow. She concludes: “if we want educational policy-making to be effective and democratic, it is necessary to create both a new ‘culture’ of reflecting about educational problems and new forms of organisation of educational debates where evidence is at the centre of discussion and where evidence producers interact frequently with policy makers and with professional and lay users of evidence” (p. 70). Whilst affirming the place of curiosity-lead basic research on enduring educational issues, we too believe that educational researchers have a responsibility to engage with others and to assist in the interpretation and application of new knowledge in contemporary contexts.

Given such goals and our commissioned task of carrying out a national review of Switzerland's provision for educational R&D, the use of an appropriate knowledge management template is a helpful conceptual and organisational tool. Rather than abandon the device because of some shortcomings, in this review we have opted to build on and improve the 2004 version which evolved from previous reviews. In our opinion, some strengths of the generic template are that it:

- Conceptualised the production and use of educational knowledge as a system in the public interest.
- Focused on the effective functioning of such a system.
- Identified a range of legitimate stakeholders, including academic researchers, policy makers and practitioners (interestingly though, businesses, employers and the general public are hardly mentioned).

Our revised version of the generic template thus seeks to retain these strengths whilst also attending to some of the criticisms which have been made. The template we have developed has six sections. At the heart of this is the view that the three major forms of research are both complementary and necessary in an effective contemporary system. The sections are:

- contextual issues;
- strategic awareness;
- basic research;
- applied research;
- development and professional enquiry;
- generic issues.

The questions and issues addressed under each section are as follows (*new* indicates that it is a new addition to the original template):

1. Contextual issues

1. What is the political, economic, social and cultural context of the country? (new)
2. What are the country's aspirations and strategies for development? (new)
3. What is the nature of the country's existing educational R&D? (new)
4. What are the major contemporary challenges to the country's educational R&D?

2. Strategic awareness

1. What is the extent and quality of the country's current knowledge about its own educational system?
2. What provision is there for the accumulation and organisation of existing educational knowledge (basic, applied and developmental) in the country? (new)

3. How committed are the country's key stakeholders to the introduction of a national system for managing the production and use of educational evidence and knowledge? (new)
4. Does the country have a national policy or strategy for educational R&D, with a clear definition of what counts as basic and applied research and what counts as forms of development by practitioners and others?

3. Basic research

1. Does the country have appropriate provisions and incentives for the production of high quality and innovative basic research? (new)

4. Applied research

1. Does the country have appropriate provisions and incentives for the production of high quality and relevant applied research? (new)
2. How are researchers, policy makers, practitioners and other appropriate stakeholders in the country engaged in the identification, development, application and evaluation of national priorities for applied research and for development?

5. Development and professional enquiry

1. Does the country have appropriate provisions and incentives for the production of high quality and relevant development work, professional enquiry and improvement, and how is it embedded in the provision for the education and training of practitioners? (new)

6. Systemic issues

1. How are the country's various research and development activities distributed, networked and coordinated nationally?
2. How is the country's research and development work linked to appropriate international networks, centres and activities?
3. What quality assurance and accountability procedures are in place for the country's educational research and development?
4. What provision is there for the communication and dissemination of research findings to the country's stakeholders, including the general public, and how effective is this knowledge transformation and transfer?
5. Is there adequate capacity building to sustain the country's complementary forms of educational research and development?

I. CONTEXTUAL ISSUES

This introductory section provides an overview of some of the contextual aspects that might have an impact on the country's configuration or current development of the system of educational R&D, as well as a presentation of its main characteristics. The contextual aspects include a description of the country and its educational system. The discussion of the educational R&D system gives an overall view of its organisation, funding, the main traditions and topics covered by research activities and the results obtained. The section concludes with a discussion of the main challenges that the country's educational R&D might have to face in the near future.

1. The context of the country

Switzerland is a unique country: it is one of the smallest countries in the world, with some 7.5 million inhabitants occupying an area just 41 285 km², but with one of the highest per capita GDP's in the world, ranking fifth among the OECD's list of the richest countries.

General characteristics

Although for some historians, the origins of this confederation of cantons can be traced back some seven hundred years, when three cantons signed a federal charter, the fact is that Switzerland enacted its first federal constitution in 1848, giving rise to its current political system as a federation.

In 1891, the constitution was revised to add elements of direct democracy, which remain unique even today. The principle of direct democracy applies to each of the three governmental levels, municipal, cantonal and federal. Usually some four referenda on diverse political issues are held every year. The constitution of 1891 was revised completely in 1999 to give it a more coherent form, and explicit the human rights, the basic civil rights and social rights (*i.e.* education and schooling).

Besides its embrace of direct democracy, another key characteristic of the Swiss political system is small-scale federalism, in which the role of the confederation or federal government *vis-à-vis* the cantons and the municipalities is based on the subsidiarity principle. According to this principle, superior levels, such as the federation or cantons, can only pass regulations or undertake tasks where the subordinate levels are not in a position to do so. The application of this principle to the cantons results in a highly decentralised system, where the municipalities hold strong political responsibilities.

Nowadays, Switzerland is composed of 26 cantons, whose territory, language, population and level of development vary largely. To give an indication of the diversity, the populations of the cantons range between 15 000 inhabitants (Appenzell Innerrhoden)

and 1 253 500 inhabitants (Zürich), and their physical area ranges between 37 km² (Basel-Stadt) and 7 105 km² (Graubünden).

Four languages are spoken in the country: German (64%) in the north and the centre; French (19%) in the west; Italian (8%) in the south; and Romansh, which is spoken by a small minority (less than 1%). The former three are official languages. Both the German and the French/Italian cantons cooperate in many respects at regional level, particularly in cultural and education issues.

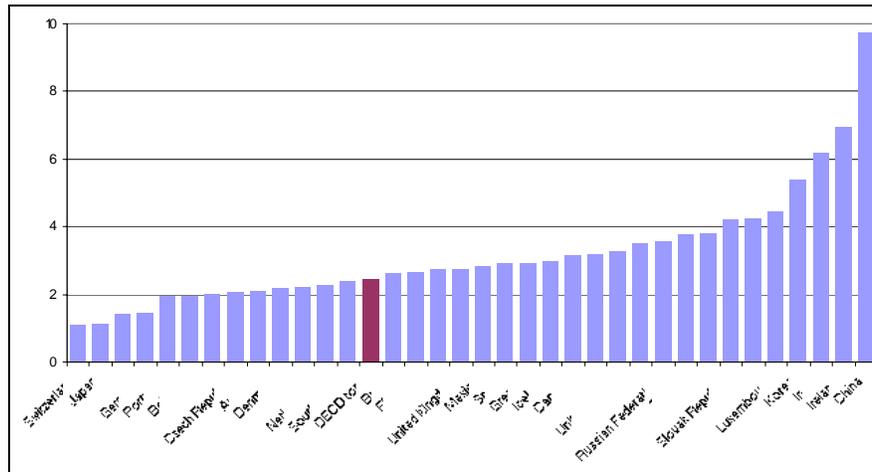
Economic development

Switzerland's stable political system and flexible labour market have helped to make it one of the world's richest countries. It has one of the highest per capita GDP's in the world (\$33 678 [2004]), and a very low rate of unemployment (4.4% [2004]).

However, its economic growth has slowed in recent years rising by only 1.5% a year since 1980 compared with the OECD average of 2.75%. Between 1991 and 2004, the average annual growth of the GDP has been the lowest of all OECD countries as Figure 1 shows.

Figure 1. Real GDP growth, 1991-2004

Average annual growth in percentage, 1991-2004



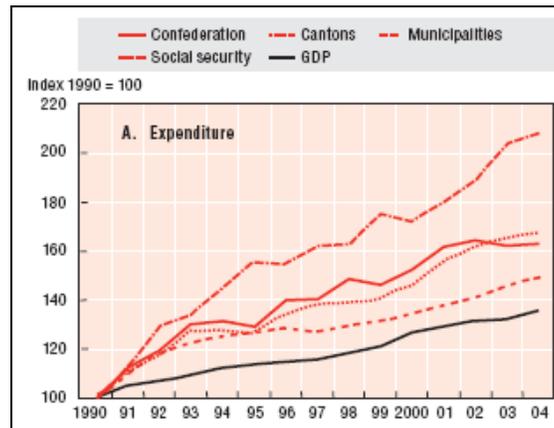
Source: OECD Statistical Database, 2006.

The Swiss economy is currently facing two main problems (OECD, 2006). Firstly, in order to nurture the economic recovery that seems to be already in place, the country needs to improve labour utilisation, boost productivity and create a competition culture by eliminating, for instance, obstacles to a unified domestic market – a characteristic closely related to the small-scale federalism. Secondly, an overhaul of welfare programmes is required to stop the sharp rise in mandatory social spending. As Figure 2 demonstrates, in recent years spending by all government levels has outpaced GDP. Between 1990 and 2004, government debt increased by more than 25 percentage points of the GDP and it is likely to continue to increase because of the effects of population ageing, which will be

intensifying from 2010 onward. Both population ageing and the demands for more social spending will have important implications for spending on education in the coming years.

Figure 2. Government expenditure and GDP growth

Governmental expenditure at all levels and GDP growth, 1990-2004



Source: OECD, 2006.

Innovation, research and development

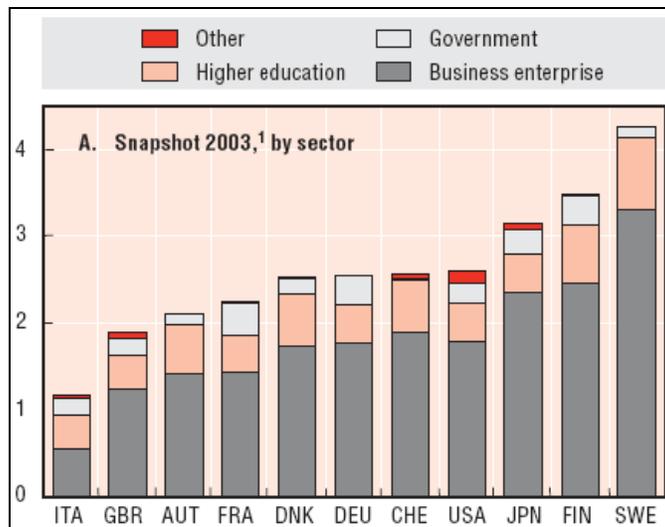
Switzerland has had an impressive record of innovation in the last decades, but it is now facing a slowdown (Arvanitis & Wörter, 2005). The country is well known for its outstanding position in knowledge-intensive industries, attracting many foreign people trained in science and engineering. The country's gross domestic expenditure on R&D as a percentage of GDP is equivalent to that of the United States or Germany, currently at about 2.57%. The number of triadic patent families¹ per million population, an indicator of R&D performance, is double the OECD average. However, since the beginning of the 90s, the level of expenditure on R&D has weakened. To some extent, this is a result of the protracted economic slowdown.

The level of the government's direct involvement in R&D funding is extremely low compared with other countries with an equivalent performance, since private firms directly finance much of the R&D activity. More than two thirds of the R&D spending are provided by the private sector. However, most of the private funds flow abroad. Only about 7% of these funds are directed to Swiss universities. Nevertheless, the role played by the higher education sector in R&D is outstanding, clearly outperforming most OECD countries. Figure 3 compares the sources of funding for R&D activities in a number of OECD countries and gives an indication of the overall level of investment within each country.

¹ A patent family is defined as a set of patents taken in various countries (*i.e.* patent offices) to protect the same invention. Triadic patent families are a set of patents taken at all three of these major patent offices – the European Patent Office (EPO), the Japanese Patent Office (JPO) and the United States Patent and Trademark Office (USPTO).

Figure 3. Expenditure on R&D

Gross domestic expenditure on R&D as percentage of GDP in 2003



Source: OECD, 2006.

Due to the long-standing emphasis on vocational education, participation in university education in Switzerland is quite low in international terms. In 2003 the entry rate in tertiary education (ISCED 5A; universities and universities of applied sciences) was of 38% in Switzerland, much lower than the average 53% for OECD countries. In this respect, Switzerland ranks low but with a value comparable with its neighbouring countries: France 39%, Germany 36% and Austria 35%. This results in a limited domestic supply of scientists and engineers, which, up to now, has been compensated for by large flows of foreign manpower, which in the past were predominantly unqualified workers, and the development of substantial R&D activity in other countries as a result of the high degree of internationalisation of some Swiss companies.

2. Switzerland's aspirations and strategies for educational development

This section provides an overview of the organisation of the educational system in Switzerland and the responsibilities assigned to the different levels of government. It summarises some of the challenges which lie ahead, particularly with regard to internal harmonisation and system quality control.

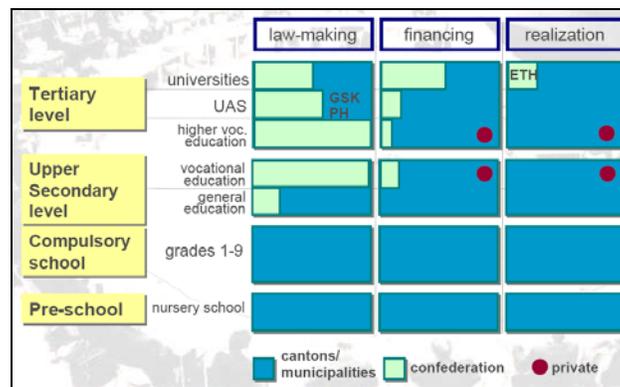
The education system

The responsibility for the educational sector in Switzerland is divided between the confederation, the cantons and the municipalities. There is no ministry for education at the national level. The main responsibility for education lies with the cantons, as Figure 4 shows. There is a Swiss Conference of the 26 Cantonal Ministers of Education, Culture and Sports (EDK/CDIP/CDIP) that has the responsibility for the national coordination of educational and cultural policies. This cooperation is based on a combination of state treaties (concordats).

The responsibility for vocational education, both at secondary and tertiary level as well as for the Universities of applied sciences (UAS), is assigned to the confederation through the Federal Office for Professional Education and Technology (OPET). The two federal institutes of technology are also the responsibility of the confederation. The contrast between the level of federal involvement in vocational education and the sovereignty of cantons in the rest of the educational sector has important implications not only in terms of educational provision and national coordination but also for educational R&D. However, the confederation's role in educational policy-making might be enhanced in the coming years (see the following section).

Figure 4. Responsibilities in educational policy-making

Roles of the different governmental levels

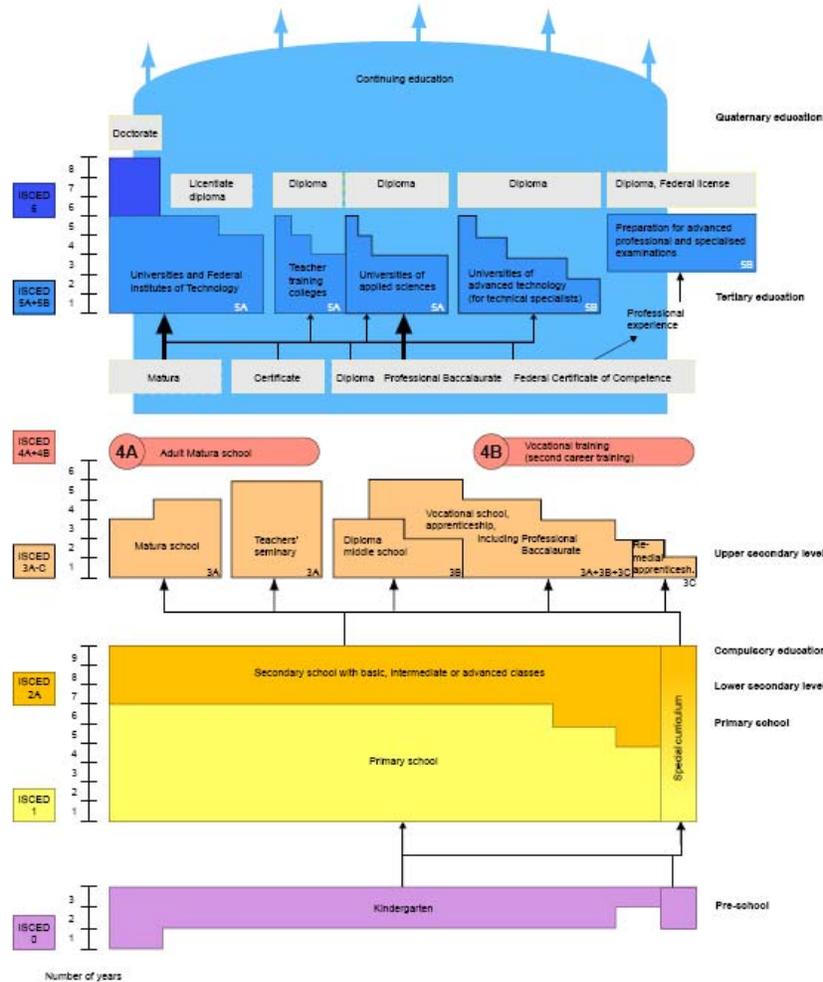


Source: EDK/CDIP/CDIP, 2006. Note that UAS is under the responsibility of the Confederation with the exception of the Teacher Training (PH). GSK (Gesundheit/Soziales/Kunst=Health, Social Work, Arts) are now also under the responsibility of the Confederation.

As specified in the Constitution, the cantons are responsible for school education. The cantons and their municipalities are wholly responsible for the decision-making processes, financing and running of schools at the nursery level, the primary level, and the compulsory secondary level. At the upper secondary level (*Matura* schools), the cantons have the bulk of the responsibility but the confederation regulates the conditions for obtaining the corresponding diploma jointly with the cantons. In the higher education sector, the cantons are wholly responsible for the recently created Universities of Teacher Education, which are also subject to inter-cantonal legislation. Furthermore, the cantons are responsible for their individual Cantonal Universities and for the management and financing of the Universities of Applied Sciences but the confederation has regulating powers with respect to the UAS except for the Universities of Teacher Education. The confederation also provides a good third of the finances.

Figure 5 provides a diagramme of the educational system in the country, as depicted by the Conference of Cantonal Ministers of Education (EDK/CDIP/CDIP).

Figure 5. Diagramme of the Swiss education system



Source: EDK/CDIP/CDIP, 2006.

All 26 cantons have their own ministry of education, which is responsible for the implementation of the cantonal legislation in education. Each cantonal ministry of education determines, for instance, the curricula, the corresponding official teaching materials and class sizes within that canton. As a result, there are strong variations among cantons regarding the organisation of the system, curricula, educational expenditure and results.

Between 1990 and 2003, the expenditure for education rose from 16.2 to 25.8 billion CHF. Since its stagnation at the beginning of the 1990s though, the funds for education have been rising again since 1997. A total of 5.9% of the GDP was spent on education in 2003 (public expenditure amounted to 5.7% of the GDP), which is well above the OECD average of 5.1%. The share of education in public spending was 18.7% in 1990 and 19% in 2003. The cantons and the municipalities bear the bulk of this cost: in 2003, they financed 86.4 % of education expenditure, with the confederation contributing the rest.

The Swiss educational system compares well with other OECD countries in terms of graduation rates in upper secondary education – 90% of the population get a diploma at this level. This is mainly due to the attractiveness of vocational education since 59% of all diplomas awarded are in the sector of vocational education – a situation comparable with that in Germany. Not surprisingly, participation in higher education (type A) is low, with graduation rates slightly over 21%, far below the OECD average of 32%. There is quite a remarkable amount of participation in Tertiary B education in Switzerland.

The first results obtained by Switzerland in PISA were considered to be disappointing by most analysts and policy makers, since the national average score in reading (2000) was slightly below the OECD average. However, the results obtained in mathematics (2003) generated a more optimistic view, for the average score in maths was 527, thus placing Switzerland 7th in the OECD. The corresponding values for literacy and science were 499 and 513, slightly below OECD average. But what can be seen so far from an average value is the amount of internal differentiation. This applies, on the one hand, to differences between cantons and regions and, on the other, to differences between schools up to the extent that, in the case of literacy, half of the variation can be explained by these school differences. Finally, the significance of socio-economic background is also extremely high when compared to the OECD average value, pointing therefore to huge differences in performance between pupils according to their socio-economic characteristics. As in other countries, this originated a sound and still current debate about the need for quality control and national harmonisation.

Policy challenges

Switzerland is facing enormous challenges at all levels of education, and each challenge has implications for educational R&D. A reform of vocational education and training is already in place. Steps have been taken to reorganise the higher education sector, which include the integration of the applied sciences in the fields of health, social work and arts as well as the creation of the new Universities for Teacher Education. Further, a constitutional amendment, approved by referendum on May 21 2006, is expected to improve the harmonisation of the school system at national level.

In the vocational education sector, a new federal law was passed in 2003. At the same time, the legislation reinforced the role of OPET, resulting in a national strategy for educational research in this sector. This research strategy was build up since the creation of the OPET in 1998 but between 2000-2004 funding came from the CTI (Commission for Technology and Innovation) and since 2004 under the new law the funds for the research programmes come from the OPET.

In the higher education sector, the main development has been the creation of new institutions for teacher training at the tertiary level, the Universities of Teacher Education. In the new teacher training curricula, research is expected to play an important role. However, the main developments are still to be completed. The OECD review of tertiary education in Switzerland (OECD, 2002) suggested a number of future directions including improving access and diversification; adapting teaching, learning and research; expanding internationalisation and mobility; strengthening overall steering of the system; fostering effective internal management; and disseminating information on the system. The required changes to comply with the Bologna Agreement would have to be added to these recommendations. Interestingly, some of these recommendations, particularly the ones dealing with adapting the management of research, increasing internationalisation,

fostering the overall steering of the system and the corresponding need for information management, and the whole dissemination issue arose also during this review.

Without doubt, the schools sector is facing the most significant challenges. The two most immediate needs are the harmonisation of the education system and the creation of a monitoring system, which will allow in-depth scrutiny of the quality of processes and results of the school system. Both of these challenges rank as the first priorities of the EDK/CDIP/CDIP. On the one hand, the EDK/CDIP/CDIP has promoted a new concordat, the HarmoS project, that will enhance the level of coordination among cantons. This concordat is intended to be the basis for a national curriculum and the corresponding evaluation mechanisms in languages, mathematics and natural sciences. On the other hand, the EDK/CDIP, jointly with the Confederation, has initiated for the first time a national system monitoring based on regular reports. A first pilot of this Education Report is expected to be available by the end of 2006 and other editions should follow every four years. This publication will provide comprehensive and comparative data about the quality and output of the whole Swiss education system.

To some extent, these new challenges are pointing to the need for a new balance of power between the cantons and the Confederation if a national educational strategy is to be developed and implemented consistently across the country. This need for enhanced co-ordination gave rise to the Constitutional amendment recently voted (21st of May, 2006). The three main objectives are to increase the harmonisation of goals, curricula and standards, to facilitate school mobility among cantons, and to increase the federal responsibility in case of disagreement between cantons on a number of issues such as starting school age, the length of schooling, educational targets and recognition of diplomas. It is interesting to note that 86% of the voters (with a participation rate of 27%) were in favour of this amendment, which was approved in all cantons with no exception, thus reflecting an overall agreement on the need for such a change in the direction of educational harmonisation. The constitutional amendment requires now general reforms in the higher education system as well as the preparation of a specific law on continuous education.

3. The nature of Swiss educational R&D

This section describes the main characteristics of current educational R&D in Switzerland. This description is based on the Country Background Report, data gathered from the interviews conducted by the review team and additional documents collected during the review team's visits. This description includes the organisation of the system and its funding mechanisms, as well as an overview of the main areas of activity and the corresponding outputs. It is intended to provide an introductory picture of educational R&D in Switzerland, as a more detailed and precise description is already contained in the Country Background Report. A number of indicators have been developed for this review, namely those which target funding, methodological approaches and the foci of educational R&D.

Organisation

There is no national programme or federal ministerial office solely responsible for educational R&D, except in the vocational education sector. The contrast between this sector and the rest of the educational sector highlights the particular distribution of

powers between the confederation and the cantons regarding education: the former is responsible only for the vocational education sector.

The Federal Office for Vocational Education and Technology (OPET) is responsible for vocational education and training. Since OPET has developed its own nationwide strategy for educational R&D, involving working with key actors and building consensus on national priorities, Switzerland can be said to have a national system of educational research in vocational education.

In contrast, the cantons, which are responsible for the rest of the education provision, have not yet managed to build a consistent national strategy for educational research. The creation of the Swiss Council for Educational Research (CORECHED) in 1991 was a first step in this direction. CORECHED's role is to coordinate educational research policy between its various funding agencies, *i.e.* the Swiss Conference of Cantonal Ministers of Education (EDK/CDIP/CDIP), the State Secretariat for Education and Research (SER), the OPET, the Federal Statistical Office (SFSO) and the National Science Foundation (NSF), and to encourage cooperation between government, administration, practitioners and researchers in the field of education. Therefore, the current situation with regard to educational research varies greatly among cantons.

As in many other countries, educational R&D is carried out by a number of key players:

- *Universities:* R&D is carried out mainly by the chairs of the different faculties of educational sciences throughout the country since there does not seem to be a consistent tradition of research in education in other faculties, *i.e.* the social sciences or economics. Compared with universities in other countries, the size of the education departments and institutes in Switzerland is very small, most having five professorships or fewer –the exception is the University of Geneva. This highlights the need for networking between institutions in order to be able to reach a critical mass.
- *Universities of Teacher Education:* These are teacher training institutions which were set up in 2001/2002. They are expected to develop research programmes directly related to teaching. Most of them are now in the process of organising research under a coherent framework, and the Conference of Rectors of Universities of Teacher Education (CSHEP) is committed to establishing a common set of research priorities.
- *Cantonal offices:* A number of cantons have their own educational research services and offices which also operate as statistical services responding to the management information needs of the cantonal ministries of education. Their size varies greatly between cantons. There is also a regional co-ordination office for the French and Italian cantons. Cantonal cooperation is strongly dependent on the corresponding linguistic adscription and there are no attempts to bridge the gap between language groups.
- *Private firms:* Most of these are very small and provide mostly consultancy services.

Resources and funding

One possible way for this review to assess the level of resources and funding devoted to educational R&D in Switzerland is to construct a number of comparative indicators.

Unfortunately, there is little scope for that in this instance as the range of reviews of educational R&D is very limited, the range of comparable countries is narrow, and the figures for all of them come from the corresponding country background reports and tend to be rough estimates. Even so, some interesting considerations can be derived from the comparison of Switzerland with the other reviewed countries.

The first comparison is the amount of funding devoted to educational R&D which can be compared in different ways, such as the level of investment devoted to educational R&D expressed as percentage of the GDP, of the educational expenditure and of the public expenditure on R&D.

According to available data, on all three estimates, Switzerland seems to have the lowest value. The differences in relation to the other reviewed countries are significant. On the one hand, Switzerland's funding efforts in educational research, expressed as a percentage of GDP, equate to roughly half of Denmark's and New Zealand's spending, and a quarter of England's spending. Switzerland appears last in the list of reviewed countries regarding the percentage of educational expenditure devoted to educational R&D. With regard to the third indicator, expenditure on educational R&D as percentage of all public expenditure on R&D, Switzerland ranks last, indicating again that the public efforts devoted to funding educational R&D are comparatively low.

A second comparison is the level of human resources dedicated to educational R&D and the level of per capita funding, *i.e.* how well financed is each research post. The Country Background Report indicates that the number of researchers involved in educational R&D can be estimated to be between 100 and 200 FTE (full-time equivalent). Given the range of these figures, one should consider the average value as a very rough estimate, only appropriate to provide a comparative indication but not a confident figure. From an international comparison, it becomes clear that the level of human resources devoted to educational R&D in Switzerland is quite low, very much below of England's figure, less than half of Denmark's figure, and in the range of that of New Zealand – although it should be noted that the Swiss figure is four times higher than the figure for Mexico.

On the other hand, again according to these estimates, every Swiss educational researcher (FTE) receives between significantly more funding than a Danish or an English researcher, respectively, and an equivalent amount to that received by researchers in New Zealand. The resulting picture is of a sector where few researchers exist but those that do are extremely well financed.

To summarise, the overall level of investment in educational R&D in Switzerland is comparatively very low, regardless of which indicator is used. To reach the average value for the reviewed countries, Switzerland would have to double the percentage of the GDP devoted to educational R&D. Having said this, it might seem paradoxical that the funding for each educational researcher is very high in relative terms.

A final remark should be made on the mechanisms for funding educational R&D. Compared with other countries, there seems to be far less pressure on researchers to compete for grants. In the worst-case scenario, the reviewers found that at least 50% of all research projects conducted in a particular university were financed internally by the university's own funds, without any kind of initial evaluation procedure involving external assessment. In other universities, the reviewers were told that approximately 80% of research funds were internally allocated. To give another indication of the level of funding given to researchers, some university professors told the reviewers that each of

them was receiving an annual grant of 18 000 CHF (approximately EUR 12 000) for buying or printing books.

Output

Although it is not a major aim of this review to assess either the quality or the productivity of the Swiss system of educational R&D, it is relevant to gain some insights into both of them.

The Country Background Report offers some interesting data and comments regarding the main traditions and foci of educational research. In general, Swiss educational research seems align itself with what is called the “German disciplinary tradition” (Keiner & Schriewer, 2000)² in education, consisting of a narrow internal focus on the subject itself and on classical philosophical reference systems. In addition, there is a long-standing tradition of historical studies, very much alive and present not only in all faculties of educational sciences but also in the Universities of Teacher Education. According to several reports and studies cited in the Country Background Report, it was not before the late nineties that an empirical shift begun to partially take place. This shift was strongly emphasised and advocated by some university researchers but this perspective is far from being representative. According to what we were told during the visits, not all researchers seem to be recognising the need for a more balanced situation regarding research methods. Empirical research is generally conducted only with qualitative methods; quantitative empirical studies with representative samples and generalisable results are still in the minority. The proportion of researchers employing empirical methods apparently represents still a minority.

The main focus of research, both at the faculties of educational sciences (Gretler, 2000)³ and at the Universities of Teacher Education (Vogel, 2006), is compulsory schooling – both primary and secondary education – leaving some areas of growing political and social interest completely unresearched. These areas include infant education, higher education, adult and community education and family education. This situation is also likely to be applicable to the research carried out in cantonal departments, but it should be borne in mind that these figures exclude the studies carried out by OPET on vocational education and training.

Figure 6 presents a summary of the topics and broad methodological orientations of the doctoral and habilitation dissertations presented in Switzerland between 2001 and 2004, drawn from information published in the Swiss Review of Educational Sciences.⁴ The topics and methodological approaches of these dissertations can be taken as a good indication of the state of academic research in education. The results confirm the findings of the Country Background Report. On the whole, empirical researches, both quantitative and qualitative, are a minority (23% of all dissertations), a figure which is slightly above the number dedicated to the history education (18%).⁵ Quantitative empirical research

² As quoted in the Country Background Report.

³ *Idem*.

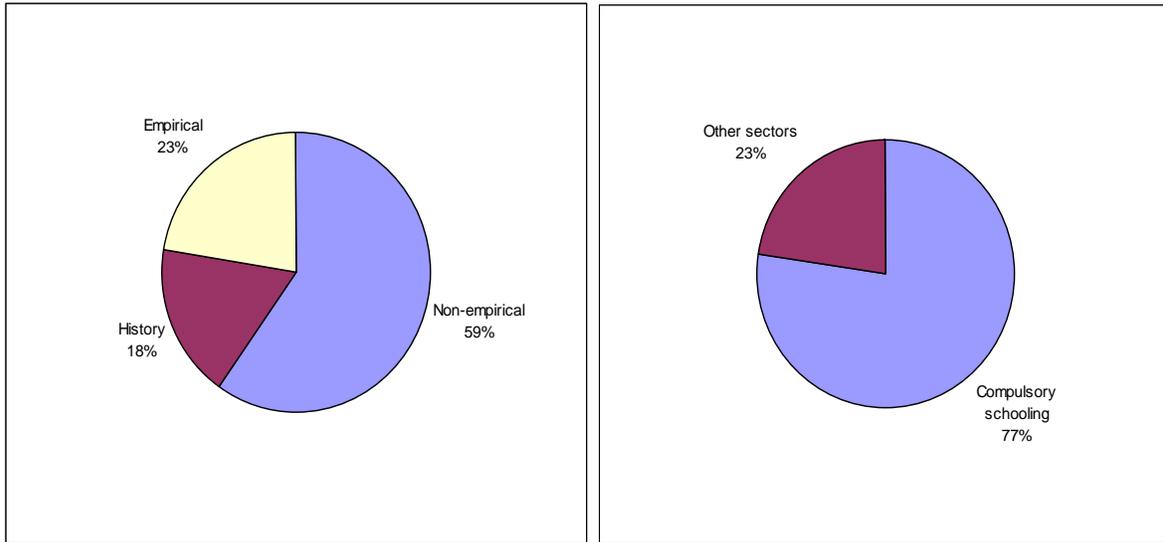
⁴ The categorisation of each dissertation is based purely on an analysis of its title and subtitle. Consequently, the resulting figures provide only a very broad picture.

⁵ There is an ongoing international debate in the field regarding what is empirically-oriented history of education as opposed to theoretical reflections based on historical works or ideas. PhD dissertations show that Swiss research into the history of education is mostly, if not completely, related to the history of theories and ideas.

barely represents 5% of the total. Three quarters of all dissertations deal with compulsory education exclusively.

Figure 6. Foci and methodological orientation of Swiss academic research on education, 2001-2004

Percentage of dissertations (doctoral and habilitation) according to approach and focus



Source : Schweizerische Zeitschrift für Bildungswissenschaften, 2002-2005

Although no comparable data exist for other OECD countries, the reviewers' own experiences and the results of previous OECD/CERI reviews suggest that Switzerland stands as a very particular case, one which would be comparable only to what used to be the situation in continental Europe a couple of generations ago. To state definitively whether the resulting balance in terms of research traditions, methods and foci is appropriate for the country is outside the scope of this review. Nevertheless, considering this balance from a knowledge management perspective, it is clear that current research practice cannot address the needs of policy makers and practitioners fully and appropriately.

There are no comparable data to the productivity of the Swiss system but the Country Background Report identifies a serious problem with dissemination of research results. The number of ongoing or completed projects is in contrast with the productivity, expressed in terms of publication in peer-reviewed journals. For example, from the studies cited in the Country Background Report it can be derived that of the 1 000 articles dealing with educational sciences, catalogued over a two-year period in Switzerland, only between 15%-20% were published in scientific journals – not necessarily peer-reviewed and a very small minority appeared in international, English-language journals. Moreover, until 2000 there were not any peer-reviewed scientific journals in education in Switzerland. This raises some serious concerns about the isolation of Swiss educational research and its real impact on the academic community worldwide.

4. Major contemporary challenges to educational R&D

From an external perspective, there are a number of challenges for Switzerland that educational researchers might either be willing to address or, under new circumstances, they might be requested to address. Some of them are related to the needs of the education system in terms of harmonisation and system monitoring. Others are the result of already initiated reforms in the higher education sector. And there is one which can be said to be part of the researcher's responsibility, namely the internationalisation of academic research.

As has already been mentioned, the Swiss education system has recently initiated a process of internal harmonisation. At the same time, policy makers' awareness of the need for nation-wide system-monitoring mechanisms has greatly increased. The role that educational R&D can play in both processes is crucial. Certainly, this will require a higher level of public investment in educational research but the most important question is whether the country has the necessary competency base to conduct research into these new domains. The successful role played by educational research in the vocational education sector seems to indicate that such an increase in the competency base can be achieved if the adequate frameworks and incentives are in place.

A number of reforms which have already been initiated also pose new challenges to educational R&D. Firstly, the creation of the Universities of Teacher Education requires a thorough process of defining the role that research should play in the professional practice of teachers. Secondly, the reforms in the higher education sector will undoubtedly have an effect on the overall behaviour of the academic community. Thirdly, there is an urgent need for improving the knowledge-base to facilitate strategic decision-making, both at the institutional and the national level, as already stated in the OECD review of Swiss higher education (OECD, 2002).

Finally, researchers should be worried about the low level of internationalisation of Swiss educational research, as this is a matter of serious concern. There seems to be a high degree of satisfaction with the current situation of cultural and linguistic adscription of research communities and the resulting exchanges almost exclusively with neighbouring countries. Efforts to cooperate internationally seem to be severely limited by this situation and the absence of sufficient cooperative efforts to bridge the internal cultural and linguistic gaps. However, an increase in both the mobilisation and internationalisation of researchers could result in new perspectives and fresh approaches, as well as providing opportunities for disseminating Swiss contributions.

II. STRATEGIC AWARENESS

This section is intended to provide an overview of the way in which the country organises its own system of knowledge management with regard to education and the role that educational R&D plays. Firstly, it examines the extent and quality of the country's knowledge about its current education system. Secondly, it analyses the funding provision for the accumulation and organisation of the existing knowledge base. Thirdly, it discusses the need for a national policy or strategy for educational R&D. Finally, it describes the different stakeholders' views and their levels of commitment towards a national system for managing the production and use of educational research and knowledge.

1. Management of information about the education system

Key points from the Country Background Report that are relevant to this area:

- Lack of socio-political relevance of existing educational R&D, despite its increasing demand.
- New areas of relevance need to be explored.

The extent to which educational research provides relevant knowledge about the education system at large could be improved. Notably pre-school, adult education and tertiary education receive insufficient attention in the research agenda. Consequently, the knowledge base in these areas of the education system is considerably weaker than in the area of compulsory school education.

A comprehensive perspective on learning throughout life would indicate that the attention that student achievement at the compulsory level currently receives in an international context (*e.g.* PISA) should not be at the expense of either attention to the pre-school phase, especially considering its great importance for learning in later stages, or for the school as an organisation that sets important conditions for achievement. Understanding the achievement of students in post-compulsory stages in connection to employment and career patterns is crucial in the context of the knowledge economy. It is therefore expected that international comparisons will be extended to these levels.

From a steering perspective, the enhanced focus on system performance through the use of comparable international data and the consequent national and cantonal efforts toward the development of an information base for the monitoring of system performance is positive. It should not be forgotten, however, that more complementary and in-depth research is needed in order to achieve an understanding of system outcomes and their relationship with pedagogical, structural, social, and economical factors, and thus for the planning of reforms to enhance system performance.

It should also be noted that the higher education sector is highly complex, because of its multiple functions (research, education and services), its interaction with business,

industry and society, and its place in a highly competitive and globalised environment. This complexity requires a solid knowledge base, embedded in an international comparative methodological approach.

The review team observed that the much-discussed historical-pedagogical approach has been the primary model for educational research in Switzerland for many years, but there are indications of an increasing awareness of the need for increasing the role played by other methodological approaches in a more balanced educational research landscape. The review team recognises that knowledge of the past is a necessary condition for both understanding the present and for being able to assess the possibilities for reform and future development. However, this type of research must be able to provide a systematic knowledge base and the theoretical underpinning of empirical research on themes relevant to the functioning of the educational system in contemporary society, including its future challenges, and also contribute to a wider disciplinary basis for the study of these themes. This does not seem to be the case yet.

Some issues for Switzerland to consider:

- Promote an integrated approach to learning throughout life as a framing concept for educational research leading to a more comprehensive knowledge base in education,
- Develop stronger leadership in the field of educational research enabling the research community to develop a common understanding of the conceptual (interdisciplinary) basis for educational research and its relevance for education in contemporary society.

2. The knowledge base in education

Key points from the Country Background Report that are relevant to this area:

- The flow of research findings into policy development processes is hardly systematic.
- The impact of research on policy thus depends on cantonal environment.
- Communication and knowledge transfer problems.
- Publication practice.

The organisation and accumulation of existing education knowledge is hindered by the fragmentation of the field on both the research and the policy side. In addition, the knowledge field is divided between the different linguistic regions. The bulk of research knowledge is produced in decentralised units (university chairs/departments) and the demand for knowledge is mostly articulated at decentralised levels (cantons), leading to a sub-optimal situation in terms of knowledge organisation, accumulation and quality assurance.

A potentially important brokerage role is played by SCCRE, as something of a clearing-house that transforms research outcomes into policy- and practice-oriented publications, including trend reports relevant for policy-making. The use of the SCCRE database should be optimised for communication, dissemination and meta-analysis of the field. The pro-active approach of the SCCRE cannot, however, entirely compensate for the sometimes weak commitment of the research community.

Provisions for the accumulation and organisation of existing education knowledge might also exist at sub-national level, such as the IRDP and “Bildungsplanung Zentralschweiz”. There are also regional conferences of education ministers assuming these functions (CIIP, BKZ, NW EDK and EDK Ost). But this does not compensate for, nor substitute, the need for improving coordination at national level.

The situation is better structured in the case of vocational education for which national coordination competencies exist and where the effective bundling of expertise is being shaped through OPET and the so-called *Leading Houses*. These are designated centres of expertise that conduct research on their own account, grant research contracts and promote young research talent, while being well networked internationally. The resulting model is viewed by many actors as being an example of more effective knowledge management at a national level.

The SSRE, the Swiss Society of Research in Education, is gradually increasing its role in generating more direction in the research community, by opening up the Swiss system to the international research scene, enhancing dissemination and by providing more opportunities for young researchers. They are still hindered in achieving their goals by the fragmentation of the different linguistic communities and by the notion that educational research should be carried out in very close connection to the decentralised contexts in which education is organised. But as a matter of fact this can be applicable to the whole research community.

The SFSO holds important statistical databases (including PISA) and is building up a comprehensive system-level store of information on the functioning of the country’s education system as a whole. This responsibility for data collection and monitoring of the system at the national level is endorsed by the new constitutional amendment on education (passed on May 21 2006), which regulates the data collection across all cantons even more precisely. Moreover, the harmonisation of education structures (HarmoS) could support the harmonisation of indicators, structures and datasets.

Important extensions are planned across all levels of education and the introduction of the student identification number will allow the SFSO to study the transitions of students throughout the education system. The SFSO is well aware of the challenges it faces to improve data collection on public expenditure (especially in higher education) and human resources (especially in vocational education), and the importance of international comparative data. These positive developments will enhance the knowledge base and the central role of the SFSO, a role for which it seems to be preparing very well.

The SFSO rightly understands its own role in the research system to provide statistical data on the functioning of the system to policy makers and the general public, and to provide a systemic basis on which empirical research can be carried out by the research community. However, the competency to use this type of data for in-depth empirical studies seems to differ across the researchers in the country. So far, only a few effective links have been established with competent researchers. The creation of a more profound knowledge base (*e.g.* through the use of longitudinal studies, large-scale survey data analysis and comparative analysis) depends on further capacity building in empirical methodologies within the research community.

With the harmonisation of education structures, more monitoring and the coordination of data collection at the national level is planned, *e.g.* the “Bildungsbericht”, which SCCRE will produce for the EDK/CDIP and the Confederation on a four-year basis. It should be realised, however, that although this agenda is highly supportive of monitoring

and development functions (formulation of competency levels, standards, etc.), the research agenda cannot be limited to that.

Therefore there are two developments with coinciding directions: The HarmoS project and the standards that are developed for monitoring learning progress in compulsory school on the one side and the monitoring project, where the whole system is analysed and the results are published in the planned report on the whole educational system. Both developments can converge into an improved knowledge base in education.

Some issues for Switzerland to consider:

- Increase coordination at the national level (including funding mechanisms) to open up opportunities for enhanced knowledge management in the area of educational R&D.
- Strengthen capacity building in empirical methodologies (in particular, the training of young researchers) to enhance the systemic use of national and international statistical data to create a stronger knowledge base on education in Switzerland.
- Foster stronger links to the disciplines underpinning research in education to provide a more solid methodological and epistemological basis regarding the relationship between educational research and its object, also as a way to overcome the problem of too-close connections between the two, with the related risks of lack of objectivity and distance.

3. The need for a national policy for educational R&D

Key points from the Country Background Report that are relevant to this area:

- A clear strategy has, so far, been lacking.
- Structural situation: heterogeneity and fragmentation of research institutions.
- Isolation of researchers.
- Lacking capacity building.

The coordination of educational R&D at the national level is weak. Fragmentation and a consequent lack of critical mass seem to be the main reasons for the likely under-performance of the system as a whole.

Fragmentation has many dimensions in the Swiss context. As already stated, the educational system is fragmented due to the structural distribution of authority between national and cantonal levels over the various parts of the education system recognised in the Constitution. This implies that the knowledge system for educational research is also fragmented, as various research contracting efforts are undertaken at decentralised levels and others (*i.e.* SNSF) are undertaken at the national level.

Fragmentation is also observed between research groups and centres across the country, notably between the German- and French-speaking parts. In university settings, research might be fragmented due to a lack of coordination beyond the level of chairs and by the lack of a common understanding and definition of the field of education research, both in terms of its interdisciplinary thrust (educational sciences) and in terms of its various types of research and their relationship (*i.e.* what is basic research, applied

research and developmental activities). Finally, a large number of researchers might work individually, on a contract basis (free-lance), but are not connected to wider programmes.

The vocational education sector is a positive exception to this pattern. OPET conducts a comprehensive research strategy in this area, with provisions for quality assurance, articulation, accumulation, dissemination, and stakeholder involvement. There is an understanding of the different types of research, their role, function and their relationship. OPET's agenda and actions are mainly focused on applied research. Focus and critical-mass is achieved through the establishment of Leading Houses.

It is well understood that this level of more effective coordination is supported by the fact that the vocational education sector is coordinated at the federal level. With the harmonisation of education process (HarmoS) and the constitutional amendment regarding the shared responsibility for the quality of education (at compulsory levels) between cantons and the confederation, the review team expects that more opportunities for this type and level of coordination will emerge.

This might also enhance the steering capacity of the NCCR, which currently does not hold a special research programme for educational research. The review committee appreciates NCCR's position on competition between different fields of research in social sciences and humanities as a quality measure. However, a more targeted approach in combination with a substantial shift of funding to this level might enhance the situation, which is currently characterised by a bottom-up approach and a lack of transparency and quality assurance after the initial selection of research proposals.

The role of CORECHED is to create an effective national policy for educational R&D. Its efforts have been limited by a lack of decision-making power over research priorities and the allocation of resources. It seems that the change in the constitution regarding the shared/joint responsibility between the cantons and the confederation for the quality of education will allow for a contractual arrangement with CORECHED to strengthen its role in this respect.

Some issues for Switzerland to consider:

- Establish a strongly led, well-funded and lengthy NSF research programme to support the development of educational research, drawing on OPET's experience, with the institutions represented in CORECHED (EDK/CDIP, SER, OPET, SFSO, SSRE), among others, as stakeholders.
- Ensure that the resulting programme pays attention to the need for creating critical mass by requiring networking, and to the dissemination of results.
- Put in place mechanisms for systematic follow-up and evaluation of research projects, with adequate performance incentives.
- Use of this national programme to create opportunities for cooperation with other countries that have such a national programme (*e.g.* Sweden, Finland, United Kingdom, etc.).

4. Stakeholders' views on the possibility of a national strategy

The importance and impact of international comparisons and the attempts at modernisation and harmonisation offer more scope for coordinating efforts at the national level. This seems to be leading to a growing in-principle agreement by key stakeholders

on the need for more coordination at the national level, as a way to overcome the problems derived from fragmentation. However, the levels of actual commitment of the key stakeholders to a national knowledge management system for education research and their views on the preferred options might still differ.

The research community generally acknowledges the need for more coordination, but also fears too great a level of control by policy makers and the subsequent loss of academic freedom. At the same time, some researchers might be insufficiently aware of their already-strong involvement in politically-biased research agendas. More generally, a sense of self-direction in order to generate more responsibility and responsiveness from within the research sector itself should be enhanced. This will allow the sector to play a stronger and more coordinated role in the dialogue with policy makers on setting the research agenda.

Policy makers are generally aware of the need for more coordination. They take the performance of the system in the international context and the process of harmonisation as driving forces in this direction. Yet, some stakeholders at decentralised levels might be reluctant to shift the responsibility for coordination to the national level. This reluctance might be related to arguments of linguistic and cultural diversity, control over datasets, indicators and standards, and to the notion that close proximity to context is a condition for appropriate research on education. These arguments might be outweighed by the opportunities for more comparative research that could be most instructive on the actual role and impact of context and by the potential methodological weaknesses that proximity to context might create. Moreover, there is an absolute need to create greater critical mass in virtually all fields of educational research.

There is growing public pressure for greater national coordination of the education system, as the favourable vote on the new constitutional amendment demonstrates. It can indeed be seen as a major driving force for creating greater coordination of the educational R&D system. However, a certain level of distinction between the two processes seems to be relevant.

First, the structure of the education system should not be confused with the desirable structure of the field of education research. Forms of developmental work and applied research might be closely connected to local or regional contexts for reasons of relevance, whereas basic research by definition requires a much larger (international) area of action, scrutiny and intellectual and theoretical outlook. Second, the harmonisation agenda seems to be leading to types of research related to greater levels of coordination, such as developmental work (*e.g.* curriculum standards), monitoring, evaluation, gathering of basic statistical data, etc. Obviously, the research agenda cannot be limited to these types of research. But, neither can it be focused almost exclusively on compulsory levels of education, *i.e.* the levels implied in the harmonisation process.

III. BASIC RESEARCH

This section discusses the provision and existing incentives for the production of high quality and innovative pure basic research in education.

1. The production of basic research in education

Key points from the Country Background Report that are relevant to this area:

- Only a relatively small group of researchers conducts basic research on a regular and continuous basis.
- There is no critical mass in specialised research fields in basic research and there is a need for larger networks, *e.g.* between traditional universities, teacher training universities and universities for applied science.
- Little information on the quality of educational research is available.
- Definitions of basic research and theory are unclear.
- There is a lack of continuity and sustainability in educational research.

Currently, there is only a small group of educational researchers in Switzerland who work on a problem-oriented basis within international research networks who are capable of reaching high standards of quality. Some of these researchers have a well-established international reputation. These researchers have been recruited from different scientific fields/areas, mainly educational sciences, special didactic subjects, educational sociology and educational psychology. They identify themselves on the basis of their own field and discipline with educational science, they have a common understanding of educational research, especially empirical educational research, and they are integrated into the international production of knowledge for education and educational planning. However, it is obvious that this small group cannot satisfy the continuously growing need for empirically based knowledge on education in Switzerland.

The production of high quality and innovative basic research seeks to be able to generalise results. Indeed, one can also expect that research that tackles practical problems will be theoretically well-established and able to identify which basic theories are expanded through its results. Basic educational research deals with complex phenomena and single variables cannot always be isolated, as it is the case with experimentally controlled research designs: successful educational research requires a degree of reflexivity from researchers. Basic educational research has to consider the cultural and social contexts of both education and educational systems, as the experimental manipulation of research subjects is often not possible due to practical and ethical reasons and, as a result, field research plays an important role. Because of the complexity of educational problems, it is often appropriate to apply heterogeneous

theories. Research can be considered a great success if it results in the integration of different theories.

Basic educational research, which analyses education in complex systems, *e.g.* schools, enterprises, universities, institutions of further education, and also in families, peer groups and socio-pedagogical institutions, cannot replicate the results of previous studies. Nevertheless, quantitative and qualitative research can improve our knowledge, allowing us to make educational interventions on the basis of clearly defined concepts and tested educational theories.

The Leading Houses in vocational educational research represent an interesting innovation. Their mission is to set up new priorities for research, to point out research gaps, to work in cooperation with international networks and in consideration of international research standards. The pending evaluation of the role played by the Leading Houses should be able to show how effective this model is and how it is influencing basic and applied research in this particular educational field.

Issues for Switzerland to consider:

- Promote innovations in basic educational research through international scientific networking, and innovations in applied research through problem-oriented programmes at both national and cantonal levels.
- Promote a closer collaboration between basic and pure research on the one hand and applied research on the other.
- Create the conditions for a greater focus and leadership for basic educational research at universities, not directed towards additional research units operating outside universities, thus avoiding the risk of fragmentation.
- Promote interdisciplinary research strategies and networks focused on education in cooperation with the existing ones in the domains of educational sciences, subject-oriented didactics, educational psychology, educational sociology and economics of education.
- Foster basic educational research to cover the whole life cycle of education in society.

IV. APPLIED RESEARCH

This section discusses the current provision and system of incentives for producing high quality and relevant applied research in education and to what extent the different stakeholders are involved in setting priorities in this area.

1. The production of applied research in education

Key points from the Country Background Report that are relevant to this area:

- A high proportion of Swiss educational research is focused on didactics.
- There is a relatively low proportion of research that uses quantitative empirical methods.
- The demand from the potential users of educational research is modest, partly because of a perceived lack of relevance and/or timeliness.
- PISA has been significant in stimulating the re-appraisal of the role that educational research could play.
- The positive outcome of the Referendum on May 21st 2006 could transform the demand for educational research.

In our visits, we found some unease among university staff over the perceived encouragement of applied research as this was seen as being “politically directed” rather than “curiosity-led”. Others felt that this concern was overstated. We formed the view that, notwithstanding their achievements, some traditions of non-empirical research within Switzerland were gradually losing their importance. However, new research developments needed to be actively supported if the products of educational research were to have greater contemporary relevance.

The focus on didactics was reported to us consistently and this is understandable given the linkage of didactics to practice in teaching and learning. However, in the interests of being able to understand educational issues as a whole, interventions to support research on a wider range of issues appear to be timely. These interventions might be achieved through strategic key appointments, the establishment of new research centres, and the funding of appropriate projects within a coordinated programme. The latter method might be particularly effective, as it would draw on the existing NSF provision for programmes.

We found that the Universities of Teacher Education we visited were well organised for conducting research in prioritised areas, but struggled to offer quality time to all staff. They were well placed to be able to conduct applied and developmental research, with some particularly close historical links to local cantons. Some institutions aspired to link their work with established universities and some cantons were concerned about the quality of service they could now obtain.

Representatives of CSHEP explained their plans for the coordination and expansion of their research activities, which we felt were generally well-conceived. The review team was convinced that these would be best achieved through a continued focus on applied research and development work which stayed close to the main institutional missions in respect of the various dimensions of teacher education. Subject to this, the ambition to increase the amount of research in such institutions seemed to be an appropriate measure to underpin degree-level teaching and contribute to new knowledge in applied fields.

We were impressed by the DORE scheme (Do Research, the national system to support applied research) as a whole. It seemed very well-adapted to be able to support applied research within the new Universities of Teacher Education – although, strangely, the scheme prevents research which focuses on these institutions' own practices. The provision for publication work, conference attendance and research training courses is well-targeted.

As said, we were also impressed by the apparent willingness of the Universities of Teacher Education to consider some form of national coordination to focus their work on national priorities, as expressed by the conference of rectors of these institutions.

Issues for Switzerland to consider:

- If, as suggested, a national programme for educational research is implemented consider applied research in education to be the core of it.
- Consider how such a programme could be linked to Leading Houses and Graduate Schools in order to support both the accumulation of specialist knowledge in priority areas and the development of related capacity building.
- Significantly increase the funding of DORE through a funding strand which is explicitly targeted at the Universities of Teacher Education and which allows institutions to conduct research focusing on their own practices.
- Universities of Teacher Education should concentrate on their core mission and focus on relevant applied research and development. They should not, at this point, seek to obtain powers to award doctoral degrees.
- Universities of Teacher Education should collaborate with the appropriate cantons, universities, graduate schools, Leading Houses, etc.

2. Stakeholders' involvement in the process of priority-setting

In general, the current situation regarding priority-setting in applied educational research in Switzerland is characterised, again, by fragmentation both on the side of the university-based researchers, who mainly set their priorities at the individual (chair) level, and on the side of policy makers, who tend to formulate their priorities at the decentralised (cantonal) level. Only in the area of vocational education (OPET) and in the NCCR framework have these fragmentations been overcome by the introduction of more systematic approaches (*e.g.* Leading Houses and NRPs).

In the view of many policy makers, educational research is dominated by overly theoretical, historical approaches, with a strong focus on the level of didactics, and which employ qualitative rather than quantitative methods. At more centralised levels, policy makers are in need of outcome-oriented, system-level studies based on quantitative methods, in order to be able to provide evidence-based policy-making. At the same time,

policy makers and research commissioning authorities at decentralised (cantonal) levels often lack the capacity to articulate adequate research priorities, to judge the quality of research offers and outcomes, and to use it for evidence-based policy-making. Moreover, the procedures for the prioritisation and commissioning of research at these levels might be politically or linguistically biased, non-transparent, and influenced to too great a degree by personal relationships.

Researchers perceive policy-based agenda for educational research as a threat to academic freedom and they used strong language to express their feelings about being subject to external steering. At the same time, most research groups demonstrated insufficient levels of self-steering and coordination to be able to contribute to serious priority setting. Further, despite their resistance to external steering, they are, in many cases, already strongly involved in policy-related activities. In certain cases, these are incorrectly identified as being developmental activities rather than research. In others cases, research activities might be politically or linguistically biased.

Systematic knowledge accumulation and dissemination are lacking on the sides of researchers and policy makers. Researchers might be unable to address any policy-based question because they do not have adequate structures for systematic knowledge and data collection, or adequate techniques for efficiently deriving answers from existing data and knowledge bases. Policy makers might be insufficiently unaware of the range of available data and knowledge or find it difficult to use them efficiently in decision-making processes. As a result, effective priority-setting, the embrace of a long-term perspective on policy relevance, and the continuity of research (direction) could be enhanced. The current lack of coherence and wasteful use of resources might be at stake.

A wider range of stakeholders is only systematically involved in policy-setting in the case of VET research coordinated by OPET.

V. DEVELOPMENT AND PROFESSIONAL ENQUIRY

This section discusses whether there is appropriate provision and incentives for the production of high quality and relevant developmental work and professional enquiry.

1. Developmental work and professional enquiry in education

Key points from the Country Background Report that are relevant to this area:

- A considerable amount of developmental work is contracted by cantons annually, but only a small proportion of this goes to universities.
- Most of the contracts for development work have gone to non-university organisations, though an increasing proportion might be taken up by Universities of Teacher Education.
- Fifteen Universities of Teacher Education were established after 2001, following EDK/CDIP recommendations. Total enrolment, including from numbers from the three universities also engaged in teacher education, was 9 000 in 2004/05.
- One aim driving the formation of Universities of Teacher Education was to enhance the scientific and research which underpins such education.
- The Education Sciences Department of the FPSE in Geneva has a distinguished tradition of educating primary school teachers.
- Most staff at the Universities of Teacher Education are assigned only a limited number of hours for research activity, though most institutions have targets to allocate 10-20% of staff time to research and development. There is heated debate on how to best allocate this time resource.
- The appropriate level of qualification for teaching staff is a major issue.
- Many Universities of Teacher Education are developing focused research offices.
- Vocational education is also underpinned by research.

Our visits, discussions and observations revealed the existence of some high quality development work being performed which was of relevance to the particular setting for which it had been created. However, there also appeared to be resource and development outcomes which would have benefited from a wider range of influences. The localised commissioning of development work might therefore raise quality issues. We were also concerned by reports of some commissioning processes which did not seem to be as transparent or competitive as might have been expected.

The high proportion of development work being conducted by organisations outside the university system raises quality questions concerning their capacity both to remain

up-to-date and to offer the best available services. In principle, systems of liaison, support and capacity building might be worth considering.

The establishment of Universities of Teacher Education appears to have created a well-focused set of institutions which are able to contribute to applied and developmental research. They also have key roles in ensuring that future teachers appreciate the role of new research in understanding educational issues and in driving national improvements in the quality of learning and other outcomes.

Our visit and discussions with the conference of rectors of these universities enabled us to form a view that there now existed a confident group of new organisations, all working hard to establish themselves. However, we understand that only 20-25% of teaching staff at Universities of Teacher Education have PhD qualifications and the review team felt that this was too low a proportion in relation to their research and development objectives.

The national requirement to engage student teachers in educational research seems worthwhile and far-sighted. However, as well as presenting research as a way of understanding educational issues, we would also encourage small-scale enquiries and forms of systematic reflection to be presented as ways of improving routine classroom practices.

We were not made aware of any existing provision for appropriate induction of teachers in the early parts of a teaching career or for systematic continuing professional development through the career. We cannot therefore comment on the embeddedness of research except to say that its potential role as a means of professional and institutional improvement might be seen as becoming increasingly important for all teachers and other pedagogic practitioners.

It is not apparent that a similar commitment to promoting understanding of research as a way of improving practice exists in relation to staff who are teaching in higher education. This could be an area for future development.

Issues for Switzerland to consider:

- Review the ways in which development work is commissioned within cantons.
- In principle, new systems of liaison, support and capacity-building might be worth considering in order to underpin the quality of development work offered by non-university organisations.
- Support the ambitions of academic staff in Universities of Teacher Education to improve their qualifications and set targets for the proportions of staff holding PhD level qualifications.
- Encourage staff at Universities of Teacher Education to conduct research into their own practice.
- Endorse the introduction to research activity which is provided in teacher education courses, and encourage the preparation of practitioners to conduct small scale “reflective” enquiries on their own practice.
- Review systems for teacher induction and continuing professional development to ensure that appropriate forms of research and practical enquiry are embedded within them.

VI. SYSTEMIC ISSUES

This final section discusses some organisational and systemic issues. Firstly, it analyses the internal coordination, distribution and networking of educational R&D at the national level. Secondly, it discusses the issue of internationalisation. Thirdly, it presents the quality assurance and accountability procedures for educational research. Fourthly, it shows how research findings are communicated and disseminated, paying particular attention to their impact. Finally, it provides an account of the capacity-building needed to sustain educational research and development in the country.

1. Distribution, coordination and networking of educational R&D at the national level

Key points from the Country Background Report that are relevant to this area:

- SCCRE was designed to play a major role in the distribution and networking of educational R&D.
- CORECHED could provide national coordination of educational R&D but has had limited powers and effectiveness in the past.
- There is no national provision for systematic exchange between researchers and policy makers, for instance, to discuss priorities or key questions which research evidence could illuminate.
- There are regionally coordinating institutions within French-speaking Switzerland (IRDP, CRE) and central Switzerland (Bildungsplanung Zentralschweiz).
- Many cantons maintain small units whose purpose is to gather information on the local education system and manage some research and development activity. In a few cantons, these services are well-developed.
- There has been a degree of tension between university departments and cantons in respect of the relevance and timeliness of academic research.
- The establishment of Universities of Teacher Education was, in part, aimed at increasing the applied research capacity available to cantonal administrations.
- The positive outcome of the Referendum on May 21st 2006 introduces conditions favourable for “the creation of a coherent, high-quality and competitive education system throughout Switzerland” – to which a reconfigured system of educational research should contribute.

The review team perceived a wide distribution of R&D activities, networks and responsibilities – with considerable fragmentation. This fragmentation does not only refer to the Swiss political system. Additionally, there are significant differences in the perspectives, missions and working conditions of both Universities and Universities of

Teacher Education. Finally, there are different approaches to coordination in particular sectors, with vocational education being exceptionally well-integrated.

Whilst the quality of the data collection and administrative systems reported in some cantons appeared to be excellent, the process of commissioning research in other cantons appeared to be short-term and rather pragmatic, with insufficient coordinated work on more fundamental strategic issues.

Overall, we did not sense the existence of a shared mission, set of value commitments or collective appreciation of national priorities and goals either for the education service or for the role of educational research. The EDK/CDIP and the OPET showed a clear awareness of the complementary roles which different parts of the Swiss system could potentially play, and of what an integrated knowledge generation and management system might look like. However, beyond these organisations, such an awareness was not often evident in our meetings.

Indeed, notwithstanding the efforts of the new Universities of Teacher Education to establish themselves, we generally perceived a set of long-standing organisations and associations which were each well-adapted and comfortable within their own social, cultural and institutional niches. Further, these elements appeared to have established the capacity to reproduce themselves over time. We felt that, whilst the status quo might offer some mutual advantages, its unintended consequence was to fragment Swiss educational research, hinder its development and cause it to under-perform. We concluded that there is a case for a more fundamental review of the system as a whole. We appreciated the strategies that were being developed by the EDK/CDIP for harmonisation within the school curriculum and for monitoring outcomes. Such initiatives could provide an opportunity for consideration of further levels of national research coordination.

Our impression was that although CORECHED was an important organisation, it had not been able to build sufficient agreement on a clear national strategy for educational research as part of the broader educational system. We are aware that some of the difficulties within the system were identified in a 1994 report by CORECHED. It is to be hoped that the constitutional amendment passed in the May 21st Referendum will enable CORECHED to review its terms of reference and to provide more leadership in relation to the development of a more integrated Swiss system for knowledge creation and management. From conversations with the representatives whom we met, it appeared that the SER would greatly welcome such leadership, but others argue that SER is not playing an active role in CORECHED.

The services provided by the SCCRE are potentially vital in the development of a more integrated system – but they appear to be underused at present.

Issues for Switzerland to consider:

- Use the constitutional amendment to strengthen CORECHED's coordinating, prioritising, monitoring and decision-making powers.
- Considering the widespread distribution of expertise, perhaps work towards a number of specialised centres reflecting national priorities. Leading Houses in research in vocational education offer one possible model, but other possibilities could also be explored in order to increase the critical mass working on particular topics.

- Review and improve the provision for the enrolment, training and support for appropriate staff in cantons who will be involved in the commissioning, evaluation and interpretation of research and development activities.
- Coordinate research-commissioning across cantons for appropriate key issues.
- Encourage all educational researchers to join the SSRE and support the association's continuing development to enable networking, provide services for, and represent Swiss educational researchers.
- Consider how the SCCRE should be developed in relation to a new national strategy.

2. The international dimension of educational R&D

Key points from the Country Background Report that are relevant to this area:

- In Switzerland, there is a strong tendency to build international networks within a particular language region (*e.g.* German-speaking, French-speaking).
- The Anglophone science nexus does not play a prominent role in education sciences.
- Educational research papers are rarely published in renowned international journals which are written in English.
- The Swiss Journal for Educational Sciences is peer-reviewed and contains peer-reviewed research papers published in French, German, Italian and English.
- Instruments created by CORECHED to promote international exchange have attracted only few researchers.

Although it is currently an acknowledged achievement for researchers to participate in the French- or German-speaking scientific communities with their special culture, it is also necessary to conduct research within broader international peer networks and that means working also in English-speaking scientific communities because Swiss educational research has to attract the attention of global international research networks too. This strategy will guarantee a stronger international involvement and influence and increase the timeliness of empirical research of a high standard. It is a controversial claim that there are deficits in the field of international cooperation – however, it cannot be argued that the focus of international work often lies only with the French- or German-speaking scientific community.

International visibility and presence is a continuous challenge for all disciplines in educational research – not only in Switzerland. The great chance to learn from the experiences of broader international research groups can be fostered with an increased presence at international conferences and in international publications. The support of young researchers taking part in international activities and programmes is, of course, especially important.

Again, it should be mentioned that there are outstanding researchers with well-established international reputation in Switzerland – yet the international engagement and networking should be implemented in broader areas. Only by creating a critical mass through enhanced cooperation within the country an internationally competitive level of quality can be achieved. In some ways, this enhanced cooperation could also have the

added value of contributing to overcome the regional and linguistic adscription that currently makes contacts between researchers of different communities so rare.

Issues for Switzerland to consider:

- Improve international research networking and mobility with other national research communities, adding to the well established links with Germany and French speaking countries.
- Create career incentives for publications in peer-reviewed international journals (journals written in French, German and especially English).
- Sustain the continuous supply of the instruments in place to promote the internationalisation of Swiss research results, such as funding for translations, prizes, and the like.
- Integrate a strong component of internationalisation in the training and promotion of the rising generation of young researchers.

3. Quality assurance and accountability procedures

Key points from the Country Background Report that are relevant to this area:

- Completed educational research tends to be accepted without routine evaluation.
- The publication of books and articles is the prevailing practice in educational sciences, which does not expose research work to systematic peer review.
- Development work in the cantons takes place with little reference to educational research.
- There is only a weak accumulation of knowledge, rarely building on what is already known or using theory to conceptualise the issues which underlie particular problems.

The low level of international exposure is a major factor here, as has been referred to earlier in this report. In the academic world, research quality is enhanced by the exposure of findings and analyses to international debate and criticism. The most insightful, relevant and analytically powerful ideas survive, whilst others do not. If work is not exposed to this level of scrutiny, it is likely to become less rigorous and to gradually fall behind the forefront of international knowledge generation. If new projects are not based on contemporary knowledge, they are unlikely to fulfil their full potential.

The review team noted that in the 2003/04 internationally peer-reviewed competitive funding call for National Centres of Competence in Research, only one proposal related to educational research was submitted, and subsequently failed. Irrespective of the potential implications that the funding of such a National Centre of Competence in Educational Research might have, the apparent lack of interest of the research community in such a call and the subsequent failure are clear indications of a particular status quo in educational research in Switzerland.

Among the internal reasons for underperformance, there appears to be a degree of acceptance of the status quo, which is perhaps reinforced by the regional, cultural and institutional diversity of the country. We saw very few processes which might interrupt or challenge the existing local or institutional practices and quality expectations. There were,

for example, clear weaknesses in the commissioning of research and development within some cantons, with too little transparency in the commissioning process and too little competition for funds to drive up quality standards. Further, we perceived weak procedures for evaluating the outcomes of research and development investments at almost all levels – from the cantons to the NSF. This might lead to research “findings” being accepted uncritically. We noted the excellent working conditions and resources provided for senior academics but were surprised by the apparently low degree of accountability for those in such key leadership roles.

Overall, we felt that quality assurance and accountability procedures were weak.

Issues for Switzerland to consider:

- Strengthen awareness by researchers and commissioning bodies of the appropriate quality criteria for different forms of educational research.
- Strengthen the quality of basic, applied and development research by exposing it, wherever possible, to international debate and competition.
- Consider the publication of the Swiss Journal for Educational Sciences in English alone.
- Increase the transparency of commissioning procedures by cantons and other users, and encourage the submission of competitive tenders on a cantonal, national or international basis, as appropriate, for all major research and development activities.
- Strengthen the systems of accountability for the leaders of funded projects, including the provision of final reports and the publication of key findings and summaries.
- Introduce systematic follow-up measures to support quality assessment and performance and quality incentives.
- Implement quality assurance and research performance measurement systems, at both institutional and national level, and benchmark them against international indicators.
- Increase the accountability of those researchers in senior academic positions with significant responsibilities for the development of particular fields.

4. Communication and dissemination of research findings

Key points from the Country Background Report that are relevant to this area:

- Important representatives of university departments are not active in their professional associations.
- EDK/CDIP coordinates the policies of the different cantons.
- CORECHED plays an active and important role in coordinating research policy among the major cantonal and national stakeholders.
- Repeated attempts to intensify interaction between research and practice are made but the measures are not part of a larger strategy.

- Exchange between the producers of research and politics often tends to take place on an informal basis, and systematic interaction between research and politics is rare.
- Language barriers between German- and French-speaking researchers are significant – even in Switzerland.

Cultural factors, language communities, research traditions and also different thematic trends in the German- and the French-speaking cantons play a significant inhibiting role in networking and in knowledge distribution. However, the main problem seems to be that the interaction between research producers and political and administrative institutions is difficult to manage, as it was also the case in the other reviewed countries. Educational administrative entities differ greatly in the extent to which they utilise research data. Some reform projects are not based on basic and applied research. The attempt to shape the educational system on the basis of evidence-based policy research confronts three fundamental problems.

Firstly, politicians are not always convinced that the scientific support and evaluation of reforms are necessary requirements for either best practice or meaningful solutions and therefore they tend to rely more on their intuitive ideas and normative assumptions.

Secondly, administrative entities sometimes have highly qualified staff who have the capacity to formulate key research issues, commission suitable research projects and evaluate them either by themselves or in cooperation with universities – but sometimes the research agencies of administrative entities are not specifically qualified for this task.

Thirdly, researchers are members of various professional associations and their influence on educational policy and research varies, but primarily these organisations only have an advisory function. Although the SSRE is represented by its president in the CORECHED steering committee and researchers are represented at education councils on cantonal level, bodies with quite a potential influence on the education policy, hardly it could be said that this influence has been used to foster the use of educational research evidence in the policy-making process.

Issues for Switzerland to consider:

- Promote the creation of target-oriented publications and addressing the specific dissemination of research results in multiple formats.
- Increase the involvement of representatives of university departments in Swiss professional associations.
- Create more opportunities to, and support for, systematic exchange between researchers and policy makers.
- Strengthen the role of electronic communication and public databases to contribute to the dissemination of research results.

5. Capacity building

Key points from the Country Background Report that are relevant to this area:

- Slight increase of the number of doctoral conferrals in recent years.

- Postgraduate papers are primarily based on historical and qualitative research strategies.
- Mismatch between the newly created and planned professorships in educational research in Switzerland (empirical education theory, education system, educational sociology).
- Deficits in the development of the next research generation.
- International isolation and not enough systematic support of young researchers.
- Generally insufficient, and sometimes even low, level of international components in the training of young researchers.

In recent years, many efforts were made by universities and the Swiss national research fund to improve the situation: for example, the University of Geneva, in collaboration with other universities in Western Switzerland, started a postgraduate programme in educational science, new doctoral programmes in educational science were created and some of the young researchers are taking part in international summer courses with special methodological focus. The review team would like to reinforce the value of such developments.

The job market situation for educational specialists has greatly improved with the creation of the Universities of Teacher Education. The demand for teaching and research staff grew immensely in a relatively short period of time. However, rapid change can lead to problems – as said, the percentage of PhD holders in Universities of Teacher Education is too low.

Junior academics are not sufficiently integrated into larger programmes that would provide the basis for continuity of research. Young researchers frequently operate in isolation, working on subjects that they choose themselves, without being integrated in a research group. Although the review team has seen some change in recent years, many young academics rarely attend or present research at international conferences and many are not integrated into international networks. Junior academics receive little systematic support during their doctoral studies. Some young academics are heavily burdened with teaching and administrative tasks in addition to pursuing their own qualification work.

The new concept of Leading Houses in vocational training research is particularly appealing. This concept seems to be able to link the new research generation with research projects and provide mentoring for the young academics with experts in order to develop and maintain their research networks. Including a “young researcher programme”, this concept should be evaluated in the near future. It is possible that this concept of Leading Houses could act as a model in other subject areas of educational research, also in the domain of capacity building.

Issues for Switzerland to consider:

- Establish International Summer Schools in educational research for young researchers in Switzerland and link these with other European equivalents, especially in the field of quantitative and qualitative research methods. Whenever possible, ask for the involvement of Leading Houses and the like.
- Offer incentives to attend international seminars and summer schools abroad, particularly to young researchers.

- Design long-term programmes in Summer Schools with visiting international experts on different topics including relatively broadly-defined methodological instruments, research design, measures of investigation and assessment (including complex statistical procedures).
- Offer integrated scientific continuing training measures (short-term seminars in specific methodological areas) and aim particularly at the development of competence for young researchers in educational sciences, educational psychology, educational sociology and the economics of education.
- Give more postgraduate grants for highly qualified young researchers to support the qualification process and to create a solid financial basis for their research work.
- Create special doctoral programmes and, generally, more capacity building schemes for the scientific staff in Universities of Teacher Training in cooperation with traditional universities.
- Use all the above measures to promote a broader perspective to educational research, trying to cover all aspects and sectors as much as possible from a lifelong learning perspective.

VII. OVERALL ASSESSMENT

Overall, the review team felt that the quality of educational R&D in Switzerland was not as high as might be expected or as is certainly possible and that the system, as a whole, is underperforming. There are serious weaknesses in some areas including:

- the internationalisation of research;
- the gaps in coverage of some research areas;
- an unbalanced situation regarding empirical and non-empirical research; and
- the need for improving the impact of research results on policy-making and educational practice.

The main factors which can explain this lie on the fragmentation both of the education system and particularly of the system of educational R&D, on the pre-eminence of funding mechanisms that do not foster enough competition between research teams, and on the lack of accountability. Therefore, even if there is evidence that Swiss investment in educational R&D is less than desirable, to increase the amount of public spending without first maximising the benefit of current expenditure might be inappropriate. Currently, the established educational researcher in Switzerland seems to enjoy a comfortable situation – being well-funded without the pressure to compete for research funds. The situation is not like this for newer researchers, since the structure of the system offers them reduced opportunities.

However, there seems to be a growing awareness of the need for change. This is partly reflected in the ongoing process of the harmonisation of education, an improvement of education standards and of greater co-ordination at the national level, and on some developments in particular institutions and universities. Furthermore, the relative success of the measures intended to co-ordinate and foster educational R&D in the sector of vocational education seems to demonstrate that a more consistent and coherent organisation can give rise to a better performing system.

Looking into the future, if educational researchers are willing to respond to the challenges posed by the evolution of the Swiss society and its education system, they will need to be prepared to work in new and more responsive ways. Without abandoning independent academic enquiries, more emphasis should be put on responding to the needs of policy makers and practitioners. Accordingly, the system of educational R&D in Switzerland needs to find institutional ways to promote dialogue among all stakeholders to agree on national research priorities, to set up new forms of funding that reflect better a culture of responsiveness to societal needs and accountability, and to reinforce capacity building and increase the internationalisation of research.

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ANNEX 1. List of interviews

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ANNEX 2. List of abbreviations used

BBT/OFFT

Bundesamt für Berufsbildung und Technologie = Office fédéral de la formation professionnelle et de la technologie = Federal Office for Professional Education and Technology (OPET)

BFS/OFS

Bundesamt für Statistik = Office fédéral de la statistique = Swiss Federal Statistical Office (SFSO)

BFT/FRT

Botschaft (des Bundesrats ans Parlament) über die Förderung von Bildung, Forschung und Technologie (in den Jahren 2004–2007) = Message (du Conseil fédéral au Parlement) relatif à l'encouragement de la formation, de la recherche et de la technologie (pendant les années 2004 à 2007) = Federal Council's Education, Research and Technology Message (for 2004–2007)

CERI

Centre for Educational Research and Innovation (OECD) = Centre pour la recherche et l'innovation dans l'enseignement

CIIP

Conférence intercantonale de l'instruction publique de la Suisse romande et du Tessin = Conference of Cantonal Ministers of Education of French and Italian Speaking Switzerland

CODICRE

Schweizerische Konferenz der Leiter/innen von Arbeitsstellen für Schulentwicklung und Bildungsforschung = Conférence suisse des directeurs/directrices de centres de développement scolaire et de recherche en éducation = Conference of directors of cantonal centres for educational R&D

CORECHED

Schweizerische Koordinationskonferenz Bildungsforschung = Conseil suisse de la recherche en éducation = Swiss Council for Educational Research

CRE

Conseil pour la recherche en éducation = Council for Educational Research (authority of the CIIP)

CRUS

Rektorenkonferenz der Schweizer Universitäten = Conférence des recteurs des universités suisses = Rectors' Conference of the Swiss Universities

DORE

Do Research! (Research promotion programme of SNSF and KTI for UAS)

EDK

Ost Konferenz der ostschweizerischen Erziehungsdirektoren = Conference of Cantonal Ministers of Education of Eastern Switzerland

EDK/CDIP

Schweizerische Konferenz der kantonalen Erziehungsdirektoren = Conférence suisse des directeurs cantonaux de l'instruction publique = Swiss Conference of Cantonal Ministers of Education

EERA

European Educational Research Association = Association européenne de recherche en éducation

EPFL

École polytechnique fédérale de Lausanne = Eidgenössische Technische Hochschule Lausanne = Swiss Federal Institute of Technology Lausanne

EVAMAR

Evaluation der Maturitätsreform = Évaluation de la réforme de la maturité = Evaluation of Maturity reform

FAPSE

Faculté de psychologie et des sciences de l'éducation (University of Geneva)

FH/HES

Fachhochschule = Haute école spécialisée = University of Applied Sciences (UAS)

IRD

Institut de recherche et de documentation pédagogique = Institute for Pedagogical Research and Documentation (Neuchâtel)

KTI/CTI

Kommission für Technologie und Innovation = Commission pour la promotion de l'innovation = Innovation Promotion Agency

NFP/PNR

Nationales Forschungsprogramm = Programme national de recherche = National Research Programme

NFS/PRN

Nationaler Forschungsschwerpunkt = Pôles de recherche nationaux = National Centres of Competence in Research (NCCR)

NW**EDK**

Nordwestschweizerische Erziehungsdirektorenkonferenz = Conférence des directeurs cantonaux de l'instruction publique de la Suisse du Nord-Ouest = Conference of Cantonal Ministers of Education of Northwestern Switzerland

PH/HEP

Pädagogische Hochschule = Haute école pédagogique (HEP) = University of Teacher Education

PISA

OECD Programme for International Student Assessment

SAGW/ASSH

Schweizerische Akademie der Geistes- und Sozialwissenschaften = Académie suisse des sciences humaines et sociales = Swiss Academy of Humanities and Social Sciences

SBF/SER

Staatssekretariat für Bildung und Forschung = Secrétariat d'État à l'éducation et à la recherche = State Secretariat for Education and Research (SER)

SFIB/CTIE

Schweizerische Fachstelle für Informationstechnologien im Bildungswesen = Centre suisse des technologies de l'information dans l'enseignement = Swiss Centre for Information Technologies in Education

SGAB/SRFP

Schweizerische Gesellschaft für angewandte Berufsbildungsforschung = Société suisse pour la recherche appliquée en matière de formation professionnelle = Swiss Society for Applied Research in Vocational Education

SGBF/SSRE

Schweizerische Gesellschaft für Bildungsforschung = Société suisse pour la recherche en éducation = Swiss Society for Research in Education (SSRE)

SGL/SSF

Schweizerische Gesellschaft für Lehrerinnen- und Lehrerbildung = Société suisse pour la formation des enseignantes et enseignants = Swiss Society for Teacher Training

SIBP/ISFPF

Schweizerisches Institut für Berufspädagogik = Institut suisse de pédagogie pour la formation professionnelle = Swiss Institute for Vocational Training

SKBF/CSRE

Schweizerische Koordinationsstelle für Bildungsforschung = Centre suisse de coordination pour la recherche en éducation = Swiss Coordination Centre for Research in Education (SCCRE)

SKPH/CSHEP

Schweizerische Konferenz der Rektorinnen und Rektoren der Pädagogischen Hochschulen = Conférence suisse des recteurs des hautes écoles pédagogiques = Swiss Conference of Rectors of Universities of Teacher Education (SCET)

SNF/FNRS

Schweizerischer Nationalfonds zur Förderung der wissenschaftlichen Forschung = Fonds national suisse de la recherche scientifique = Swiss National Science Foundation (SNSF)

SOWI

Untersuchung zur Situation der Sozialwissenschaften in der Schweiz = Examen de la situation des sciences sociales en Suisse = Inquiry into the situation of the social sciences in Switzerland

SWTR/CSST

Schweizerischer Wissenschafts- und Technologierat = Conseil suisse de la science et de la technologie = Swiss Science and Technology Council (up to 2000: Schweizerischer Wissenschaftsrat, SWR)

WBK/CSEC

Kommission für Wissenschaft, Bildung und Kultur des National- bzw. Ständerates = Commission de la science, de l'éducation et de la culture du Conseil national et du Conseil des Etats respectivement = Committee for Science, Education and Culture of the Parliament

ZBS

Zentralschweizerischer Beratungsdienst für Schulfragen = Education Planning and Consulting Service for Central Switzerland (today: Bildungsplanung Zentralschweiz)