

Switzerland: Between the federal structure and global challenges

Matthis Behrens

Introduction

Switzerland is a unique country in many ways. It is one of the smallest countries in the world with four cultural regions and four different languages, three of which are official languages. Presenting the Swiss education system means referring to these different cultures of education, which, in addition, are even more strongly influenced by the political structure of the country.

First, a few cornerstones are needed to illustrate the complexity of the country. The permanent resident population of some 8 million occupies an area of only 41,285 km², of which 10,459 km² are unproductive and inhabitable. The population of Switzerland is composed of four cultural groups and each of these has their own language: Swiss German (65 per cent of the resident population), French (22.6 per cent), Italian (8.3 per cent) and Romansh (0.5 per cent). The latter is a Romance language only spoken in a few valleys in the south-eastern part of the country. This has very little influence on the educational system and thus will not be addressed in this chapter.

Among the other spoken languages, 4.4 per cent of the resident population speaks English. In the professional area, Swiss German is the most widely spoken language (66.2 per cent of employed people), followed by German (32.8 per cent), French (29.1 per cent), then English (17.7 per cent) and Italian (8.7 per cent). Twenty-three per cent of the resident population is foreign. In comparison with other countries this percentage is very high and constitutes an ongoing political debate. Almost two-thirds of foreigners come from the EU or the European Free Trade Association (EFTA) countries. Like most European countries, Switzerland is confronted with an ageing population. The proportion of people aged sixty-five or over has grown to 17.4 per cent. Life expectancy

at birth has risen slightly for men (80.5 years), and for women it remains unchanged (84.7 years) (OSF 2013).

As indicated, the political system is very complex; this however is a feature that guarantees its stability. Beyond the cultural issue, Switzerland is composed of twenty-six cantons, their size varying significantly (from 15,717 inhabitants in Appenzell-Innerrhoden to 1,408,575 inhabitants in Zürich). Historically speaking, each canton has to be considered as a state with its own sovereignty even if some areas are nowadays transferred to the Confederation. In other terms, largely sovereign cantons are reunited in a federal supra-structure. Each level has its own constitution, parliamentary assemblies, government and ministries.

Education is largely assigned to cantons. Consequently, there is no federal ministry of education. However, a federal state secretariat is in charge for certain tasks which will be described later. Each canton has its own ministry of education. In addition, some political decisions regarding educational issues are taken by the municipalities. Competencies between the three levels are organized according to the principle of subsidizing. The main idea is to distribute political decision-making to the lowest community level possible. Superior levels, such as the Confederation or cantons, can only pass regulations or undertake tasks where the subordinate levels (municipalities or cantons) are not in a position to do so.

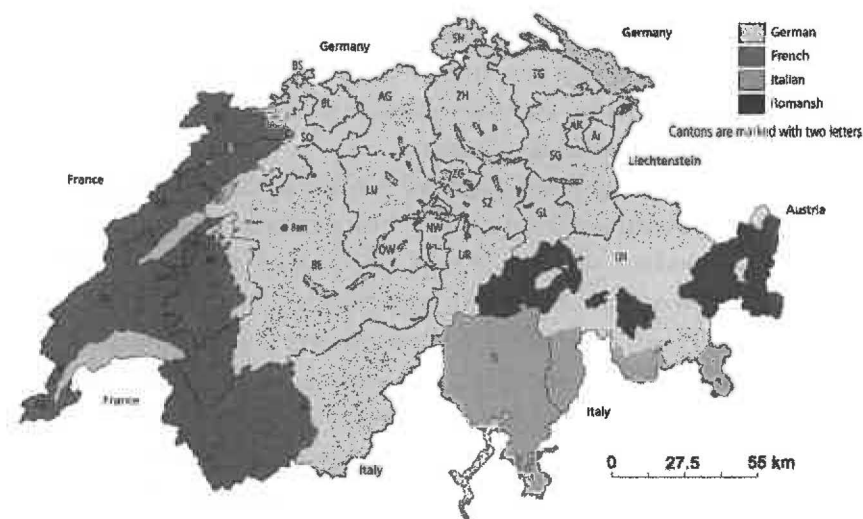


Figure 4.1 Political map of Switzerland with linguistic regions, cantons and lakes

In addition, Switzerland has developed two powerful instruments of direct democracy: referendum and popular initiative. To add changes to the constitution and for certain government expenditures, a referendum is mandatory. Furthermore, if at any of those three levels a government or parliamentary decision is contested by a sufficiently large part of the population, a referendum can be requested. Through popular initiatives the population can also introduce amendments to the legislative corpus or to the constitution. Because of the constant risk of disavowal of political decisions by these instruments of direct democracy, political decision-making has become very slow. It develops through integration rather than opposition. All the main political partners are involved, at government level as well. Compromises are elaborated between the political currents until a majority is obtained without taking the risk of initiative or referendum in which the minorities could overrule the decision obtained by the majority. This feature delays considerably the law-making process and thus explains the conservative attitude of Swiss people and institutions.

Situated in the heart of Europe, Switzerland is very sensitive to international structures that could diminish its sovereignty even though it houses the European seat of the UN as well as important international organizations including the International Bureau of Education. However, Switzerland has been an active member of the Council of Europe since 1963, especially in language policy and education. It has never joined the EU, nor the European Economic Area (EEA) formed by the former member states of the EFTA and the EU member states. Nevertheless, the surrounding political Europe has a major impact on the Swiss system. As a consequence of this independent positioning, an important series of bilateral agreements was signed with the EEA. They influence strongly Swiss legislation, particularly in the field of higher education.

The Swiss economy is modern, prosperous and market oriented which influences many political decisions including those of education and training. The labour force is highly skilled. The economy is strongly oriented towards services (including commerce, insurance and financial services) which roughly represent two-thirds of the gross domestic product (GDP). The manufacturing industry (including construction) represents about one-quarter of the GDP. This has specialized in high technology and knowledge-based production. Switzerland has no natural resources except for water used for the production of electric energy.

After a short period of declining growth due to the financial crisis in 2008, the Swiss economy is doing well again: the number of employed people as well as the number of jobs has increased; the unemployment rate based on the

International Labour Organization (ILO) definition is at 4.2 per cent in the second quarter of 2013. An 18.2 per cent increase in foreign labour during the last five years has been particularly significant. Out of 4.9 million employed people, 45.5 per cent are women, 29.9 per cent are foreigners and 8.1 per cent are self-employed. The gross monthly salary (median) in the private sector is 6,118 CHF (OSF 2014a, 2014b, 2014c).

Historical highlights explaining the current system architecture

Given this complex structure, it is important to be aware of some historical elements in order to understand the functioning of the political system in which education and training are embedded. The Swiss Confederation, as it exists nowadays, was founded in 1848, with roots going back to 1291 as a defensive alliance of three cantons constantly enlarged over the centuries. During that time, the Swiss cantons pursued an expansive policy often combined with military action; however cantons also often fought among themselves. Intra-confederal wars were quite frequent, especially between conservative Catholic and progressive Protestant cantons. This illustrates that collaboration between cantons was never easy and still remains a subtle process of weighting up common support and self-interest. Until the creation of a centralized government, these intercantonal decision-making processes took place at the Diet, an assembly of cantons where unanimity is necessary. This mechanism is still used today in certain intercantonal affairs and especially in education.

The first renowned educational event in the history of modern Switzerland was the endowment of Basel University in 1459 by Pope Pius II. Important intellectual public figures such as Erasmus of Rotterdam and later Paracelsus taught there. Basel was one of the rare European universities being founded and financed by the citizens of the town. It was a centre for humanist thought.

With the Reformation in the sixteenth century, primary education was introduced in many Protestant cantons and theological faculties were created at Zürich, Lausanne, Bern and Geneva. These institutions are considered to be the forerunners of most of the later universities. The same development took place a little later in the Catholic cantons through the Jesuits. Beside all inter-confessional quarrels, the Reformation has to be considered as a major educational breakthrough. It was only on the eve of the French Revolution that the Genevan Jean-Jacques Rousseau (1712–78) published the treatise *Emile, or on Education*, which strongly influenced educational thought in Switzerland.

As a matter of fact, the consequences of the French Revolution had a major impact on Swiss education. When the ancient aristocratic cantonal regimes collapsed nine years later under the assault of the Napoleonic armies, the Helvetic Republic was proclaimed under French tutelage. For the first time Switzerland had a central government. Philippe-Albert Stapfer (1766–1840) was designated Minister of Art and Sciences and was asked to plan a national educational system.

In order to do so, Stapfer launched a call for proposals. Among the most important contributions were those of the Freiburgan Jean-Baptiste Girard (1765–1850), known for introducing the mutual instruction method (Bell-Lancaster method) and the Züricher Johann Heinrich Pestalozzi (1746–1827), known for his educational novel *Leonard and Gertrude* that promoted child-centred education, based not only on education of the intellect but also on the pupil's self-activity.

Stapfer's proposal foresaw that school would become compulsory, from the age of six until fifteen. Basic skills like reading, writing and counting were to be completed through a combination of civic education, history, natural sciences and gymnastics. A foreign language would be introduced at the age of eight. The curriculum was divided in three cycles, at the end of which pupils would have had to pass an exam depending on their level. Teachers would be trained in teacher colleges. The government would prescribe books and pedagogical methods. While waiting for the Senate of the Helvetic Republic to decide, Stapfer conducted the first national educational survey inquiring on the state of education in the different cantons. Stapfer also called for Johann Heinrich Pestalozzi to become director of the orphanage of Stans, a place where Pestalozzi was able to try out his own method of education.

Unfortunately Stapfer's project was rejected in 1800, being considered too progressive and with too much emphasis on the central government. With that decision an important parenthesis in education was closed, even if some elements of Stapfer's plan were to be later implemented in different cantons. Nevertheless, Stapfer, Girard and Pestalozzi, together with the Bernese patrician Philippe Emmanuel von Fellenberg (1771–1844), were far ahead of their time in promoting a communitarian school model combining instruction and practical work, and laid the basis of what later would be called progressive education. Their interesting and sound pedagogical concepts anticipated many of the reforms to come and still inspire many teachers today (Forster 2008: 27).

When the Napoleonic hegemony collapsed, the Congress of Vienna redrew the borders of Switzerland. Most of the current cantons were admitted then.

A period of restoration of the ancient cantonal regimes began, but a weakened form of federal supra-structure was still maintained. The country was confronted with the industrial changes of that time. Major tensions arose between the conservative Catholic cantons and progressive forces, led by the Radical party, whose aim was to transform the country into a modern nation-state with an industrialized infrastructure and economy. This culminated in a short civil war that was won by the radical forces. One of the causes of the war was the attempt to establish liberal cantonal constitutions to place the Catholic Church under secular state control, especially in order to obtain non-confessional education.

Finally, the creation of the modern Swiss Confederation in 1848, and furthermore the revision of the Federal Constitution in 1874, maintained the status quo regarding education. The roles of the cantons and the Confederation were roughly distributed in the following way: cantons were fully in charge of compulsory education and partially of upper secondary education (gymnasias) as well as cantonal universities, whereas the Confederation was responsible for the Swiss Federal Institute of Technology (ETH) which was created in 1854 in Zürich and still has the power to create further federal universities.

At that time, vocational education and training (VET) was not a political matter but the work of companies (Tabin 1989: 28). It was only in 1877 through the Law of Labour and Industry that the Confederation started to interfere in that domain by protecting young people from child-labour. When, shortly after, the Swiss economy was ranked low on the international scale introduced by the world fairs, the very powerful Swiss trade association SGV/USAM pledged to introduce VET (vocational educational training) in federal laws, reinforcing at the same time the position of the federal government.

The distribution of these tasks remains a very complex construction. In certain cases, the Confederation sets the legal framework. Cantons then create their own educational programmes. In other cases the Confederation co-finances them. This separation of responsibilities became a basic feature that is still valid and determines the political architecture of the educational system in Switzerland.

All educational matter is treated according to this system. Sometimes, especially when there is an issue of harmonization or the need for an economy of scale, the cantons try to harmonize their educational structures through the Swiss Conference of Cantonal Ministers of Education (EDK) founded in 1897. In certain cases, intercantonal agreements are concluded by defining a common organization. These agreements are called concordats and have to be considered as state-treaties between cantons and then become legal requirements.

Who is in charge?

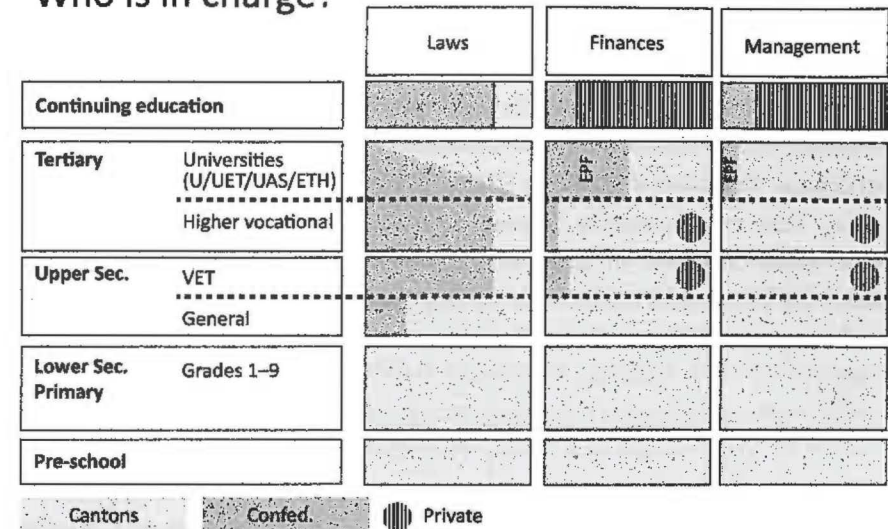


Figure 4.2 Cantonal and confederal responsibilities

Source: Adapted from EDK

In other cases the role of the federal government is reinforced. This has been the case in the realm of VET, but also when the new Federal constitutional articles on education (Federal Authorities 2014, Articles 61a, 62, 63, 63a, 66) were adopted in 2006 by 86 per cent of the population. But as mentioned above, the Confederation still has no proper ministry of education. Instead, the State Secretariat for Education, Research and Innovation (SERI) is responsible for the two Swiss Federal Institutes of Technology (ETH) in Zürich and Lausanne, university coordination, applied vocational universities and VET. Policy planning at the SERI is done through a four-year report submitted to the parliament, explaining how the federal government intends to finance education, research and innovation. But the financial influence of the federal government is as weak as their decisional influence in the system. In 2011, the overall funding of education was only 5.2 per cent for the federal government, 66.0 per cent for the cantons and 28.8 per cent for the municipalities. Further information can be found in the Eurydice-Network (2014).

Educational changes leading to the current education system

The second half of the twentieth century saw impressive technological and economic development. While the Swiss population doubled, the educational system was confronted with a considerable population growth that imposed structural clarification (Criblez 2001: 109) beyond cantonal considerations alone. This transformation process determined the twentieth century and was largely achieved in the first decade of the twenty-first century. The following paragraphs outline step by step this evolution throughout all levels and categories of the educational system.

Compulsory education (ISCED 0, 1, 2A)

In the school sector, a harmonization of certain aspects of the cantonal school models could be achieved, even if this process is not yet finished (see HarmoS below). It started with the question of the duration of compulsory school. Here again, it was an extrinsic factor which introduced in 1938 the necessity for change by establishing fifteen as the minimal working age in federal law on labour and industry. This obligation forced the cantons to tackle the question of the duration of compulsory schooling, which over the years resulted in a longer lower secondary cycle in all cantons. In addition, by the end of 1950, girls were allowed to attend school for the same amount of time as boys. But it was only in 1970 that an intercantonal concordat created the legal basis and forced the cantons to deliver nine years of compulsory school before the age of fifteen, divided in primary and lower secondary school. The common beginning of the school year was established by the same concordat (EDK 1970).

Regarding content and method, almost all cantons engaged at that time in extensive reforms and developments in order to improve the quality of primary and lower secondary schools, mostly in the 1960s and 1970s. As Criblez recalls (2001: 97) it was the Sputnik-shock that introduced this period. The teaching of mathematics and science education went through important changes. This was also a period of strong economic expansion until 1973. During this period, educational research centres were created in the cantonal administrations in order to prepare and support these school reforms. In the French-speaking part of Switzerland, these centres developed specially tailored textbooks in order to monitor teaching quality, region-wide.

In these textbooks and methods a lot of socio-constructivist ideas were integrated. It was not only the Vygotskian mainstream orientation of the

educational faculty at the University of Geneva, but also the result of many years of intensive pedagogical discussion throughout the country. In French-speaking Switzerland, Claparède (1873–1940) and Piaget (1896–1980) and in German-speaking Switzerland; Aebli (1923–90) had had a major influence on the understanding of learning in a constructive perspective. They reinforced pedagogical methods centred on child development that Pestalozzi in his time already had conceptualized.

This current of progressive education was quite strong and the teachers' unions were capable of convincing the EDK to launch the SIPRI project (1978–86), which analysed the general educational situation in primary schools. It also focused on cantonal assessment practices as well as recommending ways of implementing learner-centred assessment systems (Trier 1997: 268). In many cantons formative assessment was strongly developed and replaced selective report cards by qualitative ones especially at primary school level. But the first results of the OECD PISA survey (Nidegger 2001) caused a major shock. The Swiss results were not as good as expected, particularly in literacy where about 20 per cent of the tested pupils had an insufficient level (OFS/EDK 2003: 22). The results were better in mathematics and science education, but school administrations were severely criticized. Simultaneously, many teachers did not follow the formative assessment reform and in 2006, parent organizations and conservative teachers' unions in Geneva successfully imposed a cantonal initiative that reintroduced traditional high-stakes testing in the canton. This setback put an end to many interesting assessment experiments in other cantons (Behrens 2011) but it also led to a few major changes.

The new educational articles in the Federal Constitution provoked a sort of chain reaction in the cantons. Threatened by the Confederation to have to adopt national solutions, the cantons proceeded with a major structural adjustment called Concordat HarmoS (EDK 2007a). Adopted in 2009 by fifteen cantons representing 76.2 per cent of the national population, the concordat harmonized the structure of compulsory schooling, imposed a binding regional curriculum instead of cantonal ones, established a time for the introduction of two foreign languages, and introduced national performance standards that all students must attain. This new architecture reinforced the intercantonal or interregional bodies like the EDK or the Conference of French-speaking Cantonal Ministers of Education (CIIP) that were functioning as the Diet did before the creation of the modern Confederation. It also introduced major pedagogical reform. As with PISA, the national standards developed by HarmoS introduced the ideology of

competences, mainly because of measurement issues. This was taken over by the regional curriculum, which implemented competency-based pedagogical approaches oriented to skills and usable knowledge. From a conceptual point of view, this rather relativist dimension was strongly questioned by Young (2008: 164). Competences are difficult to define, implement and evaluate in education, as Crahey (2006) points out. Conservative forces as well as representatives of the Gymnasium argued that competences were neglecting the acquisition of knowledge and compromising the German educational ideal of *Bildung* (Liessmann 2014).

In the French-speaking cantons, a regional curriculum (CIIP 2011) was elaborated almost simultaneously with HarmoS and introduced only two years after HarmoS was adopted. But this is only one example among others. All HarmoS cantons started to adapt their systems. Some changes were a direct consequence of HarmoS; others had to be considered as re-actualization of existing cantonal projects claimed to be important steps toward HarmoS-compatibility. At the same time, another important reform occurred. This was the consequence of a major political redefinition of tasks and financing between cantons and the Confederation, the result being that cantons are completely in charge of the education of children with special needs. The orientation that prevailed was to integrate special needs pupils as far as possible into normal schools. This will call into question those cantonal systems that tended to eliminate weak pupils by making them repeat a school year. Here again, an intercantonal agreement on co-operation in special needs education was signed by fifteen cantons in 2008 (EDK 2007b).

Upper secondary level (ISCED 3A, 3B, 3C)

At the upper secondary level, the baccalaureate schools offer two orientations: a general orientation called Gymnasium with a baccalaureate qualification giving access to all universities, and a VET orientation in the form of an apprenticeship with, as we will see, a Federal Vocational Baccalaureate (FVB) which gives access to the applied sciences universities (UAS). Two pedagogues strongly influenced higher secondary education: Rolf Dubs (1935–) and Karl Frey (1942–2005). In contrast to the pedagogical mainstream of progressive education characteristic of the primary school, they promoted a constructivist teaching approach which was evidence-based and performance-oriented.

The VET sector (ISCED 3B) concerns roughly 60 per cent of the school population at that level. It is largely based on the apprenticeship model, which

is a consequence of the traditionally strong influence of trade associations. Since 1990, this sector has undergone major reforms as a result of the generalization of the New Public Management approaches in Swiss administrations and as an attempt to align the Swiss VET system to the rest of Europe. Most apprenticeships lasted for four years, with certain paths such as mechanics being reorganized and systematized. A two-year pre-apprenticeship (ISCED 3C) was created for weak students. Simultaneously, the offices in charge launched a marketing initiative to persuade companies to take on apprentices.

In 1993 the federal government introduced FVB (ISCED 3A), opening apprenticeships to the tertiary level by giving access to the UASs which were created during the same period. By enlarging the VET path, an important step was taken towards a coherent construction of the upper secondary level in the general educational system. But both baccalaureates – academic and vocational – represent only 30 per cent of the corresponding population, which is quite low in comparison to the OECD average (60 per cent) but which fits very well with the percentage of tertiary graduates (CSRE 2014: 145).

Another element in simplifying the educational system is the integration of the so far separate and strongly privatized VET sector of health (Hospitals and Red Cross) at the secondary level, thus making a single government structure responsible for all VET affairs. This step gave rise to a new federal law on VET which was passed in 2003, reinforcing again the role of the federal government. It allowed the development of a national VET strategy, the reduction and systematic reform of the occupation regulations, and the development of an ambitious VET research programme through the creation of six leading research department attached to universities helping to pilot the VET system. This development stands as a concrete example of empirically grounded evidence informed by political decision-making. But inside this apparently evidence-oriented administration, the rationale for decisions, as Kiener (2004: 95) points out, still relies on bargaining and consensus finding among the partners with interest in the issue.

The Gymnasium path (ISCED 3A) also underwent an important development since the 1960s. The percentage of those graduating at this level rose from 3.8 per cent to 20 per cent at present. As Criblez (2001: 98) points out, this change has to be seen as a political reaction to technological progress as well as an increase in the demand for higher qualifications in the labour market. Traditionally the Gymnasium is more popular in the French-speaking part of the country, as apprenticeships (ISCED 3B) are not considered as an alternative but as a fall-back option. The Gymnasium path is unique, since the Confederation as well

as the cantons determine its legislation. Financing and realization, however, are cantonal matters. A new regulation adopted in 1995 focused on different types of baccalaureate and on final assessment for completion. The cantons remain in charge of this final qualification. They develop and set their own baccalaureate exams which can even vary from school to school. Instead of five relatively rigid types of studies, the new baccalaureate offers more of an individual study-profile in which students choose from a considerably large range of compulsory and elective subjects. At the end of the course, and in order to obtain their qualification, each student writes an interdisciplinary dissertation called a *memoire*. However, there are still some course supply and demand constraints. Cantons and some of the individual schools determine what is on offer, yet many of them are not capable of offering the full range of subjects, as evidenced in the first Evaluation der Maturitätsreform (EVAMAR) study (SBF 2005). This situation of offer and demand also produces a new weighting of the disciplines with a considerable regression of ancient languages, coupled with an increase in scientific, economic and modern language profiles at the baccalaureate level.

While teachers and students are generally pleased with the reform and consider the syllabus as a good preparation for further university studies, other representatives of universities consider the standards of baccalaureate holders too weak to pursue higher education. The latter argue the need for supplementary entry exams – a measure that goes against the basic idea of the baccalaureate – called *maturity*, which once obtained, attests the global scholastic capacity of holders to study at any university without the need to sit an extra examination.

The second EVAMAR study (SBF 2008) questioned student achievement. The study suggests that cantons with four years of baccalaureate education achieve better results. In addition, cantons with high graduation quotes tend to produce lower results. Even if the study design has some methodological pitfalls, it strongly questions the important intercantonal disparities. It also shows that in some schools scholastic capacity might be achieved by neglecting basic skills in fundamental disciplines such as first language and mathematics. These results support the apprehensions of the universities and question more generally the basic principle that the baccalaureate allows its holders to study any discipline at any university. The baccalaureate regulation was revised in 2008–9 on the basis of the findings presented in these two studies. This leads to reinforcement of the scientific disciplines and of the independent *memoire*.

Private schooling at any level remains very limited and caters in some cantons for foreign students as well as upper-class dropouts. Recent cantonal

initiatives to publicly support private schools have systematically been refused in recent years.

Tertiary sector (ISCED 5A, 5B)

While reforms are being undertaken in the initial VET sector, an important debate is stating on repositioning the existing higher VET institutions (ISCED 5B) of the country, mainly in the technical and commercial sectors. The issues at that time were that these engineering and higher vocational schools were too numerous and not attractive enough to produce sufficient trainees for the Swiss economy. Diplomas varied between institutions, and graduates are not skilled enough to work in junior positions in the national and international labour market. With Swiss refusal to participate in the EEA, representatives of the economic sector intensified the debate, so far limited to arguments of systematization of the educational offering. There was a new and urgent demand: the need for European compatibility of the diplomas concerned. There was fear of economic isolation and difficulties in competing on a global market. The federal leadership in this domain was confirmed and in 1995 allowed the upgrade and amalgamation of the higher VET institutions into seven applied science universities on an ISCED 5A level.

The federal repositioning of initial VET in the field of health and applied social professions was also pursued at the level of higher VET institutions. In the mid-1990s, the federal parliament asked for an extension of the UAS concept to the health, social professions, arts and teacher training sectors (Zosso 2006: 31). The main arguments were far less focused on economic competitiveness in the global markets but remained very similar to those of the technical sector. These included the need for better qualifications, mobility and a strengthened coherence of the overall educational system (Zosso 2006: 45). In 2005, all vocational paths except teacher training were finally put under the same federal law and integrated in seven existing UASs. The process induced the tertiarization of ISCED 4B (health) and 5B institutions to 5A institutions – a difficult step regarding the actors, curriculum and research.

The situation is similar in the domain of teacher training. Since the 1980s, the scientific debate on the quality of teaching pointed to a tertiarization of the teaching profession. The OECD (1990) published a country assessment on Swiss national educational policy, which also pointed out weaknesses in the field of teacher training. These included the absence of a national teacher training strategy, missing statistical data on the status and mobility of teachers,

an absence of a national teacher employment market capable of compensating local shortage or surplus of teachers, staff renewal, vertical mobility, and a considerable evolution of teaching tasks (OECD 1990: 120). For Switzerland, this implied mainly the upgrading of the cantonal teacher training colleges positioned at ISCED 3 to ISCED 5. Following the creation of the UAS, EDK (1993) published a catalogue of theses on teacher education sketching out, for the first time, the profile for the future teacher education universities (UTE).

The creation of the UTEs led to important restructuring of traditional teacher training colleges, but unlike the UASs, the UTEs remained under cantonal control. In two regions, cantons decided to develop intercantonal structures. Others preferred to associate or integrate the teacher training colleges in existing universities' structures. With the actual UTEs, a considerable reduction of the initial teacher training colleges was possible. Nevertheless, the cantonal decision-making process resulted in eighteen UTEs, differing considerably in size. The four most important consist of more than half of the teacher-training students. This also indicates that many cantons maintained the former logic of the teacher training colleges where graduates are considered more as state agents in education and less as educational professionals. It is not surprising that UTEs, even more than UASs, are undergoing a profound transformation process in which research capacity will be a main indicator of successful tertiarization.

However, the expansion of the tertiary level to UASs and UTEs competes directly with traditional academic universities. As Zosso (2006: 132) points out, it is surprising how little universities and the ETH reacted to this reform that clearly weakens their position. What might explain this passive attitude is, on the one hand, that neither UASs nor UTEs have the power to confer doctorates, and, on the other, the very important financial issues due to restrictive financial policies that went on during that time. All parliaments, on federal as well as on cantonal levels, were by majority defending the idea of reducing administration expenditures, including those of academia, which are financed by the state authorities.

Since the mid-1970s until the end of the 1990s, the federal and cantonal credits for these institutions did not change at all, whereas the number of students greatly increased. This budgetary rigour led to a deterioration of study conditions especially in the humanities and social sciences. It was certainly the consequence of the very fashionable New Public Management ideas that were applied to all public administration and deprived academia to the point that the federal council warned the federal parliament about the negative consequences of such a policy (Longchamp and Steiner 2008: 127). But given the parliamentary

majorities in budgetary questions, almost all actors, including the socialist minister in charge of universities, were resigned to make more with less.

According to Longchamp and Steiner (2008: 128), economic lobbies strongly represented in the federal parliament were not principally against a highly performing higher education system, but they considered that the system had to respond in a much better way to the needs of the economy. As parents, especially in the French- and Italian-speaking parts of the country, tended to prefer the academic upper secondary schools (Gymnasium) to the VET path, these lobbies were opposed to a reinforcement of all academic orientation and called for a nationwide reinforcement of apprenticeships. In the perspective of a reduction of public spending on universities replaced by a more and more privately financed tertiary sector, they also suggested an increase in tuition fees, a reduction of the duration of study, as well as a more competitive tertiary system.

The structure of the newly created UASs responded to almost all these claims. Nevertheless, the federal parliament also commenced the redefinition of the universities through the revision of the federal law entitled 'Help to Universities'. In 1999 it introduced a centralized federal governance of the cantonal universities, which gave the Confederation the right to conclude international treaties on collaboration, mobility and research programmes. It also created National Research Centres that implied the regrouping or abandoning of certain disciplines with few students, and the power to award grants based on achievement only. By passing this law, the Confederation was considerably reinforced regarding the cantons. Over the following few years, all university cantons adopted their cantonal laws. New university government structures were introduced, the rectorship was reinforced and opening towards economic partners was fostered. Zürich even introduced even a *numerus clausus* in the faculty of medicine. This was later adopted by the medical faculties at Basel, Bern and Fribourg.

In this political context, but slightly before the adoption of the federal law, the federal administration participated in the elaboration and signed the Bologna Declaration of the European Community which introduced Switzerland to the Bologna Process. Even if this agreement lay in the mainstream of the new law to come, the Bologna treaty was signed without any formal legal bases or any political discussion. As Longchamp and Steiner (2008: 132, 133) point out, the acceptance through the universities was obtained via important financial promises. All universities, UASs and UTEs introduced the system rapidly despite some initial resistance from the academic community. In its report in 2009, the Swiss Conference of University Rectors declared the introduction of

the Bologna structure as well engaged and almost terminated (CRUS 2010: 3, 15). However, contrary to the expectation, bachelor's degrees were not regarded as sufficient to enter the labour market but rather as a preparation for advanced study. In 2009, only 7.8 per cent of graduates surveyed were working or looking for employment (CRUS 2012: 36).

It appears that this transformation process over the last twenty-five to thirty years occurred at different paces depending upon the institutional embedding of the educational level concerned. A tremendous effort was made to reassert the value of the VET path from initial training up to the UAS. The cantons lost some of their sovereignty in educational matters, either by delegating them into new intercantonal structures or by handing them over to the Confederation. Despite this, the cantons are still the main source of finance for education and still retain considerable autonomy in education. The causes of these changes were either external – such as Sputnik or the PISA shocks – or were due to financial shortage as well as the adaptation to the European context for economic reasons.

The current education system

All these numerous reforms since the early 1990s resulted in a major adjustment of the overall structure of the Swiss education system. Many incoherencies were clarified and the system simplified overall. Of particular importance was the revaluing of the VET path, which was previously incompatible with European educational systems. Apprenticeships are now a fully recognized upper secondary level training, even if large parts are company-based. The vocational baccalaureate links apprenticeships to the tertiary level. VET colleges were transformed into UASs and are considered equivalent to universities. Transitions between the VET and the academic path have been established, which allow for various educational pathways, even if only 13 per cent of students took advantage of them in 2010 (Backes-Gellner and Tuor 2010). A helpful figure depicting an overview of the Swiss education system can be located at www.ides.ch/dyn/16833.php.

But undoubtedly, the most important changes in the Swiss system were the constitutional articles on education and training. Indeed, these engaged the Confederation and the cantons to promote together the quality of the system. This step launched a series of major reforms with developments that are still to come. Referring to Article 65, the Federal Office of Statistics (FOS) proceeded with the modernization of educational statistics. The aims are to gain a new

systemization, a better comparability of cantonal statistics, as well as the possibility of following educational pathways through individual anonymized social security numbers. This allows for interesting longitudinal studies to focus on transitions within the system from one level to another. However, as there is currently no independent assessment agent, the EDK might be tempted to control what data will be collected, how it will be put at the disposal of the research community and how it will be communicated to the public and the parliaments. As a matter of fact, the cantons behind EDK generally fear intercantonal comparisons.

Since 2006, EDK and SERI have started to publish in a four-yearly Education Report that serves as the main part of the national educational monitoring process, similar to that introduced by Stapfer two centuries ago. This way the cantons and the Confederation can comply with the constitutional obligation of educational quality management. These reports, containing facts and figures from educational statistics, research and official data for the entire Swiss education system, provide a basis upon which to evaluate performance of the education system. This is accomplished on three criteria: effectiveness, efficiency and equity (CSRE 2006, 2010, 2014). With this information, the administrations concerned define the overall system objectives for the coming years.

A first common declaration was made in 2011 by two federal departments and the EDK. Their intention was to optimize the existing Swiss education system, such as finishing the implementation of the HarmoS agreement, raising the graduation rate at upper secondary level to 95 per cent, improving the scholastic abilities of some baccalaureate holders, obtaining international comparability of ISCED 5B VET certificates, improving career opportunities for Swiss junior-researchers, as well as introducing validation of non-formal or informal educational achievements.

All of these main objectives correspond to the ongoing reforms as induced by the constitution's articles (Federal Authorities 2014). In terms of feasibility they might be considered fair, but in regard to the major issues in a changing global society, they are not very ambitious. Furthermore, they are not taken seriously as they do not bind the cantons to fulfil them nor to be accountable to a direct parliamentary control mechanism. The EDK is an inter-ministerial body and is only indirectly controlled by the cantonal parliaments.

However, regarding the different articles the following issues have yet to be addressed:

Compulsory school: national alignment with yet poor perspectives for future

Article 62 on general education has introduced the HarmoS agreement. As of writing, ten cantons are yet to ratify, mainly because kindergarten has become compulsory. The proposals regarding the introduction of a second language at primary school level have become another bone of contention in some German-speaking cantons. The solutions proposed threaten the acquisition of French in favour of English as a second language. Another important issue is that the compulsory school system reinforces segregation (OECD 1990) that maintains the social class structure. Explanatory factors are probably the general public perception of what school should be and the poor achievement of current pupils that led to the refusal of formative assessment forms, the high structural differentiation of the actual system along with the systematic introduction in certain cantons of high-stakes assessment forms verifying the achievements at any school level. However, the new financing model and task assignment between the Confederation and the cantons (DFF 2007) obliges the latter to integrate children with special educational needs. This obligation fosters attitudes contrary to the very segregated cantonal assessment practices and might introduce tensions and require further reform.

As pointed out above, the standards have introduced on the sly the competency-based pedagogical approach that is more and more criticized. Because the standards constitute the main reference for the German regional curriculum (D-EDK 2014) to be developed, this debate is very lively and deflects attention from the question of whether the proposed skills and contents are adequate preparation for the challenges of the future. The argument of half-life knowledge is certainly valid at tertiary level but it is less relevant in compulsory education, where basic skills like reading, writing and arithmetic, social integration and problem solving as well as knowledge – in the sense of transmitting cultural goods – are needed. The one exception is computer literacy which appears to be a new cultural skill that divides digital native learners from digital immigrant teachers (Behrens et al. 2011).

Compliance with economical needs?

The upper secondary level and especially the VET path depends on Article 63 as well as 63a concerning the tertiary level. As raised in the overall education system objectives of 2011, there is the issue of scholastic abilities of baccalaureate

graduates, although this question cannot be considered independently from two contextual elements. As with most Western countries, Switzerland has an ageing population with its subsequent demographic effects. Migration had a stabilizing effect on the ageing population. However, with the accepted federal initiative against mass immigration in February 2014, this readjustment could be severely threatened. Furthermore, there is fear that this initiative will have several negative effects. The very high percentage of foreigners in the country also includes highly qualified academic in leading positions (Fibbi 2014) and might also affect the high percentage of foreign students in Swiss universities. Both elements will put pressure on the balance between the VET and the academic path, which has arguably resulted in youth unemployment. Given this new situation, it may no longer be adequate to address the shortage of highly qualified personnel in key sectors like STEM (science, technology, engineering and mathematics) and health.

With regards to universities, the process of tertiarization is not yet finished. The declared equivalence between traditional universities and UASs or UTEs has not yet been achieved. Certain adjustments soon to be on offer are still necessary, but mainly the UASs and the UETs have to prove and stabilize their research capacity in terms of peer-valued contribution to the scientific field through relevant practical contributions. This is particularly difficult for the UASs, which are legally obliged to collaborate with economic partners. This means that research has not only to be reliable but useful, which can be a paradoxical injunction (Weber and Levy 2012). However, this research quality criterion is essential for parity with the universities. In the UTE sector it might lead to a structural concentration of the present institutions, but then it will reopen the debate if UASs and UETs have the power to confer doctorates.

Continuing education and training widely spread but poorly supported

Article 64a defines the general guidelines for Continuing Education and Training (CET) and entitles the Confederation to fix its principles and rules. Switzerland applies the UNESCO, OECD and Eurostat distinction between formal, non-formal and informal education. Continuing education remains under formal education when delivered by formal educational institutions. This is mainly the case at ISCED levels 5a and 5b.

In Switzerland CET is widely spread and takes place under all three categorizations. It is deeply rooted in common public understanding. In 2011 almost

80 per cent of the resident population between twenty-five and sixty-four years of age claim to have been engaged in such training at least once during the year. Fifty-nine per cent of men and 51 per cent of women take advantage of this type of education for work purposes. Thirty-six per cent of women and 19 per cent of men engage in it for extra-professional purposes. As observed elsewhere, participation depends on educational level as well as the support given by employers (OSF 2012).

Because of this constitutional article, the federal authorities have submitted a new law, on CET which would come into effect in mid-October 2014 if there was no call for a referendum. As expected, the general principles claim that CET is an individual responsibility, that formal non-formal and informal educational achievement can be validated, that the Confederation publishes guidelines for quality assurance, that the offer of CET remains market bound, that support can be given to strategic developments of offers as well as weekly training to acquire the basic skills.

It is probably the current economic situation with low unemployment and the widespread VET tradition, building on large personal investments, which have caused these very liberal ideas on formal, non-formal and informal education to be accepted. Even if employment histories are no longer linear, no need has yet been perceived to develop new patterns of individual support such as flexicurity, which supports the idea of productive working and unproductive training periods. Such a social security model could be a way to survive in the flexibility of the labour market which is occurring in Switzerland as elsewhere (Cattacin and Naegeli 2014).

Conclusion

In a wider perspective, the actual issues in the education system, as well as the profound transformation induced by technology of information and communication, will probably question the structure of the educational institutions themselves. The ideas of a classroom, teachers and textbooks have been challenged, since education can now be delivered at an individual pace anywhere. This raises a number of questions. If this is to develop, what then will be learning and what integration of new knowledge will be necessary for lifelong learning? What cognitive skills are necessary? What social skills are needed?

Answers to these questions are not at all simple because they interrogate extremely old patterns of what education should be. Whether the function

of school is to become one of socialization rather than one of knowledge transmission presents an especially important area for discussion. Some new approaches such as integrating school in local communities are being developed. Called *Bildungslandschaften* (Mack 2009), the concept can be translated as educational landscapes. The Jacobs Foundation (2011a) is currently researching them in different municipalities in the German-speaking part of Switzerland. Swiss small-scale federalism with the important role played by municipalities could be a better setting for their development as in Germany. All of these forthcoming challenges are important. Is Switzerland with its complex structure capable of nurturing them? As we can see in the different reforms, the main factors of change in the Swiss education system are economic. This is likely to intensify as the willingness of older citizens to pay for public education might diminish (Cattaneo and Wolter 2009). Another factor is the well-perceived need to adapt to global challenges of which, for the moment, Europe is still the most important one.

If it is possible to find overall political and economic support in the complex institutional context, then such changes can be implemented quite rapidly, especially in the VET sector and within the tertiary level. Yet in other cases, especially where the cantonal systems are concerned, reforms tend to be more complicated and tend to introduce centralized intercantonal solutions that on average need up to thirty years from the initial trigger to the full realization in practice.

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