The Educational Sciences in Switzerland

Evolution and Outlooks

Rita Hofstetter and Bernard Schneuwly

Center for Science and Technology Studies
Zentrum für Wissenschafts- und Technologiestudien
Centre d'études de la science et de la technologie
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Impressum

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The conclusions made in this report engage the author alone.
Die inhaltliche Verantwortung für den Bericht liegt beim Autor.
Le rapport n'engage que son auteur.
L'autore è il solo responsabile del rapporto.

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Synthesis

This text summarises the major points of a report, mandated by the Swiss Science Council[1] and backed by the Swiss Conference of Co-ordination for Research in Education, which has aimed to carry out an *analysis of the recent evolution and current situation of the sciences of education in Switzerland* and, based on this, to supply the *elements of forecasting* that are capable of stimulating the disciplinary field.
Planned within the context of the 2000 Congress of the Swiss Society for Research in Education, its completion was entrusted to Rita Hofstetter and Bernard Schneuwly, backed by a group of Swiss and international experts. The drafting of the report was based on already existing works, complemented by new research, especially that undertaken by Catherine Cusin, Silvia Grossenbacher and Urs Vögeli-Mantovani of the Swiss Co-ordination Centre for Research in Education pertaining to the four major university facilities dedicated to the sciences of education.
A preliminary version of the report was subjected to large-scale scrutiny by the main Swiss researchers, authorities and institutions pertaining to the sciences of education, and the comments and suggestions offered by these individuals have, to a great extent, been included in the present report.

Part I: Theoretical guidelines and contextualisation

Favoured viewpoints: analysis of the process of disciplinarisation affecting the sciences of education (I.1)

Based on works that promote a social scientific approach, this report analyses the sciences of education as they have been transforming (process of disciplinarisation), in accordance with five dimensions that constitute a disciplinary field: main reference institutions, research subjects, networks of communications, socialisation of researchers and regulatory mechanisms. The trend toward transformation is analysed as being the result of two dynamic tensions: tensions between the demands of social relevance and scientific relevance, as well as tension between the reference disciplines' trend toward autonomisation and the multidisciplinary development of the sciences of education. Special attention is thus given to the way in which the discipline interacts simultaneously with professional reference fields and the other social sciences.

European (and international) context (I.2)

Whilst developing in accordance with its own particular characteristics, the landscape of Swiss educational research has, for a long time, been involved in an international dynamic, if only because Switzerland is located at the meeting point of several different cultural regions. The growing sense of internationalisation exhibited by all the cultural institutions is radically transforming the sciences of education. In this environment, these sciences have been invited to look past their national traditions and biases whilst continuing to assume their function and

[1] Before its reorganisation and before the change of its name (currently “Center for Science and Technology Studies”).

exert their influence upon local and regional realities. By becoming organised at the greater European level, researchers, including the Swiss associations, have begun to equip themselves with organisational instruments that will enable them to work at this level.

Part II: the sciences of education in Switzerland

Existing studies on the sciences of education in Switzerland (II.3)

The report is based on several pieces of data that are already available; it synthesises these data and puts them into perspective starting from the viewpoint of the process of disciplinarisation. A considerable number of works allow for a rather specific assessment of the discipline's current situation (research projects, research institutions). But closer look at these data reveals certain limits. For example, some databases exhibit gaps where data is missing. Furthermore, there are units of analysis that are particularly difficult to establish, and categories for the analysis of research content have not been homogenised in addition to not having been theorised especially well. In addition, the comparison of data supplied by institutions has become problematic, since each institution uses a very different type of institutional logic.[2]

Institutions (II.4)

Overview

Evolution: The push of the 1970s was solidified by the grown in the number and size of services associated with administration; with the noteworthy exception of Geneva, the university-level development of the discipline has been restricted. A second, less intense institutional push in the 1990s put the finishing touches to the institutionalisation of research departments at the cantonal level, without any new respondents at the regional or federal level. This trend did lead to some degree of reinforcement with regard to university institutions (especially within the context of teacher education) and the appearance of new institutions, both within universities and in the private sector, in German-speaking Switzerland.

Potential: Today, the sciences of education rest on a web of diversified institutions (research services linked to administration, HEPs (Teacher Colleges), universities, private institutions) that employ highly qualified staff members. This allows the sciences of education to respond to a variety of tasks stemming from social demands (more advanced qualifications for professionals; design of and support for educational reforms, construction of a body of knowledge about the systems that would allow for better administration).

Limits: The institutions' disparity, a lack of co-ordination between the institutions and the relative weakness of the university component all impose serious limits on educational research: fragmentation, the short-lived nature of networks, a lack of balance between what is called "fundamental research" (undertaken in accordance with criteria pertaining to scientific relevance) and research geared toward professional practice, and the fact that the knowledge that has been collected has not been extensively used.

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2 The present report does not include the data on the financing of educational research that will be produced by a parallel report mandated by CORECHED (Hanhart, 2001).

Universities

Evolution: Within the universities of German-speaking Switzerland, specialised institutions, corresponding to various tasks, have been created. These tasks include teacher education, special education and social work, and research in education that has been commissioned by external bodies; these institutions have not been consolidated. At the University of Geneva, the sciences of education section has become differentiated and includes constitutive and contributive disciplines, as well as the many specialisations that are closely related to the professional training programmes.

Potential: The existing institutions have reached an internationally recognised level. The new ways in which the discipline develops (creation of specialised institutions to respond to calls for research stemming from administrative-political spheres; development of new teacher education institutions) heralds a new development in itself, especially in the universities of German-speaking Switzerland.

Limits: In Swiss universities (except for Geneva), the disciplinary field has a weak institutional foundation that has not achieved a sufficient critical mass (few human resources; many insecure posts, degree courses are limited, especially at the postgraduate level; limited internal differentiation of the disciplinary field). The disciplinary field is also rather scattered, which reduces the possibilities for synergies to be formed. There is also an absence of synergy at the federal level.

Research departments linked to administrations

Evolution: Most departments, and they are both small and numerous, are directly linked to cantonal administrations. There is a concentration of departments in French-speaking Switzerland, with the noted stabilisation of collaborative efforts between departments. More specifically in German-speaking Switzerland, there has been an increase in the number of *outsourcing* procedures, and the departments have increasingly assumed the function of go-between-converting demands into research products-with the research itself being conducted by private or semi-private bodies that have been commissioned to undertake such projects.

Potential: The relatively dense network of departments linked to administrations allows for scientific data to be translated and thus used to respond to local problems by means of a proximity-based approach. The increase in projects of a national and international scale, as well as the rise in *outsourcing* procedures, has helped to foster the creation of new synergies and to stimulate research whilst remaining closely related to the sites where the research is applied practically.

Limits: Scattering, the smallness of the departments, the trend toward *outsourcing*, which runs the risk of amplifying existing problems: scattering, fragmentation, underdeveloped capitalisation of knowledge, underdeveloped integration within the scientific community.

Teacher education institutions outside the university setting

Evolution: There is little effort to reinforce the institutional link between the sciences of education and teacher education, which has been tenuous until now. There is more research stemming from teacher education institutions (including those that train professional education teachers), and in some institutions, we can observe the embryonic stage of research teams.

Potential: Tertiarisation (creation of HEPs, including IFPs) reinforces the status of educational research, as it favours the praxeological dimensions of research, designed first and foremost as research-action or research-development.

Limits: Within the currently constructed HEP layouts, the infrastructural bases often do not seem sufficient for guaranteeing independent research activities that are integrated within regional, national, or international networks.

Private institutions

Evolution: Within the context of an increase in available funds for educational research and a trend toward *outsourcing*, many small private research institutions have been created, especially in German-speaking Switzerland.

Potential: Educational research thus enjoys highly flexible and adaptable potential that enables it to respond to the various precise demands that stem mainly from administrative and political authorities.

Limits: There is no guarantee that the resultant research projects will contribute to the long-term use of the findings or to larger-scale discussions on the networks of communication that serve the discipline and other social sciences.

Research projects (II.5)

Evolution: Research in the sciences of education in Switzerland has developed continually with the subjects, namely those associated with compulsory schooling and the teaching/learning processes, which have characterised these sciences since the turn of the twentieth century. Other fields, approaches, and methodologies have remained more marginal: professional education in the broader sense of the term (post-compulsory, HES, continuing and adult education) and early childhood education, meso- and macro-analytical approaches, more cumbersome methodologies (quantitative and qualitative) that involve larger teams and require more time; basic research.

Potential: In fields that have already been developed, Switzerland enjoys an international reputation; this reputation may grow even more given that educational research is now participating increasingly in large-scale projects, especially in the context of international projects that contribute other types of researchers' qualifications and another type of *know how*.

Obstacle: The current remodelling of research institutions runs the risk of reinforcing existing weaknesses: a concentration on sectors and content that are already favoured (compulsory schooling, micro-analytical aspects and research projects geared toward practical application) and relatively simple methodological tools will be used for small-scale projects. In particular, basic research runs the risk of paying the price of this arrangement.

Networks of communication (II.6)

Evolution: For about twenty years, the networks of communications (publications, congresses) have been created to guarantee the exchange and improved standing of the results of educational research. These networks have been surrounded by other networks, which are dense and numerous and relate to the different practical applications of education that are very appealing to researchers. This results in an atypical structure: at least half of the publications are aimed at practising professionals and administrators; those publications geared toward the scientific community and subject to peer evaluation procedures are much rarer. We should note that networks of associations are the ones that largely guarantee the networks of communication.

Potential: There are greater and more complex demands today (higher qualifications for researchers, internationalisation), so the networks of communications may evolve by integrating the standards of scientific communication on an increasing basis and by becoming more integrated within international networks. This also allows for some types of differentiation.

Limits: The networks of associations suffer from a lack of infrastructures and some dispersal of forces. The existing scientific supports remain fragile, lacking in human and financial resources and should be better integrated and better recognised in the international and international scientific community. The poorly developed internal differentiation of the discipline only inadequately allows for the construction of a network of differentiated communication, even at the international level.

Socialisation to research and professional perspectives (II.7)

Evolution: The number of doctorates is relatively stable and considerable, but a bit low when compared to other disciplines; furthermore, substantial differences in standards have been noted from region to region and from university to university. The first forms of post-doctoral education have already appeared. Numerous posts for researchers have been created, but the number of insecure posts is nonetheless very high when compared to stable posts.

Potential: The evolution of the field (turnover from one generation to the next in institutions, increased research potential thanks to the HEPs, new sources of funding) creates invitations to bid, to which the discipline may respond, and allows for the creation of more stable structures dedicated to educating young researchers. It is thus possible that research in education will display greater professionalism, also due to a modest increase in stabilised posts for researchers.

Limits: The fact that there is so much insecurity with regard to researchers posts makes it difficult to plan for a bona fide scientific career. The specifications of the intermediary body, as well as a lack of stabilised research, do not offer any guarantees as regards any real training or the compiling of high-quality scientific dossiers. This lack of a guarantee is also due to the fact that staff members are faced with greater amount of administrative and teaching work linked to increased student registration rates in the discipline.

Regulatory mechanisms: funding and co-ordination (II.8)

Evolution: The financing of the discipline and its regulation has recently undergone a profound change: we might note an undeniable increase in available funds and a reinforcement of co-ordinating and regulatory mechanisms. For nearly ten years, the sciences of education have taken advantage of PNRs geared toward educational issues.

Potential: The very availability of significant funds and the existence of co-ordinating bodies serve as conditions for the more sustained development of research.

Limits: The allocation of funds is often undertaken in accordance with criteria that are not very explicit; furthermore, such criteria often lack transparency and do not benefit from systematic peer assessment. All these factors mean that the funds are not being used optimally. Furthermore, current trends favour limited projects that are related to specific needs at the expense of basic research.

Part III: Elements of forecasting

General principles

- The reinforcement of the institutional foundation and the equilibration of institutions, especially university institutions
- The increased standing of educational research and its results (the capitalisation and synthesis of knowledge)
- Better structuring of the discipline to intensify the exchanges between Swiss and international researchers and to enable the undertaking of larger-scale research projects that would allow for greater knowledge about certain sectors of education that have not yet been sufficiently explored
- The guarantee of high-quality staff replacements by means of effective devices at all levels; these devices also offer professional perspectives

Development and co-ordination of university institutions (III.1)

- The reinforcement of university institutions through the creation of different chairs of stabilised teams, through the development of the university network in interactive conjunction with the construction of the HEPs; through the creation of research institutes with mixed funding
- Creation of poles of specialisation in the sciences of education, especially at the Universities of Geneva, BENEFRI and Zurich, for instance through the creation of intra-university synergies
- Co-ordination between university institutions dedicated to the sciences of education

Reinforcement of extra-university research institutions (III.2)

Research departments linked to administration:
- Creation of regional and federal educational research institutions where they do not exist

- Clarification and further development of the tasks and functions assumed by research departments by means of their participation in national and international research projects

Pedagogical colleges (HEPs):

- The creation, within the HEPs, of institutional structures that are specifically dedicated to research and have an adequate infrastructure and teams of qualified researchers
- The development of research at sites where professional education teachers are educated, in conjunction with an increased commitment from universities within this field

Research priorities (III.3)

To be defined based on an in-depth analysis of the evolution of educational research and the results of scientific production with a view to the legitimate determination of research priorities in an enlightened, concerted fashion. These need to be articulated with due consideration given to institutional synergisation and the definition of poles of specialisation. Pathways that are currently being sketched:

- Reinforcement of domains that are currently weak, like for instance: education beyond compulsory schooling (professional education, continuous education, education at the tertiary level, adult education); politics, economics and administration of educational systems
- Development of powerful research centres that are able to carry out basic research (that is not primarily or only (pre)defined in accordance with praxeological objectives)
- Stabilisation of research investments that have already been granted

Better education of those who will replace scientific staff (III.4)

- Reinforcement of university-level degree courses in research education (exposure to research during the first and second cycles; the establishment of third cycles; standardisation of doctorates and the adjustment of conditions governing their undertaking and completion)
- Improvements in terms of the working conditions and the scientific production of the intermediary body (the guarantee of adequate time resources for scientific work, the development of research teams into which young researchers are integrated; participation within existing scientific networks)
- Improvements of the possibilities for embarking on a scientific career: encouragement given to young researchers to take advantage of grants; an increased number of stable posts at the level of the intermediary body; support given to researchers posts in extra-university institutions; transparency in the definition and recruitment of researchers posts. These goals should also be considered in accordance with a long-term development policy for the discipline; measures that actively support a greater balance between men and women

Differentiation of networks of communication (III.5)

- Development of editorial tools within the sciences of education; greater backing given to Swiss tools and, at the international level, the creation of European journals specialising in research in education

- A more sustained investment from the scientific community in existing networks of scientific communication and the promotion of assessors
- practices, reviews and critical syntheses
- The activation and development of networks of researchers tackling specialised issues within the sciences of education
- Increased co-ordination between infrastructures of associations of researchers in the sciences of education

Co-ordination of educational research policy (III.6)

- Better transparency and distribution of educational research funds in accordance with criteria that are clearly established and assessed by researchers; the key role played by CORECHED to this end
- Greater use of FNRS funds by researchers in the sciences of education for the undertaking of educational research
- Consideration for the particularities of sciences of education when funds are allocated for structural development, as provided for by FNRS

Increased standing of educational research on an international scale (III.7)

- Differentiation of the discipline in conjunction with the evolution at an international level
- Adaptation of certifications to European standards
- Support for Swiss infrastructures (institutions, reviews, associations), that function as go-betweens with the international community
- Increased participation of researchers and institutions in international research projects and networks

Development of means to observe the disciplines evolution (III.8)

- Promotion of research on the evolution of the sciences of education and systematic analyses used to assess the production/results of educational research
- Consolidation of databases with a view toward the exhaustive collection of research projects in the sciences of education; the development of more effective tools for the definition of research projects and for the analysis of project content, in accordance with criteria that have been defined by the international scientific community
- External assessment of the discipline and its scientific production, with the participation of international experts

Introduction

Background

Today, the sciences of education are confronted with new scientific demands, whilst at the same time social pressures are being exerted on education with renewed vigour. The restructuring that has been taking place at the majority of research institutions bear witness to this fact. The key words that underscore these restructuring programmes reach far beyond Switzerland: scholastic reforms implemented at all levels of the educational system, reconfiguration of professional education programmes; calls for efficiency, equal opportunity and quality in educational systems; generational shifts in educational research personnel, and the globalisation of networks.

Within this context, it seems apt that the key players and decision-makers involved with educational research should become more familiar with their field's evolution and possibilities in order to tackle these new challenges more effectively. With this in mind, the Swiss Society for Research in Education (SSRE) decided to organise its Congress 2000 around the sciences of education - it took place in Geneva in September 2000 under the heading *The sciences of education. History, inventory of fixtures, perspectives*; this provided the opportunity for gathering data and materials that would support a greater familiarity and for debating these issues to reach a common definition of main themes.

Within the framework of the preparation for this Congress, the Organisational Committee[3] thought that it would be useful for complementary measures to be added to participants'[4] contributions to enrich the knowledge of the sciences of education in Switzerland. Thus, in 1999 it sought a mandate from the Swiss Science Council (French acronym: CSS)[5] to conduct an analysis of the sciences of education in Switzerland, focused on universities and the problem of scientific restaffing. The CSS accepted this proposal and appointed Rita Hofstetter and Bernard Schneuwly of the University of Geneva, both representing the Congress Organisational Committee, to undertake the study "Outlook on research in education in Switzerland," based on already existing reports and partial studies to be completed. A group of Swiss and international experts were appointed to participate in this enterprise and to comment on the documents produced within this context. The experts included, respectively, Linda Allal (Geneva), Norberto Bottani (Geneva), Piero Bertolini (Bologna), Lucien Criblez (Zurich), Pina Fuensanta Hernandez (Murcia), Martin Lawn (Birmingham), Sverker Lindblad (Uppsala), Antonio Novoa (Lisbon), Jürgen Oelkers (Zurich), Yves Reuter (Lille), Christina Von Waldkirch (Berne) and Jacques Weiss (Neuchatel).

Following this decision, a request for supplementary subsidies was submitted to the Swiss Council for Educational Research (CORECHED) to expand the panel of experts, which had at first been more limited, and to allow for an English translation of the report; this request was

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3 Composed of Linda Allal, Daniel Bain, Jean Brun, Gisela Chatelanat, Joaquim Dolz, Siegfried Hanhart, Erika Hofmann (secretary), Rita Hofstetter, Guy Jobert, Christiane Moro, Tania Ogay, Christiane Perregaux, Madelon Saada-Robert, Bernard Schneuwly, Laurence Seferdjeli and Laurence Turkal.

4 We include always men and women in expression like these.

5 It is now called Center for Science and Technology Studies.

accepted by this authority. In addition, the study was indirectly supported by the contribution of the Swiss Co-ordination Centre for Research in Education (CSRE).
Given the financial limits imposed upon this study and the need to have the use of data relative to the financing of educational research, the two representatives also submitted a request for subsidies to CORECHED to this end. This request was accepted, and the mandate was prepared by and entrusted to Siegfried Hanhart of the University of Geneva.

Objectives

Let us briefly specify the objectives of the mandate. It deals with carrying out an *analysis of the current state of the sciences of education in Switzerland* (reference institutions, personnel, considered contents, socialisation of young research workers…) and to supply, on this foundation, *elements of forecasts* likely to stimulate the field of study. The aim of the mandate also includes better contextualisation of the situation of the discipline in Switzerland, drawing comparisons with other countries to plan its development in harmony with the leading trends on the international scene.

Development

A first stage was undertaken by Catherine Cusin, Silvia Grossenbacher and Urs Vögeli-Mantovani of the Aarau CSRE within the context of a study partially financed by the mandate. On one hand, the study aimed to present a condensed version of the main results and recommendations of available studies regarding research in education in Switzerland; on the other hand, the study carried out an analysis of the current situation of the sciences of education at university research institutions. Concretely, this study was based on an in-depth analysis of the four major Swiss university institutes that confer all levels of academic titles within the sciences of education (Berne, Fribourg, Geneva, Zurich[6]), focusing its attention on personnel (notably by means of two specific questionnaires), students, research contents, publications and collaborative networks. This partial study was the focus of a presentation at the 2000 Congress and was submitted for commentary to Swiss and international experts who accepted the role of "supervising" the mandate as a whole[7]. These different exchanges and comments led to the second version of the partial study (Cusin, Grossenbacher, Vögeli-Mantovani, 2001; http://agora.unige.ch/csre), as well as the drafting of this text.
Moreover, Lucien Criblez of the University of Zurich accepted the task of conducting an in-depth study of the secondary school teacher education institutions at Swiss universities, especially at the four universities analysed in the above-mentioned study. The results of this study are integrated in chapter 4.1.
At the same time, within the context of the Congress itself, other projects have been undertaken with respect to different aspects of the sciences of education: their history, their recent

6 We should at once indicate that these investigations will have to be completed by an analysis of the situation in other Swiss universities, especially Neuchatel and Basel, where the discipline also exists, and with a discussion of the specific case of the Italian-speaking regions of Switzerland, discussed only slightly here.

7 This partial study has benefited from comments contributed by the following experts: Linda Allal, Norberto Bottani, Piero Bertolini, Lucien Criblez, Antonio Novoa and Jacques Weiss.

development, the situation of scientific restaffing, their main fields of research. These published projects (Organisational Committee of the SSRE Congress 2000) or those about to be published (under the supervision of Bain, Brun, Hexel & Weiss, in press, and Hofstetter and Schneuwly, in press[8]), constitute a vast, diversified body of material that has enriched the bases upon which a more in-depth analysis of the sciences of education could be developed.

Extensive scrutiny concerning the first version of the report

On the basis of these preparatory projects and already existing studies, the representatives attempted to propose an analysis of the evolution of the discipline and a definition of outlooks. A preliminary version of the report has been completed on January 2001 in order to polish the proposed analysis and to submit the proposed outlooks for discussion to assure that they are as representative as possible. The provisional report has been sent to the following researchers and institutions:

- Members of the main authorities in charge of the co-ordination and policies of research in education in Switzerland (the SSRE Council, Research policy commission of SSRE, CORECHED, Research Council of CIIP/SR-TI), as well as the members of the 2000 Congress, authors of previous reports on the discipline, presidents of different associations and other interested individuals, all invited to submit their opinions and suggestions regarding the texts
- The group of Swiss and international experts that have been appointed to draw up commentaries and suggestions on each of the report's parts and especially on the outlooks. Furthermore, the international experts will try to discuss the situation of the sciences of education in Switzerland with regard to that in their own countries or other contexts likely to allow for comparative international perspectives[9]

This large consultation was very fruitful. Many written comments (more than a hundred pages) have been sent to the representatives and were the basis on which a collective discussion took place on February 13th 2001, open to all interested persons. These debates and comments have been largely integrated into the present final version in order to assure the best possible representativeness and relevance.

Structure of the document

This text comprises three parts.

1. The first part begins with a theoretical framework, providing a basis for our point of view and, at the same time, the sections on which we have centred our study. This part ends

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8 A third collection of contributions is still likely to be published by Chatelanat, Moro et Saada-Robert.

9 The comments of the international experts are at disposal by the authors of this report. Through their comparison between Switzerland and their country of reference, they allow international perspectives and discussions which enlarge the points of view to privilege for analysing sciences of education and encourage their development on an European level.

with a brief presentation of the main trends observed in Europe that have undeniably influenced the development of the discipline in Switzerland, at the confluence of several different cultural regions.

2. The second part endeavours to analyse the main current trends in terms of the development of the sciences of education in Switzerland. Organised according to the five definitive dimensions of a discipline (institutions, subjects of investigation, communications networks, restaffing, regulatory mechanisms), this part attempts to synthesise current findings on the evolution of the sciences of education within our country, starting with a systematic review of the literature of completed projects and some new empirical investigations undertaken within the context of this mandate.
3. The third part outlines a prospective reflection on the sciences of education regarding the prolongation of trends analysed and observed in the second part and enriched by the reports, comment, and recommendations of experts, other researchers and consulted authorities. The task is to try to locate, within recent developments in the sciences of education, trends likely to be encouraged and reinforced, possibly indicating others considered as promising for the development and consolidation of the discipline.

Favoured viewpoints

This mandate aims to shed further light upon the evolution and current trends of educational research development in Switzerland. Insofar as the data available for this project still remain incomplete and poorly matched, and the time, human and financial resources allowed for this mandate are very limited, choices have had to be made, and certain viewpoints have had to been favoured at the expense of others. This report focuses mostly on research institutions, scientific networks, and academic degree courses that officially and explicitly pertain to the sciences of education (Erziehungswissenschaft/ Pädagogik). In other words, this report addresses what historians and social scientists call the institutional and cognitive dimensions of a discipline or disciplinary field-we will return to these concepts within the theoretical guidelines. Indeed, one must be especially careful about the use of said concepts in a field with reference points that are so diverse and boundaries that are so blurry as those that are found in the sciences of education. Moreover, this report cannot hope to be exhaustive; it only comprises another partial contribution, if only because it favours certain viewpoints, to the body of introspective knowledge regarding educational research.

We also bring up these main limits with the goal of sensitising the community of researchers and relevant authorities about the need for them to promote research about themselves. Focusing on the institutional and cognitive dimensions of the sciences of education leads to the favouring of recognised institutions as they pertain to the educational sciences. Such a focus allows for only an insufficient consideration of the numerous projects regarding educational phenomena undertaken in other disciplines or by other posts or establishments. Moreover, the report favours those institutions that are most significant from a quantitative perspective and thus should be complemented by a detailed analysis of all Swiss institutions that are involved in some way with educational research. As far as university institutions are concerned, the cantons of Neuchatel, Basel, St. Gall, and Ticino deserve a more in-depth exploration. Furthermore, this text does not offer a systematic analysis of Swiss research from the perspective of the content that has been tackled or the main results that have been obtained; the text also does not give a detailed description of the specialisations of the different research institutions and teams or their specific fields of research, even if the text does indeed touch lightly on these subjects in some

places. Of course, several institutions, teams and researchers have been endeavouring to promote such research, and the publications stemming from the SSRE's 2000 Congress also serve as a contribution to this end, but there has still been no project dedicated to an even broader-scale synthesis focusing on all works and results pertaining to or gleaned from Swiss educational research. In our opinion, this is the main limitation of this study, insofar as a discipline exists and distinguishes itself first and foremost by its scientific production, the results of its projects, and its social and educational activities. We have already mentioned the fact that an analysis of financial flows is being tackled by another study, and the results of this study will only be available after this report is finished; this data would be a useful complement to the report.

Acknowledgements

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P.S. A French version of this report can be obtained at CEST.

Part I

Theoretical guidelines and contextualisation

Insofar as this mandate aims for a greater knowledge of the evolution of the current developmental trends of sciences of education, we feel the need to open our analysis with a theoretical reflection on the concepts and methods currently privileged in the recent studies of philosophy, history and sociology of sciences in order to study social sciences, their institutions and scientific productions. These preliminary theoretical guidelines will also allow us to define the perspective from which we will approach this study and its objectives. Such guidelines also direct our analysis of the evolution of the discipline in Europe, on which we will subsequently focus. In effect, the evolution of the sciences of education in Switzerland cannot be sufficiently understood outside its international, and especially European, context, in which the discipline has developed, establishing its early and especially its modern evolution within the context of the edification of Europe and the ongoing process of internationalisation.

1. Preferred perspective: analysis of the process of disciplinarisation of the sciences of education

This first chapter provides a sketch of the theoretical guidelines, on the basis of which this analysis has been created and which serve as a foundation for both our perspective and the subjects on which we focus in our analysis of the sciences of education. [10] A brief review of the literature of current trends that favour a social approach for the social sciences will allow us to clarify the concept of "process of disciplinarisation" from which point we might tackle our study of the sciences of education and justify the five dimensions on which we will focus our attention. We will then attempt to show the tensions that constitute the sciences of education and the effects of these tensions on the "process of disciplinarisation." Furthermore, we pay particularly close attention to the way in which the discipline interacts simultaneously with the professional reference fields and the other social sciences.

1.1 A social approach for the evolution of social sciences

Our study is inspired by recent works on the history and sociology of the sciences that endeavour to describe and understand the development of the sciences by means of a detailed analysis of the effective practical methods used for the production of scientific findings, their gradual academic professionalisation and institutionalisation, as well as the cognitive and socio-economical transformations and controversies that accompany the use of such practical methods (Pestre, 1995; Shapin, 1998; for a study focusing on the social sciences: Blanckaert, 1992; Bourdieu, 1997; Gillispie, 1988; Le Dinh, 1997a; Wagner, Wittrock & Whitley, 1991). As they endeavour to analyse the scientific institutions, as well as the solid material and social conditions involved in the scientific production, on the basis of studies that are more empirical and institutional than epistemological, these works are based on the postulate that science constitutes a social activity, integrated into a cultural, social and economic context upon which

[10] Here we repeat, with partial changes due to the commentaries of the experts and many other researchers who have commented on a provisional version of this report, the reflections proposed within several of our prior works (Hofstetter & Schneuwly, 1999, 2000 but also the FNRS project FNRS 1114-057097-99) and within the framework of the introductory conference of the SSRE's 2000 Congress (Comité d'organisation, 2001).

science depends and which influences science (Blanckaert, Blondiaux, Loty, Renneville & Richard, 1999; Matalon & Lécuyer, 1988; Paty, 1990). They insist on the need to form a link between the internal history of intellectual productions and the functioning of a disciplinary field with the external history that is heedful of the social demands, integration, and receptions that interact with these productions. We believe that this approach, speaking in favour of a "social approach for the social sciences" (Bourdieu, 1995; Le Dinh, 1997a; Wagner & Wittrock, 1991), is particularly stimulating for the study of the evolution of the sciences of education, a disciplinary field that is closely linked to several professional reference fields.

The definition of the perspective that is conducive to a study of the evolution of a disciplinary field suggests several ideas. Insofar as the disciplinary divisions are shifting and hazy and as several fields, including the sciences of education, are part of a multy- or transdisciplinary dimension, Blanckaert (1993, p. 135) and Mucchielli (1998, p. 9) suggest that the study of the "process of disciplinarisation" should be favoured. This consists of the long-term analysis of the way in which certain intellectuals/researchers or institutions gradually become specialised and professionalised, thus fostering the redefinition of issues that have been studied and even the emergence of entirely new fields, especially through the creation of new social and scientific communities. Particular attention is paid to the process of internal and external differentiation (Carroy, 2000; Gökalp, 1989; Parot, 1993), during which domains or disciplinary fields redefine themselves with regard to other domains and disciplinary fields within the entire disciplinary system. This process makes use of a logic pertaining to fission, sometimes to fusion, and sometimes to an extension into what is still virgin territory (Becher, 1989). A movement that sometimes becomes solidified in specific institutions, designations, posts and degree courses gradually acquires the institutional assets of that which we call a "discipline" and a degree of institutionalisation that, conversely, will have cognitive effects.

The study of the process of disciplinarisation calls for a clarification of the notion of *discipline*, a central concept that has been essential for an understanding of the organisation of the systematic production of knowledge in our society for the last two centuries. The definition suggested by Becher (1989, p. 20), Stichweh (1987, p. 241), Bourdieu (1995, pp. 3-4) and Favre (1985, p. 4) emphasise the close relationship between cognitive and socio-institutional issues: they postulate that a discipline is defined by and supposes places, authorities, and bodies of professionals who specialise in the systematic production of new findings by means of scientific research.[11] This discipline is also the institution that transmits findings that have been generated and educates, initiates and thus socialises the professionals that work within the discipline. This professionalism of research allows for the creation and repetition of theoretical models and concepts as well as data collection and analysis methods, as these help the discipline develop and gain social and scientific recognition. Furthermore, every discipline defines its own rules that govern its functioning, and these rules are largely dependent upon the entire disciplinary system (Bourdieu, 1984). In addition, the researcher, concerned with understanding the development of a disciplinary field, is invited to analyse these different, closely related levels.

The theoretical studies just mentioned show us how historians and sociologist of (social) sciences approach their object and allow us to define on our side the dimensions on which our analysis will be concentrated. Five dimensions have to be studied in our view to follow the evolution of sciences of education and which define a discipline or a disciplinary field.

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11 The concepts of "scientific research", but also of "applied research" or "development" are defined in many different ways. We refer to the technical manual *Système d'information universitaire suisse* of the Swiss Office of statistics, in giving at some places of the text complementary precision in function of our discourse.

1. Institutional foundation – professionalisation of research

   Designated by a socially recognised term, a discipline assumes an institutional foundation, guaranteed by the establishment of institutions and a pool of professionals specialised in the systematic production and transmission of new findings.

2. Subjects of findings

   This production of findings targets a series of subjects that have been recognised by the discipline's researchers as falling within their scope of ability, even if such topics may be shared with others. The professionalisation of research allows for the creation and constant revamping of theoretical concepts and models that constitute the subjects of findings, as well as the methods used to collect and analyse data. All this contributes to the discipline's development, as well as its social and scientific recognition.

3. Networks of communications (Kommunikationszusammenhang)

   The creation of scientific findings takes place using specialised networks of communications, which notably comprise the support services of publications (reviews, specialised series of works, grey literature), associations of researchers, represented at different levels of the academic hierarchy, and scientific events (congresses, colloquia, seminars, etc.).

4. Socialisation, education of eventual staff relief

   On an institutional basis, a discipline carries out the function of transmitting findings that have been created: it educates, initiates, and thus socialises professionals working within the discipline. This educational task must be incorporated into the discipline's duty to determine its own criteria for the legitimacy of its reproduction and to educate those who will eventually restaff it.

5. Regulatory mechanisms, rules and social conventions

   In accordance with the primary meaning of the term, a discipline also defines the rules used to develop social conventions, lay out conditions for membership, distribute roles, regulate tasks, mediate conflicts; these rules, conventions and conditions are defined within the discipline, by researchers themselves at their institutions, as well as outside the discipline, through mechanisms for standard or competitive funding and co-ordination.

The specialists of the analysis of (social) sciences agree on the fact that these dimensions evolve constantly. A discipline is thus not a *terminus ad quem* to which institutional and scientific issues would converge in a so to say teleological way; it is the ever provisional result of the process of specialisation, differentiation and institutionalisation, i.e. of the process of disciplinarisation itself. Disciplinarisation doesn't result from a process with a predefined end, based on an epistemological cartography of the real which is given *a priory* and on ideal institutional models which have to be attained and which certain disciplines represent due to their methods, their supposed "homogeneity" or mode of capitalisation of knowledge. This means also that, in order to define prospectives, a historical analysis of the process of disciplinarisation has to be realised to observe tendencies and contradictions whose knowledge allow to optimise development.

1.2 Sciences of education. A process of disciplinarisation under study

Over the last several decade, the sciences of education have adopted the institutional forms (chairs, specialised research institutes, academic degree courses, networks of researchers, scientific tools,…) of a discipline in the sense of the word mentioned above. However, this in no way presupposes a clearly defined epistemological entity upon which the scientific community would agree. Furthermore, their subjects of study, as well as their methods and approaches encourage lively debates. These debates even question, from a social perspective, their legitimacy to construct their subject into a subject of knowledge and, from a scientific perspective, to declare that the discipline is a scientific discipline just like any other. We have observed that these debates also occur in many other social sciences and, for us, seem particularly interesting as they renew approaches and perspectives regarding the analysis of the evolution of social sciences and their scientific practical methods.

In our opinion, it seems interesting to also make use of the concept *disciplinary field* to designate the sciences of education; we use this term mainly when we discuss its early developments and the uncertain, hazy, shifting boundaries of the sciences of education. We also use the concept to emphasise the referential plural of the sciences of education, which serve as an umbrella term for numerous fields that may, in turn, become established as disciplines. Finally, the concept is used to emphasise the close relationship of the sciences of education with practical reference fields and the professional knowledge that stem from them. We will return to this relationship, which questions scientific positions that have been recognised as being legitimate.

To considerable degree, the very name of the discipline is multifaceted and varies mainly in accordance with cultural regions. Whereas in French-speaking areas, the term “sciences de l'éducation” (sciences of education) is widely used, German speakers prefer *Erziehungswissenschaft* or *Bildungsforschung,* even *Pädagogik* (just as *pedagogik* is used in Sweden), and countries with a solid Anglo-Saxon tradition tend to use *educational research*. We should note that in all these languages, this last term (educational research) is used; it currently designates research undertaken with regard to the subject “education” independently of its disciplinary integration (e.g.: including research carried out in psychology, sociology, etc.). This is precisely the sense of the term that we will also use. This usage immediately brings up the complex question of the relationship between disciplines and the multidisciplinary nature that constitutes the sciences of education. We will address these issues later in this section.

The calling into question of the designation, epistemological identity, subjects and methods of research, their specificity, and the disciplinary field’s mandate for research institutions seems particularly stimulating to us. Rather than interpreting this questioning as an index of a rift in the development of the sciences of education, we regard these questions as decisive not only for reaching a better understanding of the motives for this development and the determinations that direct scientific production, but also to reach this “critical reflexivity” to which several researchers in the social sciences have invited us. For Bourdieu (1995) in particular, this critical reflexivity constitutes the imperative condition of both collective and individual clearness. Indeed, such reflexivity may contribute to “the lifting of certain obstacles that stand in the way of the progress of awareness and knowledge” by identifying the constraints that limit scientific practice. “Far from ruining (…) its own bases by condemning itself to relativism, such a reflexive science may instead supply the principles of a scientific *Realpolitik* that aims to ensure the advancement of scientific reasoning” (p. 3). We believe that the questioning that never stops analysing the sciences of education seems to take part in this critical reflexivity, as it forces the scientific community to confront its points of view in order to be in a position to perceive them

as they are-ours included, of course-in order to be able to get past their distinctiveness "notably by confronting differences of vision based on the awareness of social determinants of these differences" (p. 10).

Relationship to the professional fields of reference

To provide a better understanding of the concrete forms of and motives behind the processes of disciplinarisation within the sciences of education, we have sketched a typology, based on the propositions of Stichweh (1987) and distinguishing two forms of the process of disciplinarisation. This typology differentiates between disciplines according to a dominant dynamic, linked to the "original" relationship that the disciplines have sustained with the professional fields of reference. We could call the first form "(predominantly) primary disciplinarisation" and the second form "(predominantly) secondary disciplinarisation."

The first category assembles the disciplines that lack a prior, clearly defined professional field of reference. The process of disciplinarisation in this case is not primarily undertaken with reference to professional knowledge but essentially in relation to academic knowledge and cognitive tasks. Only subsequently is there the construction of professional staffs that will, in turn, transform the process of disciplinarisation (refer to the example of sociology: Wagner & Wittrock, 1993, p. 341; and that of psychology, in search of application areas: Depaepe, 1993 and Friedrich, 1998).

The second category regroups the disciplines that especially originate from (a) previously existing professional field(s) of reference, within which professional knowledge has been accumulated. These disciplinary fields are closely linked to professions of reference, from which the social demands, for socioprofessional reasons, will powerfully mould the field's development.

Built on a sum of knowledge developed around previously constituted professional fields and in response to social demands for socioprofessional, political and administrative reasons, the sciences of education have, based on fact, been classified in the second category. Their disciplinary construction is even more delicate because they are necessarily multidisciplinary, being found at the intersection of other disciplines, with which the sciences of education maintain close, yet complex relationships and from which the very process of disciplinarisation interferes with that of the sciences of education. All this brings up the issue of disciplinary boundaries with particular acuity (the same issue is, of course, also found within other disciplines: Beillerot, 1987; Le Dinh, 1997b; Gökalp, 1989; Gottraux, Schorderet & Voutat, in press).

However, we must specify that the processes of disciplinarisation, "predominantly primary" and "predominantly secondary", are not completely different but are dialectically related insofar as, in each discipline, the "sub-dominant" trend is equally active. As we follow the concerned periods and disciplines, their relationship may change, mainly in accordance with the social and scientific issues that motivate them. Whilst psychology, for example, primarily seems to be undergoing a predominantly primary disciplinarisation process, it has gradually been seeking practical fields of application (mainly for applied psychology) that are able to grant it greater social recognition, a springboard for the widening of its institutional foundation and, eventually, wider scientific recognition. And this last benefit, in turn, may be perceived as a scientific guarantee for pedagogy/sciences of education, with a view to confirming its own scientific objectives.

1.3 Between professional fields and disciplinary field: tensions which function as motor of evolution

We advance the hypothesis that the *process of disciplinarisation of sciences of education is moved forward by two tensions that simultaneously constitute the very discipline of the sciences of education and condition its concrete evolution.* These tensions, that also exist in other disciplines, are particularly strong in disciplines submitted to a predominantly secondary disciplinarisation. They result from the necessarily contradictory relationship that the sciences of education maintain with the professional fields from which the sciences emanate on the one hand and with disciplines that already exist or are within the process of construction on the other hand,. Let us take a close look at the action of these two tensions, which act as dynamic motives simultaneously on the field as an entity and on each of the researchers who work within it.

1. *Tension between the adjustment to social demands linked to educational areas and socioprofessional issues and the search for scientific recognition, implying a momentary suspension of the praxeological dimension.* Sustained by powerful social demands and at the same time urged to distance itself from practise in order to construct findings without previously defined praxeological objectives, the sciences of education are at once located at the interface of imperatives motivated by pragmatic or professional reasons and those motivated by scientific reasons. This interface will have a dynamic effect on the field's development, the selection of research subjects, the way to approach them, etc.

This tension seems to have functioned as a motive behind the emergence and eventual development of the sciences of education: this is because there is a powerful socioprofessional, political and administrative demand that the disciplinary field should emerge and develop. Inversely, the very possibility that it should exist as a disciplinary field appeals to the construction of stabilised research subjects, recognised and reliable methods, networks of communications for research results, academic institutions that recognise the field, in short, research activity that assumes partial suspension of action.
Each of the poles of the tension act like forces of attraction, this tension may engender two potential risks: 1) The adaptation to social demands may turn into submission, running the risk of confusing the researcher with the expert or practising professional, the construction of findings with pedagogical action and the discipline with its subject. 2) The distance from the object, i.e. educational action, turns into the negation of the specific needs of educational action, as professional fields are only treated as fields suitable for the application of scientific theories. This second pitfall runs the risk of negating the specificities of educational phenomena, since the process of modelisation, necessary for the construction of the object of findings, is neglected. This risk could become obvious when the findings, constructed in some type of laboratory, are invoked to define, through the direct application of a model, the efficiency of a reform or strategies of action.

2. *Tension between the phenomenon of autonomisation with regard to disciplines of reference and the multidisciplinary development of the sciences of education*. With regard to the scientific positions and disciplinary foundations that are recognised as being legitimate, this tension concerns the relationship that the sciences of education and each of their key players maintain with the other social sciences. The sciences of education are in the delicate position of invoking a disciplinary plural, whilst simultaneously endeavouring to be recognised as an autonomous scientific discipline.

The sciences of education have progressively won their autonomy as an academically unified field by emancipating themselves from so-called "mother" disciplines, notably philosophy, psychology and sociology, whilst still upholding their referential plural. The development of the disciplinary field is thus closely interwoven with the development of other social sciences. The sciences of education dynamically integrate these social sciences' contributions, whilst revamping them in a flow of knowledge through interactions, allowing for the emergence of new fields and issues that belong to the sciences of education.
Here we must deal with the relationship - be it distancing or referencing - with disciplinary knowledge that has been constituted and recognised as being legitimate from a scientific perspective. Here again, each pole act as forces of attraction, with a potential risk: 1) The distance from constituted disciplinary knowledge turns into the negation of the validity of any disciplinary approach. It is then the legitimacy, even the very possibility, of a specialised approach, centred around limited dimensions and undertaken using (at least mentally) reproducible methods, that is negated, in the name of the specificities of the object "education," of which we might underscore its global nature, its complexity and its singularity. 2) The reference to constituted disciplinary knowledge turns into reverence and dependence, as if only the "pure" disciplinary specialisations - the sister sciences are still perceived as mother sciences - were authorised to grasp the object "education" in a scientific manner.
The sciences of education are thus constantly evolving, in search of a balance to be permanently redefined and regained in accordance with the evolution of professional fields and disciplinary knowledge that function as poles of attraction; every researcher is urged to position himself or herself with respect to these poles. As long as a sort of epistemological critical vigilance constantly takes place to prevent the risks that the tensions run, such tensions function as a dynamic force, offering at least the very possibility of renewing the disciplinary field in terms of its objects and its institutional, socioprofessional and disciplinary foundations.

1.4 Social demands and multidisciplinarity

The two constituent tensions of the sciences of education have taken concrete shapes, of which we might sketch some outlines in order to thus form the conceptual tools used to best capture the Swiss reality, which we will analyse below.

Social demands

The concept of "social demands" is currently widely used and discussed within the scientific community; it mainly seems necessary for the analysis of conditions used for the production of knowledge within the general disciplinary system and to grasp the social sciences in conjunction with the social, cultural, socio-economic context in which the social sciences develop in order to consider the social demands, integration and receptions that interact with the social sciences' productions (Bourdieu, 1995; le Dinh, 1997b). This concept is all the more valuable for the analysis of our disciplinary field since its subject, educational action, is particularly socially loaded and has, since the advent of modern democracies, constituted one of the main concerns of social and political powers, which are concerned about allowing for the development of an enlightened society. These powers have also been concerned about guaranteeing the democratic nature of educational systems on one hand and upholding effective mechanisms for social reproduction and some degree of ideological control on the other hand. Today, in most social

communities and western countries, education is one of the most prized socio-cultural assets: the educational concerns of the public powers are currently widely distributed amongst the entire social body and the major established powers, especially the political and economic authorities. These authorities are aware that the future of democracy and socio-economic prosperity depend upon the quality of educational systems, amongst other factors (Novoa, in press).

Plenty of recent examples illustrate the role played by social demands in the evolution of the sciences of education. Imperatives regarding the efficiency of educational systems, with their underlying vision of education as a factor of economic growth, have geared research toward the search for indicators for the effective management of educational systems and establishments; these demands have led to the emergence of several international research programmes headed by international authorities that have henceforth emerged as favoured representatives in the definition of the future of the disciplinary field. The circumstances have led to a restructuring of educational channels, institutions and issues pertaining to research, as well as a redefinition of the criteria by which resources are allocated. The trend to increase the general educational qualifications of the public, notably by means of “life long learning”, as well as the opening of many new educational centres, has created new demands for research and scientific and pedagogical findings. The qualitative leap in the training of professionals involved with educational action, notably primary and secondary school teachers, as well as teachers of even more advanced levels, and the steady rise in the number of education-related professions (early childhood education, special education, teacher education) have led to a new relationship with the disciplinary field, but not without loudly reiterating questions pertaining to the very status of pedagogy.

How might we gain an exact understanding of how these social demands act upon the evolution of the disciplinary field? This question, which is also crucial for other social sciences, deserves to be dealt with in much more in-depth analyses. Those analyses that have already been sketched (see especially OCDE, 1995; Hameline, 1985; Novoa, 1998; and articles by Bertolini, Gretler, Hofstetter & Schneuwly and Keiner & Schriewer, published in the specialised edition of the *Revue suisse des sciences de l'éducation (Swiss Journal of the Sciences of Education),* 1/2000), allow us, for the time being, to identify *solid* key players and mechanisms through which social demands appear and act upon the evolution of the disciplinary field. Two closely related realities play a key role in this regard: the practical methods and application sites of education on one hand, and the issue of qualification on the other hand:

- With regard to the social demands stemming from the practical methods and application sites of education (in the generic sense of the word), we believe that is possible to distinguish two groups of key players[12] who have, on several accounts and to a great extent, handed down the expectations of the social body itself: a) decision-makers, a term used to designate key-players of the political/administrative sphere who are responsible for the administration of educational systems and act at a universal level; b) practising professionals, an umbrella term for all the key players who participate more locally on the different application sites of education (school classes, social institutions, leisure institutions, even family institutions). These two groups of key players request research in their especially praxeological dimensions (effectiveness of action and the administration of educational systems), whilst helping to renew their approaches and subjects through confrontation with the realities of practical application.

12 We borrow this distinction proposed by OCDE (1995).

- Issues pertaining to professional qualification, which call for the acquisition of knowledge and diplomas certifying this knowledge, stem from several factors, some of them being contradictory: the development of educational systems, claims from professionals in the field of education for greater social recognition, the needs of political/administrative spheres to make use of a body of professionals that are both sufficiently qualified and adhere to the general principles that govern the systems. They are moulded in the forms of professionalisation that exist and are accessible at any given moment in history, with these forms mainly depending upon the existence or lack of existence of reference disciplines/disciplinary fields. These demands extend beyond the praxeological aspects that they nevertheless include, thus calling for additional general and scientific culture on a wider scale.
- In addition, the issues pertaining to qualification concern different types of professionalisation: a) the (future) professionals of educational action – the teachers that constitute the most significant professional body –, who, by means of initial or continuing education, seek social recognition and professionalisation of their profession. In order to do this, the discipline and educational research may constitute areas where knowledge about practical methods may be centralised (and also appropriated); b) students, in the most traditional sense of the term, future scientists, teachers-researchers who educate teachers, specialised managers within the administration of educational systems (inspectors of schools, department heads, school principals), who, following the example of their predecessors, seek the social recognition and professionalisation of their (future) profession by means of their education, not as practising professionals, but as scientists, researchers, or managers, regardless of whether their professional activity takes place in universities or whether they work in this or another discipline.

The multidisciplinary nature of the sciences of education

The multidisciplinary dimension of the sciences of education constitutes one of its principal characteristics, yet, for all that, without distinguishing it fundamentally from other disciplines-as we tend to affirm-since there are many disciplines with blurred boundaries and with patterns of evolution patterns that intertwine certain disciplines with others. Furthermore, we should reiterate that disciplinary boundaries never stop being defined within the entire disciplinary system and that disciplines and subdisciplines appear or disappear within a process of internal/external differentiation or fusion/fission (Becher, 1989). We believe that this multidisciplinary nature deserves particular attention with regard to the sciences of education. First and foremost, several disciplines (psychology, philosophy, economics, for example) have, for a long time, contributed powerfully to the development of findings with regard to educational phenomena, whether within institutions pertaining to the disciplines or in other departments. Furthermore, the very subject of this discipline: educational action, constitutes an issue that has been said to “cross” several other disciplines; this feature calls for an approach that is simultaneously disciplinary (focused on one specific discipline), multidisciplinary (combining several disciplinary perspectives) and transdisciplinary (exceeding the disciplinary perspective in order to focus its attention on issues that cross several disciplines, in general defined by the practical applications or education or educational issues themselves). Moreover, we observe that several fields or subdisciplines that are specific to the sciences of education clearly pertain to a transdisciplinary approach (for example, we could mention early childhood education, adult education, family-school relationships).

We could dare to use the term “multidisciplinary discipline” to characterise the sciences of education. This constituent characteristic places the discipline within a particularly dynamic, constantly changing relationship with other disciplines. This occurs on at least three levels.

- The mode of socialisation and recruitment within the discipline is undertaken in close proximity to the other disciplines, which have often supplied a large proportion of research personnel. Obviously a potential source of enrichment, this relationship may turn into dependence when the contribution from other disciplines is quantitatively very large, especially because the reciprocal situation-the possibility of recruitment by other disciplines-hardly ever takes place.
- The boundaries with neighbouring disciplines are extremely hazy, as is shown notably through historical analysis. This concerns the relationship with other disciplines, already existing or under construction, such as psychology (Depaepe, 1993; Kiciman, 2001; Lussi, Muller et Kiciman, 2001; Späni, 2001), sociology (Van Zanten, 2001) or even economics (Delamotte, 2001); this may also include fields included or not included within the discipline, such as special-needs teaching, early childhood education, logopaedia, or social work, for which scientific analysis, according to the historical periods and local data, may be handled by diverse disciplines or those that might constitute an autonomous discipline.
- The process of disciplinarisation within the sciences of education has led to an internal differentiation according to a two-fold mechanism: the topics or fields of reference constitute (sub)disciplines (Oelkers, 2001); “external” disciplines are pulled within the discipline and subjected to restructuring within the context of the surrounding discipline (Hanhart, 1998; Charlot, 1995).

The concept of disciplinarisation, far from being able to define *a priori* the scope and the internal constitution of the discipline, will note its different, shifting forms resulting from this complex multidisciplinary structure, the discipline’s second driving tension, for measuring its potential for development at any given place and time.

Conclusion

The conceptual tools that we have just presented - discipline, (secondary) disciplinarisation, constituent tensions, social demands, the multidisciplinary nature -constitute the equipment that will simultaneously add structure to the construction of the analysis of the sciences of education and direct the overview of them. Our analysis of the sciences of education in Switzerland will, for example, be organised using five definitive aspects of the discipline[13]. This analysis will constantly focus its attention on the process of disciplinarisation and, consequently, on the evolution of institutions and disciplinary boundaries, on one hand under pressure from social demands - political, administrative and practical, as well as for professional education - and on the other hand under pressure from other, external disciplines, as well as from within the discipline itself.
Insofar as this process of disciplinarisation may have also taken place for a long time following the evolution of the discipline at an international, especially European level, we deem it

13 Institutional foundation, subjects of findings, networks of communications, socialisation, regulatory mechanisms.

absolutely necessary to present this context, within a few pages, based on currently available studies.

2. European (and international) context

In this chapter, devoted to a succinct presentation of the evolution of the sciences of education in Europe, we will proceed using three phases: by basing our discussion on historical studies, we will first describe the earliest developments of the sciences of education. Through comparative studies, we will then attempt to supply a few observations regarding how the sciences of education have gained their institutional base over the past four decades. In a third section, we will endeavour to analyse new forms of internationalisation within the sciences of education.

2.1 The first wave: the foundations and earliest developments of the disciplinary field. Historical approach

The historical works analysing the emergence and earliest developments of the sciences of education have distinguished two phenomena, schematically presented here.

The first development witnessed the establishment of the first pedagogy courses and chairs; at that time, pedagogy was gradually developed as a moral science. Although the process underwent different chronological developments from one country to the next, during the last three decades of the 19th century, the trend was most dynamic in the United States (Cruikshank, 1998) and western Europe, for example in Austria (Brezinka, 1995), England (Simon, 1994), and France (Gautherin, in press), as well as in Switzerland (Herzog, in press).

There were signs of the second phase in the 1880s, and this phase lasted into the first few decades of the 20th century, with the emergence of a trend that advocated a decisively scientific approach to educational phenomena and that was inspired by the empirical research paradigms gleaned from the social sciences, especially psychology (see especially, Depape, 1993; Hameline, 1995; Novoa, 1998; Oelkers, 1989). Although this trend developed in accordance with the traditional disciplinary forms (associations of researchers, scientific journals and congresses, etc.), it hardly managed to achieve an institutional foundation. However, it increased its institutional integration, sometimes in the private sector, mainly driven by teachers' associations, and sometimes in the public sector, within institutes depending upon administrations or governments. Thus, there was the start of the complex relationships between the profession and the political/administrative sphere (Tenorth, 1994). At first, this trend enjoyed stunning dynamism, especially through the alliance woven between teachers, pedagogues and researchers round school reform movements (new education, *Reformpädagogik*, *progressive education*) and the education of teachers (debates over the universitisation of teacher education and the link between research and professional education, with a view to better professional qualifications and social recognition) (Hameline, Helmchen, Oelkers, 1995; Oelkers, 2001). Even before the gains could be lastingly institutionalised, the trend experienced a gradual sense of disenchantment, for reasons that have yet to be better understood (see for the example of Germany, Schubeius, in press; for France: Gautherin, in

press; for England: Nisbet, 2000). Apart from a few exceptions[14], experimental pedagogy, pedology, or even educational psychology were not established at the university level in Europe[15], the education of primary and secondary school teachers remained apart from areas where research was carried out; in several places, empirical approaches were entirely abandoned, whilst pedagogy (even under the name "science of education) was still perceived as a "moral science," combining philosophy and the history of pedagogical ideas (Tenorth, 1998). Based on a comparative study pertaining to the evolution of pedagogical journals in Spain, the Soviet Union and China, Schriewer, Henze, Wichmann, Knost, Taubert, and Barucha (1999) identify two periods: after the display of signs of being open to reform trends and empirical procedures within an international context, a downward trend marked by narrower cultural and national values may be identified in the publications that have been studied.
The initial emergence of the sciences of education, however, has left durable imprints on the layout of the disciplinary field:

- The disciplinary field is linked very closely to the idea of reform. As is underscored by Oelkers (2001) "all practical reform trials have always benefited from an *academic support* consisting of a blend of empirical thought, philosophy and history [and] inversely constituting *evidence of legitimacy* as regards the practical expectations addressed to research and theory".
- It developed in close relation to psychology, which remained the main science of reference for a long time.
- It struggled to become established as a discipline of reference for the educational professions, despite the support it gave to teachers' unions during certain periods. It would seem that the very idea of a discipline of reference, like medicine or the engineering professions, struggled to become established, for reasons that have yet to be clarified.[16]

2.2 The second wave: progressive institutionalisation and contrasted configurations of the sciences of education. Comparative perspectives

Observers distinguished a second wave within the development of the sciences of education, this time leading to the lasting, bona fide institutionalisation of the discipline. This wave, which took place following the expansion of educational systems that valued the principles of "democratisation" or *"Ausschöpfung der Bildungsreserven"*, began during the late 1950s, expanded during the 1960s and 1970s, stagnated during the 1980s and experienced a renaissance, to some degree, within the last ten years. Based on numerous research projects and

14 We have suggested elsewhere the hypothesis of a Genevan exception (Hofstetter et Schneuwly, 1998).

15 The evolution seems to follow a different path in the United States (Oelkers, 2001): the institutionalisation of sciences of education seems to have been realised a many places, strongly articulated to teacher education. Note that this "discipline" takes – consequently? – a different, specific direction (Keiner, 1999). We will come back to this question

16 Novoa (1998) suggests that this has ensued from a type of "expropriation" of professional knowledge on the part of the profession. Other researchers have paid close attention to the different reactions of teachers according to their relevant levels: secondary school teachers are attracted by the sciences of reference linked to their teaching discipline, whilst primary school teachers are sometimes reluctant to pursue a university-level qualification.

national reports[17], this periodisation concerns the majority of European countries, especially western Europe[18].
Nevertheless, sources that are currently available hardly allow us to reach precise comparisons[19] and draw general conclusions, owing on one hand to the great heterogeneity of institutional configurations of the discipline in Europe, on the other hand to the great diversity of issues, perspectives and methodological approaches preferred by research projects and national reports.
We are thus limited to presenting the results of three recent studies, which all propose, based on an analysis of scientific publications, a European, and even global, perspective of the discipline across national foundations; these studies allow, us to show two prototypical configurations able to shed some light on the motives behind the process of disciplinarisation of the sciences of education over the last few decades; to identify different modes of reflection and theorisation in accordance with cultural and/or national contexts and to grasp the evolution of the configurations and modes of reflection as process of diversification as much than as unification. Demanding for more comparative approaches, they give us useful methodological tools to interpret the process of disciplinarisation in the multicultural context of Switzerland.

Motives behind the development of the sciences of education: prototypical configurations

Based on an in-depth analysis of six national reports (Germany, France, Netherlands, Portugal, Sweden, Switzerland), Hofstetter and Schneuwly (2000) provide a more particular analysis of the discourses held on the motives behind the recent development of the disciplinary field (institutional evolution, cognitive evolution, evolution of human and financial resources). The reports that have been studied bring up two categories of social demands, closely linked to reforms within the educational system, that give impulse to the development of research in education:

- the demand for increased qualifications and professionalisation for teachers (especially primary school teachers), even for manager-level positions associated with scholastic establishments
- the demand for an enrichment of the stock of available knowledge tapped by managers and practising professors to define their educational policy and reforms and to guarantee the effectiveness of the management of educational systems or to improve teaching practises in classes

This study emerges onto the definition of two prototypic configurations of the sciences of education. In the first case - essential impulsion due to the demand for increased qualifications and professionalisation - as exemplified by Germany (Steinert, 1994) and Portugal (Campos, 1995), as well as Italy (Bertolini, 2000) and Finland (Risto, 2000), we have witnessed an explosive development of the discipline at a university level through the opening of several

17 See the exhaustive list in Gretler, 1999b; also see issue 5 of the *European Educational Researcher* with contributions relating to different European countries.

18 We have access to very little information regarding Eastern Europe. The elements supplied by Gretler 1999b do not invalidate the described trends.

19 It is interesting to note that the OCDE report within the framework in which several studies have been undertaken, does not conduct a comparison. For an exception, however, see Gruber, 1995.

academic posts (also at the level of professorial and intermediate staffs, whether stabilised or not). This development has also been accomplished through the creation of departments, curricula, diplomas, which allow for an internal differentiation of the field into many "subdisciplines" in accordance with the main disciplines of reference (psychology, sociology, economics…) or specific issues relating to education (the teaching process, multiculturalism, scholastic failure). In the second case - essential impulsion due to political and administrative demands - as exemplified by the Netherlands (Kloprogge et al., 1995) and Sweden (Lindberg and Lindblad, 2000), as well as Germany (Steinert, 1994), we have witnessed substantial growth in the number of researchers, working in research institutions, without teaching duties. These researchers, partly incorporated into the university, are not necessarily established within the sciences of education.

In the first case, research is especially centred around the needs of practical applications and is quite like action research aimed toward influencing, even transforming teaching practises. The preponderant regulating mechanism lies in the closeness of the researchers themselves, via the (future) teachers who are receiving their education, with the areas of practical education. In the second case, the regulatory mechanisms are contractual and function, through financial incentives, according to "quasi-market" principles (OCDE, 1995a, p. 100); research projects, especially empirical and analytical projects, often focus on issues related to the management of systems, programmes, human resources, system performance indicators, or the relationships between society and the educational system.

These two prototypical configurations allow us to describe and distinguish between actual types of evolution occurring in each country (including Switzerland, of course).[20] The existence of natural configurations, as contrasted with the greater European scope, allows us to foresee the possible goals targeted by the actual movement. In this regard, it is particularly worthwhile to observe this evolution in two noteworthy neighbours of Switzerland: Germany, which has witnessed an impressive development in terms of the sciences of education following the universitarisation of teacher education, has at the same time developed a relatively dense network of research institutions that are closely linked to administration (Steinert, 1996). France, whilst investing in certain central regulating organisations, seems instead to have responded to a demand for adult education and managers of educational systems (the demand for qualifications) (Froment, Caillot & Roger, 2000) through the establishment of university curricula.

Different modes of reflection and theorisation in accordance with cultural and/ or national contexts

Discussing the sciences of education using networks of communications and, more particularly, using the authors cited in the major publications within the sciences of education, Keiner and Schriewer (2000) show three different modes of reflection and theorisation, dependent on cultural and/or national contexts. The German mode, which they generally describe as a

20 At the same, we note that within the two configurations, financial resources are relatively lacking, as is observed by Gretler (1999), using national data supplied by roughly thirty associations or organisations from different European countries: the amount spent on educational research varies between 0.1 and 0.19% of total spending on education. Financing is relatively weak in relation to the norms defined by OCDE, proposing instead 1% for research in education, which could play a

"pronounced disciplinary split," is characterised by great disciplinary unity that is marked by a stable body of references that are securely founded within the discipline itself. In contrast, the French mode, which they present as an "expanded social science," whilst also being established within a European disciplinary tradition, is characterised by a multidisciplinary referential and a broad space of referencing, to the detriment of the creation of a stable corpus of reference, in particular including cognitive psychology, sociology, linguistics, history or anthropology. Finally, the Anglo-Saxon model, which the authors define as a "pragmatic specialisation, conditioned by the fields of application and relevant professions," makes fair reference to the discipline's originators and those of the other human and social sciences - overwhelmingly favouring psychology; it is not so much disciplinarily organised as it is heavily structured in accordance with demands made for professional and political reasons (curriculum theory, measures of efficiency and effectiveness, etc.). These three modes indubitably also divide the sciences of education in Switzerland, at the confluence of several cultural regions.

Diversification within a multipolar context

Whilst analysing the configuration of pedagogical discourses by means of specialised journals in three countries (Spain, Russia and China) until 1990, Schriewer et al. (1999) estimate that it is not possible to interpret the data within the perspective of the University of Stanford's neo-institutionalist model that supposes an adaptation of different modes of thought organisation and educational systems on a global scale (Meyer & Ramirez, 2000). Rather, it is shown that, if there is indeed an international atmosphere of openness and theories and concepts that enter the three above-mentioned countries from abroad, these theories and concepts are reinterpreted in accordance with the cultures and traditions that are already present in each of the countries. Far from being indisputably imposed throughout the world, offers of findings and knowledge in education are selected by cultural and ideological authorities that give these offers meaning in accordance with national, regional and even local needs. As Schriewer (in press) quotes Laïdi: "[..] the sense of identity of national or infra-national situations has never been so great. Never before has the influence of history, tradition or accident explained the success or failure of a project or experience so well." (p. 26) An analysis of the situation should not be ignored with regard to the multicultural Swiss context within the greater multicultural European setting.

2.3 New forms of internationalisation for the sciences of education

The sciences of education, like other disciplines, are increasingly characterised by an international, especially European, dimension.[21] In part, this has resulted from the emergence and development of a number of supranational institutions that make such internationalisation possible and, at the same time, unavoidable, thus changing the Swiss landscape of the discipline, as has also been the case for other countries. Without aiming to provide an

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significant role in the management of educational systems (1995). Also see the figures supplied by McGaw, Kogan, & Tuijnman (1996), which present similar data.

21 We only make note of the world-wide institutions for mere reference purposes: World Bank; UNESCO and the BIE, with which the Faculty of psychology and the sciences of education has just signed an agreement of co-operation, which also includes the Research in education service department of the canton of Geneva.

exhaustive list here, we will focus on two essential, state-run institutions that promote internationalisation at the European and international levels[22] and bring up researchers' associations that, first accompanying the formation of the sciences of education at a national level, have now also been integrated into an international dimension.

State-run institutions

By 1968, the OCDE had already created the CERI (*Centre for Educational Research and Innovation)* that, amongst other functions, has assumed the role of developing research and promoting collaboration between member states in the field of research and innovation. The Centre has pursued its aim notably through long-term work on indicators of education, allowing for the support of policies and the means for taking into account the efficiency of systems. Furthermore, the OCDE began a vast programme to evaluate, on a regular basis, student achievement following the completion of compulsory schooling (PISA)[23]; with other, similar programmes underway.

Within the context of the European Union, it is particularly the TSER (*targeted socio-economic research*) programme that includes a section explicitly devoted to research in education and integrating the following fields: the teaching of science and technology; the use of new technology within education; market demands for professional education; inequalities in access to knowledge[24]. A new, sixth programme framework is currently being created and should allow for significant reinforcement of the "education" component[25].

The growing importance of European institutions[26] has had the unavoidable effect of deeply transforming the still heavily national, even regional traditions of the sciences of education. This influence is, in all likelihood, exerted with greater force on the current and future evolution of the discipline in Switzerland, due to the very fact that it is tightly integrated into the different cultural and linguistic regions of the principal countries that border Switzerland.

Researchers' associations in the sciences of education in Europe

The first researchers' associations were set up within national borders. Gretler (1999)[27], with regard to this, has distinguished two foundation periods, if we do not consider the often older pedagogical associations: the first took place in the 1970s (Germany, France, Switzerland, Scotland, Scandinavia, United Kingdom); the second occurred during the 1990s (Austria, Czech

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22 For this presentation, we essentially refer to the institutions' web sites. Gretler (2000) offers a satisfactory synthesis of the European institutions that we have also taken into account here.

23 More detailed information is available at www.oecd.org./els/edu/ceri and www.pisa.oecd.org; for Switzerland, see pisa.ch@bfs.admin.ch.

24 For more information, see www.cordis.lu.

25 The EERA has participated significantly in the creation of this program, which will not fail to exert an influence on the top priorities of research in education, probably including that taking place in Switzerland.

26 With regard to this, we mention the *Consortium of Institutions for Development and Research in Education in Europe (CIDREE)*.

27 Based on a questionnaire sent to representatives in the sciences of education from every European country.

Republic, Lithuania, Portugal, Romania, Slovenia, Spain). In both cases, these associations were created following the logical development of the discipline, generating a larger pool of researchers. The second wave has resulted in a new phenomenon: the creation of European associations[28].

The EARLI (*European Association for Research in Learning and Instruction*) has assembled about 1,000 researchers and individual members. Heavily dominated by psychological currents, it has a clearly psychopedagogical vision in terms of research in education, as has been evidenced by its work groups and the definition of its objective: "to promote empirical and theoretical research into processes of learning, development, and instruction in, or relevant to, education or training… EARLI encourages the study of learning from diverse perspectives as long as these perspectives contribute to a deeper understanding of learning and of instructional processes." (www.earli.eu.org). Its scopes of research thus do not encompass all fields of the sciences of education: the crux of its activity rests in biennial congresses and work groups.

The EERA (*European Educational Research Association*), founded in 1995 with the very active participation of Switzerland, constitutes a blanket association that currently federates 18 national associations, mainly in western Europe. Despite potentially regrouping more than 8,000 members, the association still lacks a significant presence within the practise of researchers. The EERA is characterised by a broad range of action[29]; relatively fragile infrastructures under construction; a bulletin that will potentially become a journal. It would seem that the national associations have not optimally played out their role of cogs within the greater wheel in order to stimulate these new networks and infrastructures. Recently, the EERA has begun to reinforce its exchanges, with research-defining authorities based in Brussels, within the context of the European Union.

Conclusion

A long-term analysis of the progressive emergence of the disciplinary field seems especially worthwhile, as it allows us to attempt to simultaneously pinpoint differences and analogies as to the workings of the process of disciplinarisation of the sciences of education. In particular, this analysis would allow us to become more aware of the well-seasoned influence of psychology upon the sciences of education and their close, interwoven relationship, as well as pedagogical reforms and teacher education.

The identification of different academic traditions, such as the unitary disciplinary approach, with very weak ties to empiricism, in Germany and the multidisciplinary French tradition, helps us to shed light on how the discipline has been developing in Switzerland and, more particularly, on the differences with regard to the disciplinary reference points between the two main cultural communities. Such an analysis also allows for the definition of the original motives behind the recent development of the discipline in Europe and the pinpointing of two prototypical configurations: the university-level development linked to professional qualifications and the creation of research departments linked to local administrations. By developing according to its own unique characteristics, the landscape of Swiss educational research seems to have been established within an international dynamic for a long time, due to

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28 Here we will only mention the two principal associations, considered to represent the discipline. There are also several associations that regroup researchers working in a particular field, such as the *European Society for research on the education of adults (ESREA)*.

29 For updated information, see www.eera.ac.uk.

the very fact that Switzerland is located at the confluence of several cultural regions that have ceaselessly oriented its development.

The increasing internationalisation of all cultural institutions, including both disciplines and educational systems, has fundamentally transformed the sciences of education, urging them to look beyond their national traditions whilst, at the same time, they continue to perform their functions and exert their influences on regional and local realities. By organising at the greater European level, researchers, including the Swiss associations, have begun to become equipped with organisational tools that will help researchers to develop and defend their interests at this level.

Part II

The sciences of education in Switzerland

This second part offers an analysis of the evolution of the sciences of education in Switzerland to provide greater familiarity with the current situation of the discipline and the main trends that are directing its development. We have organised our analysis in accordance with five definitions of a discipline, focusing our attention successively on the main reference institutions, along with their function and personnel, research topics, communications networks, the way socialisation toward research is structured, and concluding with the discipline's regulatory mechanisms. This part is based on a systematic review of the literature of already existing works that have dealt with these issues, as well as some new empirical investigations undertaken within the context of this mandate, not without commenting, at the beginning, on the contributions and limitations of these investigations.

3. Presentation of existing works regarding the sciences of education in Switzerland: possibilities and limits

Like other disciplines, the sciences of education have produced reflexive works allowing for the broadening of knowledge about the evolution of the discipline itself, its institutions, its functions and its products. These works have addressed not only the scientific community, but also outside parties, notably administrative and policy-making authorities in charge of the management of educational institutions, including research institutions. For roughly fifteen years, these assessments have been routinely conducted in the sciences of education, notably through institutions appointed to complete such tasks, especially the Swiss Society for Research in Education (SSRE) and the Swiss Co-ordination Centre for Research in Education (CSRE) for their own benefit, for the benefit of the CSS and, more recently, for the Swiss Council for Educational Research (CORECHED) and the Educational Research Council (CRE).
This chapter sketches a brief review of the literature of existing works. Here we only discuss the studies that have been undertaken to describe and analyse the entity of the sciences of education (also called research in education) or the particular characteristics of the discipline for Switzerland or one of its main linguistic or cultural regions. We endeavour to offer a synthetic description of the problems discussed by the works, as well as the perspectives and methodological reasoning that they favour. The task is two-fold: it first covers existing works, on which this report is based, works to which data produced within the very framework of this mandate have now been added (see Cusin, Grossenbacher and Vögeli-Mantovani, 2001); it then tries to identify the contributions and limits, notably from a methodological perspective, to try to define, as precisely as possible, the status and reliability of findings that have thus been produced. This methodological criticism seems to be all more useful for us since it has direct effects on our own analyses and, taken as a whole, on the very possibilities of outlining a clear, legitimate reflexive analysis of the evolution of the discipline.

3.1 Reports on the sciences of education as an entity

The works analysing the discipline at a national level began with the significant study published in 1985 for the tenth anniversary of the SSRE, entitled "*Matériels pour un plan de développement et version préliminaire du plan de développement pour la recherche suisse en éducation*" ("Materials for a developmental plan and preliminary version of a developmental plan for Swiss research in education") (CSRE, 1985). This study, which was subjected to

extensive scrutiny and discussion, led to the publication of a special edition of the SSRE journal "Education et recherche": "Plan de développement de la recherche suisse en éducation" ("Education and research: Developmental plan of Swiss research in education") (SSRE, 1988).
Since then, the state of Swiss educational research has been described many times, and each time these studies, framed within the extension of the previous studies, are based on data gathered and used by the CSRE. The above-mentioned *Plan* was first developed and updated in the "Rapport sur la situation en Suisse de la recherche en sciences sociales" ("Report on the situation of social sciences research in Switzerland") (Grossenbacher and Gretler, 1992). Almost simultaneously, there appeared a study on the development, between 1970 et 1990, of educational research in Switzerland, favouring the analysis of research institutions and topics. (Patry and Gretler, 1992). Upon the basis of several preparatory investigations (Poglia, 1986, 1987; Grossenbacher and Vögeli, 1992), in 1993 Poglia, Grossenbacher and Vögeli published a significant study concerning the status of education and research within the sciences of education, widely discussed within the SSRE. It was the first –and only, at that time- study that also focused on the university situation, offering a more complete view of the sciences of education degree courses based on an analysis of the institutions' different curricula and academic requirements; this study also included figures relating to the influx of students, using data produced by the OFS. This document will serve the Swiss Science Council as a basis to assure better co-ordination of the higher colleges for educational studies within the field of the sciences of education.
In 1994 Gretler updated the data of previous investigations for his "Rapport sur la situation en Suisse" ("Report on the Situation in Switzerland"), compiled for the third international OCDE Seminar, devoted to educational research and development. Moreover, in January 1996 CORECHED, founded in December 1991, published its "Premier rapport sur l'état, le développement et les tendances de la recherche éducationnelle en Suisse" ("First report on the status, development, and trends of educational research in Switzerland"). In 1999, the CRE of the Intercantonal Conference on Public Instruction in francophone Switzerland and Tessin (CIIP) finished its report, prepared by the Francophone Swiss Institute of Research and Pedagogical Documentation (IRDP), on "Research in education in francophone Switzerland and Tessin: status, analysis and priorities." Finally, in 2000, notably relying on analyses of institutions of educational research in Switzerland (CSRE, 1983, 1989, 1996) and on work reports created by the CSRE (CSRE, 1991, 1993, 1995, 1997, 1999), Gretler drafted an assessment of research in education undertaken in Switzerland since World War II, from both an institutional perspective and that of considered topics (Gretler, 2000).
These texts have supplied all the detailed information about the following aspects that, at the same time, have been used to organise the majority of the previously mentioned reports:

- institutions that carry out research in education: their numbers, size, institutional classification (University, administration, private)
- researchers involved with educational research: their numbers, institutional affiliation, the duration of commitment to projects, etc.
- content of educational research: favoured scopes, relevant academic degrees, the methodological procedures that have been employed, etc.

The systematic nature of these studies and the analogy of their perspectives and procedures authorise putting them into serial perspective, which would serve invaluably in allowing a thorough analysis of Swiss educational research.

3.2 Works analysing particular aspects of the discipline

Other studies touch upon particular aspects of the sciences of education, thus supplementing the above-mentioned works.

Teacher education institutions

The report by Poglia, Grossenbacher and Vögeli-Mantovani (1993) provides a detailed presentation of university teacher education institutions using university curricula as a basis. Criblez (1998) analyses the complex relationship that has emerged between discipline and profession, notably with the appearance of the higher colleges for educational studies (French acronym: HEP). As for Grossenbacher, Gretler & Schärer (1998), they offer a complete panorama of research within the context of teacher education, whether or not they enrol in a university programme. This study was updated for French-speaking Switzerland by Weiss (2000) who provides a very detailed description on the basis of legal projects and cantonal reference texts produced within the framework of the creation of the HEPs; Weiss's study also gives contemporary views on teacher education reform from the point of view of its effect on research in education.

Research services linked to administration

Research services have been explored in several in-depth studies[30]. With the help of a questionnaire and site visits, Huberman (1989) compiles a first description of the situation of these services and analyses their possibilities and limits. Within the context of the SSRE 2000 Congress and based on a series of presentations by the key players in the main Swiss centres, Weiss (in press) offer a detailed analysis of services over the last 40 years from the perspectives of institutions and research interests. Moreover, Weiss (2000b) has recently delivered a report on the recent evolution of such services in French-speaking Switzerland, shedding light on the ongoing thorough restructuring that has been taking place over the last four years.

Restaffing

In addition to the data supplied by the report by Poglia, Grossenbacher and Vögeli-Mantovani (1993) that presents the university curricula of educational research education, Criblez's study (1998) is distinguished by an in-depth analysis of the issue of restaffing within the sciences of education, based on one hand on more general studies concerning the status of intermediary staffs in Switzerland and some available data relating to the sciences of education research posts and, on the other hand, on an analyses of theses undertaken within the discipline.[31]

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30 Inasmuch as we have only included projects pertaining to all Swiss institutions or one particular linguistic or cultural region, we do not inventory the numerous reports completed by each institution, which often elsewhere constitutes the base of reports mentioned here.

31 We also note numerous analyses conducted selectively by different universities, in particular by associations of intermediate staffs and bodies of teaching and research collaborators, in order to improve scientific working conditions and colleges and encourage quality restaffing within

Financing

The issue of financing has only been covered in one evaluation, in CSRE (1985) and repeated in SSRE (1988). The estimations were made through projects, with costs being indicated by researchers, estimated through comparisons with similar projects, or evaluated using other procedures. Furthermore, these data were complemented by the definition of the costs of FNRS projects, which more or less concerned the issue of education.[32]

Particular fields of educational research

We deem it necessary to also bring up studies that discuss two "subdisciplines" that directly relate to the field of the discipline without necessarily being included in an institutional perspective and that may have their own institutions, networks, and supports:

- For *curative pedagogy*, we have made use of an analysis of considered contents through the study of projects listed in the CSRE database (Rosenberg, 2000).
- For *research in professional education*, Kiener (1999), has carried out an evaluation of the field based on one hand on a short survey carried out by Marty (1998) and the analysis of research projects in the CRSE database, and on the other hand with the assistance of a survey of key players, whilst Straumann (2000) has attempted to conduct an inventory of fixtures of research by proposing an outline and compiling an assessment of the main results of the research, also mainly through the use of the CSRE database.

These studies complement the above-presented series of reports. However, it is observed that the available data is often deficient for several fields, especially that of financing, but also for the fields of restaffing, student inflow and research education, to list just a few of the most significant fields.

3.3 Methodological discussion

These different studies, fundamental for the findings thus produced, are essentially based on similar data and favour precise methodological procedures where it is useful to consider contributions as well as limits. We will only discuss a few of these.

Inventory of publications and research projects

The majority of these investigations rely on data collected by the CSRE. We note that this organisation has been collecting publications and research projects in the sciences of education

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universities. If most of these are limited, centring around one particular institution or problem that concerns internal publications of different institutions, they are nevertheless based on precise data and thoroughly tackle this issue.

32 With this mandate, the initiative has been taken to propose that CORECHED fund a first, more systematic, yet more exploratory study of the costs of educational research. This study also aims to create tools for more systematic and long-term cost analysis. This study, headed by Siegfried Hanhart, is currently collecting its first results.

on an ongoing basis since 1970. This inventory has been supplemented by a list of relevant institutions, an analysis of involved researchers and a categorisation of research projects. The regularity and systematic nature of this inventory, as well as the use of data and their categorisation based on the same criteria for several decades render the inventory invaluable for the task of isolating the main trends in the evolution of educational research in Switzerland over the last thirty years.
Although it is all the more indispensable and precious because it is the only one of its kind in Switzerland, this procedure also involves undeniable limits that the *Plan* itself has already indicated (p. 47), thus possibly leading to distortions that are difficult to gauge if they are not identified and taken into account in the proposed or completed assessments and co-ordinated with other data.
The inventory, insofar as it is essentially based on information supplied by the researchers themselves about their projects and publications, is far from exhaustive; this information is not supplied in the same systematic nature from one researcher to the next, one project or field to the next, one institution to the next (data concerning universities are especially deficient). In addition, there is the fact that the notion of the project itself should be approached with caution (ranging from a degree-level thesis to a project involving several years' work of research and the contributions of many individuals), which limits the validity of the data, notably with regard to the analysis of contents.

Categories for the analysis of contents and an estimation of time allotted for research

We should also mention a limitation relating to the categories for the analysis of contents. First introduced in *Matériels* (Materials), these categories have not been truly defined or justified and hardly correspond to other systems of categorisation (see the list proposed by Gretler, 1999, in a work document for EERA) used in other countries. An analysis of the same projects according to a different perspective (Patry and Gretler, 1992) also elicited some surprises.
With regard to the estimation of research potential, insufficient distinction, at least in certain texts, between institutions, being organically or occasionally linked to research in education, constitutes another limitation on data. In addition, there is the problem, underscored in several reports, of the difficulty in estimating time effectively allotted for research work, both in the research centres and universities.

Comparability of data

Several studies are based on data supplied by the institutions themselves (inflow of students, university curricula, human resources). The validity of these data would not obviously be called into question, but the issue of comparative analysis is still extremely difficult to resolve insofar as it concerns systems with an underlying logic inspired by very different academic cultures. The basic meaning of the same information may, as a result, frequently differ, which often makes the interpretation of information a delicate matter (course, seminar, or thesis status, levels of supervision for students, value of diplomas, etc.).
Several studies are based on data produced within the very framework of investigation (questionnaires, interviews, site visits). These studies are particularly useful for describing the reality of educational research, insofar as they supply information that complements that are

supplied by the institutions themselves from their own work. Nevertheless, we note that the sample selection and the lack of exhaustiveness of the responses sometimes limits the scope of data, hardly allowing for the establishment of long-term identical serial data, and thus does not facilitate the spotting of evolving or permanent trends. A procedure based on the discourse of key players about their institutions, if it supplies interesting data, nevertheless cuts the risk of remaining subjective if it is not complemented by systematic surveys, based on analogous questions criteria for analysis.
As a result, it seems necessary for data to be given over the short and long terms to overcome these limits in order to strengthen our findings about the evolution of the sciences of education in Switzerland and begin comparative analyses, despite the diversity of scientific practises, cultural regions, kinds of institutions and types of concerned research.

Conclusion

The systematic review of the literature of several works and studies on which our analysis of the sciences of education in Switzerland is based shows that there is an important body of work allowing a quite precise evaluation of the state of the discipline.[33] We deem it prudent to accompany the review with a reflection on the possibilities and limits of the findings thus produced; the most notable are the following: partially deficient databases, units of analysis that are difficult to establish, non-homogenised and insufficiently theorised categories for the analysis of research contents; the comparison of institution-supplied data that has become problematic due to very diverse systems of institutional logic. These limits, which mainly concern the databases, should be indicated insofar as they interfere with the interpretations of ensuing data, notably our own.
It is certain that these data are nevertheless rather numerous and very often collected over a relatively long time span and according to comparable criteria so that a whole presentation of the evolution of the discipline is justified in order to identify certain strategic intervention plans. The very state of the available data calls for the development of more detailed, more reliable indicators, a project which should be undertaken through international co-operation (we will discuss this later). Therein lies the second task of this section and the methodological discussion to which it leads.

4. Institutions: type, function, personnel

The institutional foundation of a discipline constitutes one of its first and foremost conditions for existence. In Switzerland, many types of institutions could potentially be related to the sciences of education: universities, pedagogical services, or research linked to administrations, teacher education institutions, and other, less clearly identified bodies. The foundation of the discipline goes thus far beyond the university. The distinctive criterion for including them within the discipline – and thus within our analysis - rests in the fact that they have been

33 We will not present in detail the statistical data at disposal in these studies concerning the process of disciplinarisation, but will refer to the different reports and articles cited.

mandated to conduct research in education[34], to which mandate one could add that of teaching the contents of the discipline and to socialise new researchers.
The very diversity of the institutions, their contrasted inclusion within the discipline, the multiplicity of their disciplinary foundations and mandates constitute institutional manifestations that are crucial for the process of disciplinarisation; the boundaries of the discipline are constantly evolving under pressure from social demands due to interaction with the evolution of other disciplinary fields; new institutions appear, with some of them shifting from the margins to the centre. Meanwhile, other institutions are undergoing a change in function. Indeed, the landscape of the entire discipline is experiencing a ceaseless transformation.
In this chapter, we propose a successive analysis of different types of institutions, identifying the main trends within their evolution and important features of their function and organisation (structure, workings, mandate, personnel[35]).

4.1 Universities

A detailed understanding of the current university-level integration of the sciences of education and the motives behind their academic development requires historic contextualisation. Indeed, current structures result from very old decisions that have, as we have seen, been greatly influenced by the very different cultural regions in which they were made. These decisions are all the more influential since a decentralising logic regarding decision-making mechanisms still prevails at the university level. It is against the backdrop of a historic panorama that a comparative institutional presentation of the four universities that are most important for the sciences of education may be best analysed. Indeed, the two pressures to which the discipline is subject may be felt with particularly acute intensity in this institution. As we have seen, the discipline has assumed the task of granting professional qualifications for certain professions since its university establishment, and its process of disciplinarisation is carried out in a fashion that closely overlaps that of other university disciplines. As a result, very different organisational forms have emerged: internal and external differentiation, fringe institutions, institutions that are on the boundary or even outside the discipline, unity or diversity of institutions involved with the sciences of education. We attempt to pinpoint these forms in their diversity, yet without evading their irresolute, hazy and uncertain dimensions that we believe also to be characteristic of the process of disciplinarisation of the sciences of education.

Historical elements of the sciences of education in Swiss universities

The Swiss university-level sciences of education landscape is characterised by astonishing heterogeneity, probably with origins in the remote past. If the comparative history of the emergence of the sciences of education in Switzerland has been neglected until now, we nevertheless deem it possible to list some landmark events for an initial periodisation.

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34 Remember that we refer to the technical manual *Système d'information universitaire suisse* of the Swiss Office of Statistics for the definition of research, in complementing the definition where it seems necessary for our discourse.

35 The very issue of the statutes of research personnel will be taken up again in chapter 7.2, where we will consider the issue from professional perspectives.

Emergence and early developments in the sciences of education in Switzerland (1870-the first half of the 20th century)

Based on the example of several other European universities (see chapter 2), the first chairs in pedagogy or educational science(s) were founded in the late 19th century at most Swiss universities, within the context of restructuring teacher education, especially secondary school teachers (Criblez, 1998; Herzog, 2000; Hofstetter & Schneuwly, 1999; Späni, in press). These chairs were generally established within the Faculties of Letters, closely linked to philosophy, from which pedagogy, thus developed as a moral science, sprang and the teachers that were to be educated. The "professionalising" dimension thus characterised the disciplinary field from its earliest institutionalisation within universities.

During the first three decades of the 20th century – slightly behind American evolution, but perfectly synchronised with European evolution - there was dramatic growth in attempts to found pedagogy or educational science(s) on empirical, even experimental approaches, heavily inspired by psychology and aiming to describe and analyse the educational reality through the use of scientific research methodologies (notably Meumann at Zurich, Durr at Berne, Claparède at Genève, Van Cauwelaert at Fribourg). Like elsewhere in Europe, these initiatives relied on the powerful pedagogical reform movement and were also supported by teachers' unions that believed that a high professional qualification, such as a university teaching qualification, could allow for greater social recognition of their profession (Bruch, 1999, for Zurich; Meillet, 1989, for Vaud; Metz, 1998, for Basel; Hofstetter and Schneuwly, 1999, for Geneva). These initiatives have met with very varying degrees of success.

In German-speaking Switzerland, these attempts were often short-lived. Pedagogy, called "geisteswissenschaftlich", remained dependent on philosophy, up to the chair titles, and remained geared toward the education of secondary school teachers, for which pedagogy assumed the function of a normative and moral authority. The chair-holders were distinguished increasingly by their former careers in scholastic administration than within the academic world. The empirical dimension was progressively erased.

At Geneva, the existence, since 1912, of the Institut Jean-Jacques Rousseau (or School of The sciences of education), an independent institution specialising in research in education that enjoys international renown, as well as the support of the scholastic administration and teachers of pedagogical reform movements and the tertiarisation of teacher education, has led to partial universitation of this education and the integration of the Institute of The sciences of education within the University in 1929. Since its origin, the institution has been strongly geared toward empirical research, notably under the influence of psychology, which has lent its scientific caution.

At Fribourg and Zurich, an initial internal differentiation of the discipline resulted by creation of chairs in curative pedagogy (Häberlin, 1991; Hoyningen-Suess, 1998). In both cases, this evolution led to the foundation of independent institutes that have developed their own education programmes and research. This differentiation has been carried out to some degree as a type of fission.

Development of institutions concerned with the sciences of education in Switzerland (second half of the 20th century)

Like throughout Europe, the expansion of the scholastic system, especially at the secondary level, has multiplied the number of teachers, especially secondary school teachers, and has reinforced the demands for qualifications in the teaching professions. The Swiss-German

universities, including that at Fribourg, created new professional education curricula for secondary school teachers (Herzog, 2000). The link between pedagogy or the sciences of education and education has taken very diverse shapes in accordance with different places. This movement has led to a certain reinforcement of this discipline in the relevant universities (the creation of curricula and university-level teaching posts); yet for all that, it fails to guarantee a sufficient academic foundation to allow for an internal differentiation of the discipline and its progressive distinction between the profession and institutional "autonomy."

Whilst the sciences of education at Geneva have only occasionally contributed to the education of secondary school teachers, since the 1930s, when the sciences were integrated within the university, they have assumed a more significant role in the education of primary school teachers (Hofstetter & Schneuwly, 1999), and, since the 1970s, individuals involved in other educational professions (adult education teachers, educators, special education teachers, social workers, as well as administrators, managers and experts). In 1975, with the creation of the Faculty of Psychology and the Sciences of Education, the university foundation of the discipline, already broader than in German-speaking Switzerland, was expanded even further.[36] We note that complete integration of teacher education recently (1996) has led to a doubling in class size within the university teaching body. At Lausanne, a precisely opposite result has occurred: the university abandoned all significant investments in the field of the sciences of education.

Two other fields have undergone significant development over the past thirty years, also due to the pressure of increased demands for professional qualifications. Curative or special pedagogy for children and person with special needs, instituted very early on within the independent institutes at Zurich and Fribourg,[37] now enjoys significant recognition (such as in terms of posts and students). The "Sozialpädagogik" has been granted an academic post that is integrated into the pedagogical institute at Zurich. In addition, from a small core group focused on curative pedagogy, two chairs, not linked to the sciences of education, but centred on social work, have been created at the University of Fribourg, first in German (Fatke, 1991) then in French.

These historical elements show that one of the main motives behind the university-level development of the discipline rests in the education of teachers and other education professionals (educators, social workers, adult education teachers, as well as administrators, managers and experts). One of the key matters of this discipline thus seems to be its relationship to the profession (in its broader sense, including all professions linked to education: adult education teachers, specialised teachers, a vast range of contributors to educational institutions, social workers, scholastic administrators, etc.) and more specifically the discipline's relationship to social demands for professional qualifications, thus illustrating the dynamism of one of the discipline's constituent tensions. At the same time, these historical elements reveal the great diversity of responses to such demands, leading most often to very fragmented institutional solutions. This institutional fragmentation may harm the discipline even whilst research and education institutions are still in the process of developing. However, Geneva certainly constitutes an exceptional case.

We must also state that the expansion of education systems has also led to a reinforcement of calls from policy-making and administrative spheres for educational research to contribute to the efficient management of education systems. For reasons that have not yet been fully

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36 There is not yet a systematic history of the Section of the sciences of education for the post-war era. Some elements of this can be found in the annual reports of the section and in the first part of the report of self-evaluation (Rapport d'autoévaluation, 2000)

37 This information comes from the institutes' web sites and reports. Also see Häberlin (1991)

understood – perhaps linked to their mandate, to models developed for such cases – Swiss universities have hardly benefited from available resources to increase research and development in this sphere (Gretler, 2000), resources that will be invested in the creation of centres linked to administration (see chapter 4.2 of Part II). It is nevertheless interesting to note that these centres have developed most often near the universities in which the sciences of education already enjoy a broad institutional foundation.
We will now successively study the university institutions concerning, whether directly or not, the sciences of education. We will first examine pedagogical institutes or sections/departments of the sciences of education, which constitute the main foundations of the sciences of education at an academic level. We will then discuss the university institutions dedicated to the education of teachers but created in a fashion similar to that of the above-mentioned establishments. A third section will allow us to analyse special institutes of curative and social pedagogy. We will conclude with an analysis of a relatively recent phenomenon within Swiss universities: the creation of services or centres that specialise in research that responds to social needs (administrations, schools, economy).

Institutes/departments/sections of the sciences of education/of pedagogy today

Here we will focus on the four main institutes or departments of the sciences of education in Switzerland, essentially basing our study on research conducted by Cusin, Grossenbacher & Vögeli-Mantovani (2001), within the framework of this mandate. It would indeed be interesting to complement this table[38] with data regarding Neuchatel and, to a lesser degree, on Basel, where the discipline has also been established at the university level. We note that Lausanne has replaced its pedagogy chair with a chair in sociology of education, established within the Faculty of Social Sciences.[39]
The Pedagogical Institutes (French acronym: IP) of the Universities of Berne and Zurich have been subdivided into specialities, or sections, which correspond to different chairs. The Department of The sciences of education (French acronym: DSE) of the University of Fribourg includes a German language section and a French language section, each holding its own chair. At Geneva, the chair does not have the same structuring function as in the three other sites; in addition to the fact that the academic hierarchical organisation differs between institutions, it is apt to note that a significant number of stabilised academic posts (at a professorial and upper intermediate body level) allow Geneva's The sciences of education Section (French acronym:

38 There are courses and research projects in education in other faculties, institutes and departments, mainly in psychology and sociology, but also in linguistics and history; these courses and projects bring important insights to the different questions and disciplines inside sciences of education. It is all the more difficult to list them as they are generally bypassing. The limits of the current mandate does not allow to establish such a list that would be very useful and should be realised to know exactly the reality of educational research.

39 Lausanne was one of the first universities to set up a chair of pedagogy in 1890; it has experienced a very turbulent history and has never been truly able to develop its sphere of influence. It is not possible to study sciences of education at this university. Recently, the ancient chair of pedagogy has been replaced by a chair of sociology of education. A certain number of research projects in education are realised and several courses and seminars treat systematically questions of education in the context of social and political sciences and psychology. Note that the *Ecole polytechnique fédérale* of Lausanne has a chair in pedagogy and didactics.

SSED) to be structured into research teams, relatively assured of their duration, recently regrouped into four sectors.
Given these differences, we wish to indicate, for the four examined universities, the list of post titles for full professors, associate professors, adjuncts and posts that roughly correspond to comparable "concepts."

Institute of pedagogy (IP) of Zurich
- Historical and systematic pedagogy (since 1999: general pedagogy)
- Psychology of education I
- Psychology of education II
- Pedagogy / social pedagogy
Institute of pedagogy (IP) of Berne
- General pedagogy
- Psychology of education
Department of sciences of education (DSE) of Fribourg
- Pedagogy and psychology of education (German)
- General pedagogy (French)
Section of sciences of education (SSED) of Geneva
- Analysis of practises
- Analysis of the teaching process
- Analysis of the educational link
- Intercultural approaches to education
- Social construction of education knowledge and procedures
- Comparative didactics
- Didactics of languages
- Didactics of social and human sciences
- Adult education and the learning process
- Child education and development
- Special education
- Special early childhood education
- Evaluation and education
- History of education
- Qualitative methodologies of research in education
- Educational planning
- Multilingualism/multiculturalism within the school setting
- Pedagogical practises and education institutes
- Psychopedagogy of language
- Psychopedagogy of sciences
- Sociology of education

Table 1: Professorial posts (full professors, associate professors, adjuncts) (created using the study of Cusin, Grossenbacher & Vögeli-Mantovani, 2001).

This table does not give the entire image of the situation. One would have to add, for Fribourg and Zurich, the professors in curative pedagogy (respectively 3 and 2), and for Zurich and Berne, the professors who are responsible for secondary teacher education (their number is difficult to determine since their status is very variable). There are also two professors in social work in Fribourg, who are in fact no more in the field of sciences of education. One should finally also count some chairs in psychology or sociology, essentially oriented towards questions of education (notably applied psychology in the University of Zurich).

In spite of these comments, the table shows quite evidently that internal differentiation amongst the Swiss-German universities is not very developed at a structural level[40]; instead it operates more in accordance with the differentiated scientific investments of the professors, thus depending on the individuals teaching at a given time and their personal choices without any long-term guarantees. In contrast, there is extensive internal differentiation at the University of Geneva, which has created, within the field of the sciences of education, specialised professorial posts that cover many fields and disciplinary approaches by means of a highly ramified structure. These structural differences are obviously linked to the number of people involved with the sciences of education at each establishment.

Category	IP Zurich (women)	IP Berne (women)	DSE Fribourg (women)	SSED Geneva (women)
Professorial staff	4,00 (0%)	*2,00 (0%)	2,00 (0%)	24,02 (39%)
Intermediate staff	12,97 (38%)	7,45 (59%)	7,10 (42%)	74,59 (60%)
Total for scientific personnel	16,97 (29%)	9,45 (47%)	8,10 (37%)	98,61 (55%)

Table 2: Scientific personnel holding full-time posts (by institute and by category; percentage of women) (Cusin, Grossenbacher & Vögeli-Mantovani, 2001). The table reflects data that the institutes have supplied regarding their own current staff sizes (2000; 1999 for the SSED Geneva). * A third chair in sociology of education has been created; there is still no professor nominated.

The differences between the education structures are as great as those between institutional structures. Indeed, at Zurich, Berne and Fribourg, students enrolled in the faculties of philosophy or history of philosophies may select pedagogy as a major or minor subject. For bachelor's-level degree purposes, pedagogy must thus be combined with one or two other subjects. At Geneva, it is possible to complete the entire bachelor's-level degree curriculum within the sciences of education. Here, summarised in a table, are the educational structures.

Institute of pedagogy of the University of Zurich

1st cycle minimum 4 semesters	Introductory course and education units in all taught fields.
2nd cycle minimum 4 semesters	Selection of a major subject of study/professor among 4 proposed
	Selection of a minor subject of study/professor among 4 proposed
	Selection of a first field outside the Institute
	Selection of a second field outside the Institute

40 We propose the hypothesis that this differentiation occurs within the university through a process that could be called "externalisation" in accordance with professional education within specialised institutes (curative pedagogy, teacher education).

Institute of pedagogy of the University of Berne

1st cycle (60 ETCS) minimum 4 semesters	Propedeutic phase with general exam (2 semesters) Phase of development with intermediary exam (2 semesters)
2nd cycle (240 ECTS) minimum 4 semesters	Selection of a major subject (section among 2 (90 ECTS) /professors (90 ECTS)
	Selection of a second field of study outside the Institute (90 ECTS)
	Selection of a second field outside the Institute (60 ECTS)

Department of sciences of education of the University of Fribourg (German part)

1st cycle minimum 4 semesters	Mandatory courses Intermediary exams
Specialised studies minimum 4 semester	Concentration in one major subject and supplementary education units in the minor subject
	Selection of a secondary field outside the Institute
	Selection of another secondary field outside the Institute

Section of sciences of education of the University of Geneva

1st cycle (60 ETCS) 2 à 4 semesters	Common-core syllabus Admission procedures
2nd cycle (180 ECTS) 6 to 12 semesters	Track: Research and intervention
	Track: Teaching
	Track: Adult education

Table 3: First and second cycles in the relevant institutes (Cusin, Grossenbacher & Vögeli-Mantovani, 2001, pp. 20-21).

Once again we notice great differences in operations at the level of teaching. On one hand, there is general education in arts and letters, with pedagogy as a major or minor subject; on the other hand, there is a bachelor's-level degree in the sciences of education, involving the study of several fields within the sciences of education, the option of professional or non-professional education and, within the latter, the possibility of selecting specialisation courses.

Geneva wins the prize for postgraduate education: after students earn their bachelor's-level degree, they may pursue a specialisation course in the sciences of education, which includes notably 60 credits from the Research and Intervention Track. The third cycle leads to a doctorate or Diploma of Higher-Level Studies (French acronym: DES). The course leading to the doctorate may also be taken after a student earns the DES. At TECFA (a unit that is active in the field of educational technologies), students may earn a Diploma of Higher-Level Studies in the Sciences and Technologies of Learning and Teaching. Finally, Geneva offers a continuing education certificate for teachers of adults. At the same time, the University of Fribourg has recently started to offer postgraduate studies for teachers at Higher Colleges for educational studies. To finish this discussion, we add that it is possible to earn a doctorate in pedagogy or the sciences of education from any of the four institutes.

University-level secondary school teacher education institutions[41]

The professional education of secondary school teachers is a task that has traditionally been handled by universities; as we have seen in the historical outline contained in this chapter's introduction, this is one of the very reasons that the sciences of education, or pedagogy, exist in universities.
Unfortunately, the following presentation is not exhaustive, and the data that is supplied herein is neither complete nor mutually comparable. Nevertheless, the data allow for an adequate description for a first analysis of the main trends.

The general situation of cantons with universities

At the level of Swiss cantons that have universities, we find that it is possible to distinguish three models. In the first, as exemplified by Geneva, Lausanne and St. Gall (except for secondary school teachers specialising in business), the university does not participate directly as such in the professional education of secondary school teachers who are trained in institutions that only maintain a few official ties with the *Alma mater*.[42] In the second model, as represented by Basel and Neuchatel, education takes place in a pedagogical institute outside university that maintains nevertheless ties with the university. In the third model, as represented by Berne, Zurich and Fribourg, education is fully integrated into the university network.
We will briefly describe the cases of Basel and Neuchatel, but we will go into greater detail regarding the cantons of Berne, Zurich and Fribourg[43], where education fully pertains to the university, the situation that constitutes the very subject of this section. For these three cantons, we will present the existing educational structures, the number of students and staff members who are involved in them, and we will conclude by offering a few rough considerations regarding the status of research within the degree courses.

Educational structures

In Basel, education takes place within the extra-university institute of pedagogy, which co-operates with the University for the disciplinary education of secondary school teachers. Furthermore, the director of the institute is a professor of pedagogy at the University's institute of philosophy, which guarantees students the option of studying pedagogy as a minor specialisation. The institute of pedagogy also finances, at least in part, the Forschungsstelle für Schulpädagogik und Fachdidaktik (see the following chapter: New institutions), which is attached to the institute of philosophy. Despite the fact that it has formed some ties with the University, the professional education of teachers thus cannot be considered as being truly "within the University."

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41 This chapter is essentially based on a text and tables elaborated by Lucien Criblez in the context of the present mandate. Data collection, presentation and analysis of data has to be pursued in order to understand the influence of the general transformation of teacher education institutes on the situation of sciences of education. The SSRE has created a task group that observes this evolution. It would also be necessary to institutionalise the observation and analysis of these institutions on the level of CDIP.

42 Studies in order to understand this structure are currently ongoing.

43 The funds at disposal are not sufficient to include here secondary teacher education for commercial schools proposed at the *Institut für Wirtschaftspädagogik* in Saint Gall. One can find certain information on the site http://www.iwp.unisg.ch.

In Neuchatel, Jura and Berne, the didactic and practical education of secondary school teachers I and II takes place within specialised institutions outside the university (the BES in Porrentruy and Bienne for lower-level secondary education in Jura and Berne; the SPES for secondary education I in Neuchatel and secondary education II for these 3 cantons). The section of the sciences of education at the University of Neuchatel offers training in the sciences of education, distributed over 15 day-long sessions of 7-8 periods each, with the addition of an average of six "reflection on practical methods" sessions. To carry out these training programmes, the section uses one and one-half posts (3 hours for professor, one half-post for a scientific collaborator and one half-post distributed over various lectureships). From the perspective of research, there is hardly any significant collaboration between the various institutions involved in the education of secondary school teachers.
As for the three German-language Swiss universities in Zurich, Berne, Fribourg[44] they present a rather similar structure. Each university includes two institutions for the education of teachers: lower-level secondary school (Sekundarlehramt) and upper level (Höheres Lehramt).

Höheres Lehramt (HLA)

	Berne	Zurich	Fribourg
Admission	1st cycle in one specialisation	Maturité (equivalent to A-levels)	Maturité (equivalent of A-levels) or qualification deemed to be equivalent
Duration	Bachelor's level degree and 2 semesters of courses in didactics and the sciences of education	Bachelor's level degree and 2 semesters of courses in general didactics, disciplinary didactics and practical methods	Bachelor's-level degree and 2 semesters of courses in didactics, pedagogy, psychology and practical methods
Structure	The option of taking disciplinary and professional courses at the same time, at the earliest after the 1st cycle	The option of taking disciplinary and professional courses at the same time	The option of taking disciplinary and professional courses at the same time
Education in/ by means of research in the sciences of education	None	None	None

44 As we already said, we do not take into consideration the situation in Saint Gall and the teacher education in the domain of economy (*Wirtschaftspädagogik).* Concerning Fribourg, we present only the situation of the German part of the department.).

Sekundarlehramt (SLA)

	Berne	Zurich	Fribourg
Admission	Maturité (equivalent of A-levels) or Primary school teaching certificate	Primary school teaching certificate or Basic pedagogical education seminar diploma	Maturité (equivalent of A-levels) or qualification deemed to be the equivalent
Duration	After the Maturité: 8 semesters; After the teaching certificate: 6 semesters	- 2 semesters of seminar, basic education for students without a teaching certificate; - 6 semesters of university-level education	8 semesters
Structure	- Maturité: courses in disciplines (6 sem.); didactics, sciences of education, practical methods (2 sem.) - Teaching certificate: courses in disciplines and disciplinary didactics (6 sem.)	- Studies in major specialisation (6 sem.), 2nd (minor) specialisation (4 sem.) and 3rd (minor) specialisation (2 sem.); - Courses in the sciences of education (6 sem.), practical methods (4 sem.), disciplinary didactics and others (6 sem.)	- Courses in reference disciplines (arts or sciences) (6 sem.) - Pedagogical, practical and didactic courses as offered by the Sciences of Education Department (6 sem.) - Class management, personal education (1 sem.)
Education in/by means of research in the sciences of education	None	None	None

Table 4: Education of secondary school teachers in 3 Swiss universities

The tables show that within the field of the sciences of education, including disciplinary didactics, the coursework generally lasts one year and comprises three basic components: didactic courses in the reference specialisations (2 for the *gymnase* and 3 for secondary school), general courses in sciences of education and a practical course (generally student teaching). The contributions offered by the sciences of education to teacher education may thus be considered to be relatively underdeveloped. Furthermore, student teachers do not have the advantage of education in or by means of research, but it might be supposed that the seminars and courses that they take integrate and teach content pertaining to research, if only because this very content is based on the results of educational research.

Number of diplomas awarded and staff members

The staff members involved in the university-level professional education of teachers is difficult to assess and compare precisely, insofar as many individuals take part in the process on a part-time basis. Furthermore, the number varies in accordance with the rates of students. For

information only, we present some quantitative information regarding the number of diplomas awarded.

	Höheres Lehramt	Sekundarlehramt
Berne	77	(93 beginners)
Zurich	104	104
Fribourg	32	33

Table 5: Number of diplomas awarded in secondary school teacher education in three Swiss universities

The limited number of students, particularly at Fribourg, has led to the consolidation of some classes, thus with tuition offered only every other year for certain specialisations (such as the "minor" didactics). For the Höheres Lehramt, the institutions at Berne and Fribourg have entered into a co-operative agreement (BENEFRI) for the training of the disciplines' didacticians. Thus, the disciplinary didactics for physics, chemistry and computer science are taught every year at Berne, whilst those for Spanish, Latin/Greek, pedagogy, psychology and philosophy are taught at Fribourg. Those for Italian and mathematics are taught alternatively at one of the two Universities.
With regard to the staff members, it is rather difficult to compare the situations, given that there is such disparity between the data and the structures. Nevertheless, we might make the following observations:

- The directorships of the HLA and SLA are generally held by tenured professors or, as is evidenced by the Zurich HLA, by a professor extraordinary.
- All the institutions have teaching assistants who hold full-time, stabilised posts (just 1 at Fribourg, several at Zurich and Berne). The "minor" didactics have three small lectureships (1.5 positions dedicated to this task at Fribourg, distributed over several disciplines) available.
- The number of individuals holding equivalent full-time posts is difficult to assess. Nevertheless, we might estimate that there are 3 to 4 such individuals at Fribourg, about fifteen at Berne and about twenty at Zurich.
- Most institutions do not make use of a lower intermediary body. In some institutions, such as the Zurich SLA and HLA, for example, assistants have been hired since the 1990s.

The potential of specialists in the sciences of education who are associated with professional teacher education programmes is thus relatively significant in comparison with the various universities' institutes of pedagogy. The disciplinary didactics, which, moreover, often consolidate individuals hailing from the reference sciences without any in-depth training in the sciences of education-a complementary study should be undertaken to check this information in greater details-are best represented in these institutions. Most of these individuals, nevertheless, seem to basically carry out teaching and teaching-related tasks and only work part-time within the university context. As they generally do not have a research mandate within the terms and conditions of their contracts, these individuals do not officially have the time or infrastructure (staff, budget) available to carry out research projects. For several years, we have noted a change in which teachers are involved, to some degree and often on a voluntary basis, in

research; another facet of this change has been the construction of an infrastructure (staff, budget, time) to carry out research projects.

Research and education

In order to analyse the link between education and research, it is necessary to provide a more precise definition of the relationship between the teacher education institutions and the institutes of pedagogy or the sciences of education. Available information seems to indicate that the three universities display notable differences with regard to this relationship. The differences between institutions also influence research activities; some of these activities are integrated into institutes of pedagogy, whilst others are completely independent.

At Berne, the two institutions, the SLA and the HLA, function relatively independently from the institute of pedagogy as concerns education, except for a few courses, such as those in pedagogical psychology, which are offered by teachers from the institute of pedagogy. From the perspective of research, collaborations do exist, which makes it difficult to assess the institutions' own scientific production apart from that of the University, and are relatively plentiful. Research projects, especially those of the *Höheres Lehramt*, pertain to disciplinary didactics, coeducation, the development of identity, academic development and assessment.

At Zurich, the two institutions are entirely separate from the institute of pedagogy. The HLA, through its three professors extraordinary in general didactics, assistants (6 individuals) and numerous lecturers (Dozenten) in disciplinary didactics, generates considerable academic production that is closely linked to teaching practices, including primary and secondary education. However, the SLA does not have the infrastructure necessary for research and is not equipped with professors. The SLA's collaborators, nevertheless carry out research activity, especially in the field of disciplinary didactics, through various agreements.

Lastly, at Fribourg, the teacher education institutions are completely integrated into the Department of sciences of education. Research activities are undertaken in this inclusive context and pertain to the same subjects (see chapter 5). It might be supposed that the synergy that is thus created comprehensively increases the institution's potential, but at the same time the synergy has not fostered an increase in personnel.

These structures are currently evolving within the context of the restructuring of teacher education that is taking place at a Swiss national level. With regard to this restructuring, the trends have not displayed uniformity.

At Neuchatel, the ongoing restructuring process and the creation of the HEP BEJUNE will lead to an increased scheduling endowment for the sciences of education, since the primary and *all* secondary school teachers will be regrouped for university provisions. In addition, research courses will be offered by the university, in collaboration with the HEP's educational psychology teachers.

At Berne, the university institute for the training of schoolteachers will open its doors in 2002, and the relationship between this institute and the institute of pedagogy is currently being negotiated. It should be noted that the training institutions are becoming university-level institutions, whilst at the same time they are henceforth being institutionally detached from the universities and are being subjected to the law regarding the teacher education and staff regulations; the staff is not hired by the university, which exerts no influence on the institutions' organisational policies with regard to the staffing and financing of teacher education. It should also be noted that the HLA has requested to remain attached to the university.

The University of Fribourg has decided that the secondary school teacher education courses I and II will remain within the university and has defined new structures to accommodate this

decision. The university institutions have been mandated to work in closely with the future HEP.
At Zurich, no decision has been made whether the HLA should be remain within the scope of the university or be attached to the HEP. The SLA has withdrawn from the context of the university and has integrated the HEP. Here indeed, we might observe a trend that is clearly the opposite of that which has been noticed in neighbouring countries, in which teacher education is gradually being completely integrated into the university.
In other words, whilst teacher training has been integrated into the university setting in most western countries, Switzerland has selected a middle road, opting for tertiary-level education that does not currently offer the opportunities for complete academic training (Bachelor's-level, doctorate, or even authorisation to supervise research) and allots a relatively small share of this training to research.

Other academic institutions dealing with the sciences of education

The list of Swiss educational research institutions (SKBF, 1996) constitutes an invaluable reference for identifying other university-level establishments dealing with the sciences of education beyond the major university centres. For 1996, the list mentions 44 university-level institutions, of which 25 were called "institutes of pedagogy, curative pedagogy, didactics and similar institutions." (p. XVIII). The result of a survey of researchers, the list includes any institution that declares itself as such, no matter what its status. To distinguish, amongst the vast entirety, institutions with an academic character, we have reanalysed the data in accordance with two precise criteria: a) the institution cannot be included within another larger, already inventoried institution, b) the institution must be represented by a chair. The number of such institutions within all Swiss inventories was then about 15[45]. We will only mention those located within the four universities observed as case studies, in addition to those mentioned above.

- Institute of curative pedagogy, Zurich and Fribourg
- *Koordinationsstelle für Weiterbildung* (continuing education), Berne
- Institute for medical education, Berne
- Technologies of education and teaching (TECFA), Geneva
- *Unité de Développement et de Recherche en Education Médicale* (development and research in medical education) (UDERM), Geneva

Three institutions are worthy of a brief mention in order to complete the panorama of university-level institutions dealing with the sciences of education and show the dynamic of fission as a differentiating mechanism for the discipline:

- The two institutes of curative pedagogy, at Fribourg and Zurich, which constitute numerically very significant entities and represent a very old tradition of the sciences of education; they have evolved autonomously in relation to other institutions, as opposed, for example, to what has happened at Geneva, but in the same manner as at other European universities.

45 There are still some doubts regarding the statute of some institutions.

- Fribourg's department of social work and social policy illustrates the case of a shifting of disciplinary boundaries with respect to a subdiscipline that has been as frequently integrated into the sciences of education or in close relation to the discipline.[46]

Curative pedagogy

Two large independent institutes function at the university level, both offering the possibility of academic education (bachelor's-level degree and doctorate): The Institute of Curative Pedagogy at Fribourg and the *Institut für Sonderpädagogik* at Zurich.[47]
Equipped with two chairs and an associate professor, to which a large number of collaborators may be added, in 1999 the Institute educated 753 students for diplomas, bachelor's-level degrees and doctorates in clinical and scholastic curative pedagogy, logopaedia[48], early childhood education. The main research projects concern the integration of immigrant children with academic problems and the issue of holding students back. In addition, we note that for 68 years the Institute has published a scientific journal *Vierteljahresschrift für Heilpädagogik und ihre Nachbargebiete*.
The *Institut für Sonderpädagogik* includes two chairs, one full professorship and one associate professorship, one and one-half posts for a scientific collaborator and assistant posts, to which a large number of teaching fellows may be added. 221 students, of whom 78 have selected curative pedagogy as a major subject, are enrolled at the Institute. The main topics of research have tended to deal with the integration of socially disadvantaged individuals, the evaluation of special or multicultural schools, the issues of women and the disadvantaged, gifted children and curative pedagogy as a science.
The two Institutes thus possess great educational and research potential, each equipped with an appreciable, stable staff. By being specific, the research topics are closely related to those observed above for other institutes, which, moreover, confirms Rosenberg's study (2000) for curative pedagogy in general. As is the situation for teacher education, the orientation toward the education of professionals and undeniably the very structure of the Faculty of Philosophy, which accommodates the institute, encouraged an autonomous solution very early on in the history of the institutes (Häberlin, 1991).

Social work and social policy

Equipped with two chairs at the University of Fribourg within the Faculty of Philosophy – much like the department of the sciences of education and the Institute of Curative Pedagogy – the "Social work and social policy" department is mentioned here for two reasons: research undertaken within the department is often conducted in the context of university institutions of the sciences of education (in Switzerland, notably at Zurich and Geneva) and historically, their chairs trace their origins back to curative pedagogy. Should these synergies be possible or

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46 We note that this department is conspicuously absent from the SKBF inventory.

47 We recall that at Genève special education is integrated into the Section of the sciences of education but does not offer professional education. Logopaedists are educated in psychology, educators in a non-university institute; specialised teachers no longer have a specific diploma: the education of primary-school teachers is called "polyvalent," including the teaching of special classes.

48 The institutional establishment of logopaedia also deserves to be given in-depth analysis from the point of view of disciplinary boundaries: set up within psychology at Geneva, closely related to linguistics at Neuchatel, while within curative pedagogy in Fribourg.

necessary? From the perspective that interests us here, that of disciplinarisation, it is the phenomenon of differentiation and that of its distancing itself from a field, that seems interesting, as this distance thus removes all traces from the current configuration of the field.

New institutions

A relatively recent phenomenon may be observed in Swiss-German universities, and its model is found in other countries, notably in the Netherlands (Hofstetter & Schneuwly, 2000; Kloprogge et al., 1995): the creation of specialised institutes that are incorporated in a variety of ways into university institutes of pedagogy/the sciences of education. Currently there are four such specialised institutes (Gretler, 2000a and b).[49]

Name	Date of Creation	Location	Institutional status	Main functions
Forschungsbereich Schulpädagogik und Fachdidaktik	1993	Berne	Incorporated into the Sekundarlehramt	Research in the fields of pedagogic support and didactic development
Fachstelle Schulqualität und Schulentwicklung	1994	Zurich	Integrated into the Institute of Pedagogy, chair of psychology of education and linked to the pedagogical service of the DIP	Research about structure evaluation and innovative planning.
Forschungsstelle für Schulpädagogik und Fachdidaktik	1997	Basel	Incorporated into the Fachbereich Pädagogik	Research about school quality and development, philosophy of education, and teacher representations.
Kompetenzzentrum für Bildungsevaluation und Leistungsmessung	1999	Zurich	Incorporated into the University of Zurich	Offers research services for economy and administration in the fields of education evaluation and grading of performance and competence.

Table 6: New university institutions in the sciences of education

As is shown by the table, there is quite some diversity in the nature of these institutions' incorporation into the university network. Whilst the *Forschungsstelle für Schulpädagogik und Fachdidaktik* at Berne is included within the teacher education institute, yet structurally independent from the Institute of Pedagogy, that at Basel is part of the University and maintains close relations with the Institute of Pedagogy. In terms of Zurich-based creations, the *Schulqualität und Schulentwicklung* centre has resulted in an alliance between the University

49 The information supplied by Gretler has been complemented, as far its availability permits, by information presented on the institutions' web sites.

(Institute of Pedagogy) and the pedagogical service of the Department of Public Instruction, whilst the *Kompetenzzentrum für Bildungsevaluation und Leistungsmessung*, is supported directly by the University, being financed almost exclusively through research mandates.
In addition to the diversity of their statutes and institutional configurations, all these institutes endeavour to respond to the needs associated with the management of educational systems and thus stand out on a potentially productive market, and, for this reason, new resources are granted. This movement seems to have resulted in a new means of developing university functions, in relation to socio-economic and professional needs, and in a trend for departments of public instruction to outsource some of their applications for research. Given their recent emergence, it is currently difficult to estimate the effects that these new structures will have on the evolution of the sciences of education, notably at the university level, and to evaluate the results of research projects that are conducted there, as well as developmental perspectives and possible synergisations.

Public service

As Cusin, Grossenbacher and Vögeli-Mantonvani (2001) have reported, it is very difficult to establish a clear idea of the commitment of university-level teachers to public service, especially in the area of education, both at the political level and at the level of the practical education. Precise data regarding this issue do not exist, given that the very definition of the term "public service" should be approached very tentatively. An analysis of the annual reports of 4 universities (see Cusin, Grossenbacher & Vögeli-Mantovani, 2001, appendices) nevertheless shows that university-level teachers, in addition to their commitments to various authorities that ensure the smooth functioning of the academic system (commissions of experts, assessment of research projects and articles, etc.), also undertake significant projects outside the university sphere. The example of Geneva, which has been especially well recorded, allows us to assess this significant reality of the sciences of education. Four types of participation are listed in this university's activities report: 1. Assessments, reports, service mandates; 2. Creation of teaching and training materials; 3. Public conferences, media presence, expositions; 4. Educational activities for practising professionals. A total of almost 700 examples of participation in these categories over a period of three years were cited, especially for categories 1 and 4. In addition to public service stemming from the generation of knowledge about educational systems, the assessment of educational systems and educational reforms (the new institutions that we have just described in particular fill this role), and teacher education, the sciences of education also participate directly on a rather frequent basis in places where practical education takes place, thus demonstrating a sustained commitment to public service. Furthermore, we might assert that the sciences of education have distinguished themselves by the number and size of their contributions to public service in comparison with other academic disciplines.

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If we put the process of disciplinarisation of the sciences of education at Swiss universities into historical perspective, the results will show that this disciplinarisation is closely linked to demands for professional qualification, even if this has occurred in a variety of ways in accordance with socio-historical contexts and the academic cultures of reference. The analysis of the recent evolution of university enrolments in the field allows us to point to two different trends. Established in the faculties of philosophy, the sciences of education within German-

Swiss universities tend to follow an external differentiation structure through the creation of specialised institutions that correspond to different functions (teacher education, the profession of special education, social work, institutes specialising in educational research mandated by external bodies). In French-speaking Switzerland, as the example of Geneva shows here, the university-level development of the sciences of education is strongly centralised and is often supported by a process of internal differentiation, integrating a number of (quasi-)professional education programmes: teacher education[50], special education, adult education, research education. This internal differentiation includes constituent or contributing disciplines and numerous specialisations linked to professional education programmes or centred on issues specific to the sciences of education.
We believe that it would be particularly worthwhile to better define the effects of different evolutions on the development of the sciences of education, from the perspective of their capacity to stand out as an academic discipline in the same way as do other disciplines, the perspective of scientific production conditions and the perspective of education, both academic and professional, of the concerned students. The discipline's new forms of development (the creation of specialised centres to meet scientific needs and tendencies to outsource) seem, in our opinion, to merit particular attention in order to make good use of them and thus optimise their possibilities.

4.2 Research services linked to administrations

As they are confronted with the complex problems of educational systems management and those relating to student inflow, the effectiveness of procedures and reforms to act effectively to resolve possible dysfunctional situations, administrations have appealed to the sciences of education to supply them with information, analyses, even models to facilitate decision-making. Owing to Switzerland's federalist structure, the institutions created to fulfil this function are very diversified, hold cantonal or regional allegiances, and function according to contrasting modalities. The close dependence between social demands and the discipline appears not only within this somewhat scattered institutional structure, but also in the slow transformation of functions undertaken by these service departments.

Early types of administration-serving research

Since the 19th century creation of a public teaching service that was organically and legally incorporated into the State, cantonal administrations have attempted to create tools, of course modest in the beginning, to collect data, notably statistics, deemed necessary to discern the levels and nature of the population's scholastic aptitude and literacy, notably through the use of pedagogical exams of new recruits (Lustenberger, 1996), and the evolution of educational systems to optimise the management of such data. One of the first wide-ranging attempts to organise these data over the long-term and aim beyond the limits of regionalism toward a completely Swiss perspective was the 1888 publication of the *Jahrbuch des Unterrichtswesens in der Schweiz*, replaced in 1910 by the *Annuaire de l'instruction publique en Suisse*, edited by the conference of directors of public instruction (Badertscher, 1997). These support systems

50 Without the professional education of secondary-school teachers, undertaken entirely outside the university framework, after the earning of a bachelor's-level degree.

stimulated the collection and analysis of data without, for all that, benefiting stable scientific infrastructures that would have allowed the systems to take on the function of Swiss research centre. With federalist logic prevailing, in the 1920s the first initiatives appeared at a cantonal level to equip administrations with organisations that would allow them to regulate educational systems that were experiencing constant development (in Geneva for instance, a *Bureau des archives scolaires*, led by Duvillard). These initiatives were often short-lived, and the collected data were usually fragmented and disparate, hardly offering the possibilities of long-term study of the evolution of class sizes, the effectiveness of the system, success rates, not to mention the teaching indicators. Nevertheless, such initiatives seem to have provided an initial foundation, onto which further initiatives could vastly benefit (for further information, see Mattmüller, 1982, and, regarding specific institutions: Hutmacher, in press; Trier, in press)

Research service departments linked to cantonal administrations

As it has followed close on the heels of the expansion of educational systems and scholastic reforms of the 1960s, we have witnessed the progressive emergence of stable cantonal institutions specialising in the production of findings relating to the educational systems (SKBF, 1996, p. 73). The following institutions were inventoried in 1996:

Type of service department linked to the administration	Number	Growth since 1989
- at the national level	10	+3
- at the regional level	2	-
- at the cantonal level	29	+8
Total	41	+11

Table 7: Research service departments linked to administrations (Taken from Gretler, 2000, p. 14)

We note several of the process's strong points, selecting only those institutions that are currently still in existence. The cantons of Vaud (1956) (Paschoud, in press), Geneva (1958) (Hutin, in press; Hutmacher, in press) and Tessin (1968) (Berger, in press) seem to have started the movement by successively creating research departments incorporated into the cantonal administration to better direct pedagogical reforms in place and respond to the endemic problem of scholastic slowness and failure. This movement led to the 1971 foundation of the first Regional Institute: the Institute of Research and Pedagogical Development (French acronym: IRDP). The data in our possession would lead us to believe that this movement was initiated in Soleure (1969) (SKBF, 1996) for German-speaking Switzerland, then led to the 1971 foundation of the *Pädagogische Arbeitsstelle* in Zurich (Trier, in press) and the *Amt für Bildungsforschung* in Berne (Von Waldkirch, in press), then the *Zentralschweizerischer Beratungsdienst für Schulfragen* (ZBS) in Lucerne (Oggenfuss, in press). Several other cantons will followed suit (see Bain, Brun, Hexel & Weiss, in press for complete documentation). In less than two decades, between 1956 et 1975, a large percentage of cantonal administrations thus became equipped with research centres or, more modestly, employed the services of a researcher.

We have witnessed new growth beginning in the 1990s, but this time the growth has almost exclusively concerned small units relating to about ten cantons. The total number of cantonal

institutions (research service departments, including pedagogical advising posts) reached 29 in 1996[51] of which half are composed of 2 or 3 individuals.
To conclude this quantitative and geographical panorama of the evolution of cantonal institutions, we note that an analysis of the current situation shows that the most powerful service departments are found near universities, where the sciences of education enjoy a broad institutional foundation; contrary to what one might assume, this arrangement does not entail a compensatory relationship between universities and research services (the existence or the power of one compensating for the absence or weakness of the other), but rather a relationship of mutual reinforcement.
Let us take a closer look at the nation- and region-wide institutions. Switzerland has two regional research institutions: the IRDP and the ZBS. In response to a structure that has already played an important role in the co-ordination of scholastic systems, the former carries out very diversified functions, notably those of fundamental research, evaluation of scholastic reforms and co-ordination of cantonal service departments. Meanwhile, the latter constitutes a research service department linked to several cantons; its mandate resembles that of a cantonal service department. As for the national centres, their primary role does not deal with research, but management and financing, with the exception of the Federal Statistics Office and the CSRE, centred on the documentation and collection of data. In other words: there is no bona fide Swiss institution for national research in education.

Constantly evolving functions

The recent growth of institutions and small units, equipping practically every canton with scientific support systems, demonstrates the wide-reaching agreement on the need for scientific resources for the management of systems: the availability of data regarding the system; expertise allowing for the systematic use of experiences formulated elsewhere; follow-up of reforms; development of new means for participating in the educational system or managing it better, etc.
The function of the service departments is clear: “The orientation of research projects is […] first and foremost praxeological and cantonal. These should aim to provide assistance to the decision-making process, in search of a solution, for the betterment of teaching its practises and tools, and for the short term as often as possible. The projects are thus located at the meeting point of applied research and research and development.” (Weiss, 2000, p. 2). However, this does not exclude participation in the more fundamental research projects, notably at the regional and international levels. At the same time, collaboration with universities is rather sporadic and disjointed[52] and the co-operation between centres, given their significant cantonal foundation, is more often the exception than the rule.
In Weiss’s synthesis of the recent history of pedagogical service departments in French-speaking Switzerland, the author (in press) analyses the evolution of their main functions – we must now note that the reports of service departments established in German-speaking

51 Data for 2000 will be forthcoming. We base our discussion on reports by Gretler, 1994, CORECHED, 1996 and Gretler, 2000.

52 See analyses in Cusin, Grossenbacher and Vögeli-Mantovani, 2001; also see indications in Weiss, 2000 and the analyses of Allal, in press.

Switzerland do not seem to contradict these trends.[53] Weiss distinguishes between three significant periods in the history of these service departments:

1. The origins: experimental and psychometric research
   Heavily influenced by experimental pedagogy, the centres' first activities, of varying duration according to the contexts and subjects, consisted of long surveys on questions relating to tests for scholastic promotion within the framework of the orientation of students or the evaluation of the effectiveness of teaching methods on a large scale.
2. Research involving the key players
   Inspired by the paradigms of action research and participative observation within a perspective of developmental research, the activities were then geared somewhat toward active participation in the transformation of practises, the development of curriculum and teaching methods and more particularly within the framework of didactic research projects.
3. Effectiveness of the educational system
   Within a political-economic context concerned with the profitability of its investments, research service departments have more recently been called on to conduct, rather playing the role of executants, large-scale international research projects to evaluate systems from the point of view of their effectiveness.

We stress the fact that we are discussing the dominant trends, which are not mutually exclusive, even if we could identify the effects of the marginalisation of certain activities over others, given the restricted ability of researchers and the limited time at their disposal. With these evolutions currently still underway, the effects of displacement are not yet visible; the apprehensions are being expressed here and now as comments regarding the real possibility that service departments will be able use these data to produce more in-depth analyses that are truly useful for the management of systems, given the number of researchers mobilised for the collection and initial analysis of data (Bain, 2000).

The research service departments are currently undergoing deep-reaching transformations, and it is not yet clearly visible where they will lead. We have first observed the concentrations of service departments that perform similar functions without, for economic reasons, increased means put at their disposal. This concentration has been accomplished through the integration of all or part of one service department into one or several other departments (Zurich: *Pädagogische Arbeitsstelle*; Vaud: integration of one part of the service department into the future HEP). These concentrations and transformations occur on par with the above-mentioned trend toward the strengthening of functions pertaining to the evaluation of systems. At the same time, we have noticed the trend of outsourcing (Trier, in press) which has been met, as we have already mentioned, with the offer of universities (and as we will discuss later, the appearance of new private research institutions). The administrative and scholastic authorities (notably within the context of school autonomy) have sought specialists to resolve certain matters pertaining to management or evaluation, this permitting, if not a reduction, then the lack of an increase in the stable research potential within administrations, potential that Trier (in press) designated as increase of rationality within decision-making institutions.

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53 See the work co-ordinated by Bain, Brun, Hexel and Weiss (in press), the only work assembling information on a large number of service departments existing today in Switzerland; elsewhere one might find information in Hubermann, 1989.

In his assessment, based both on the types of publications and participation of service departments linked to administrations, Weiss (in press) states that the praxeological aim of the research, of which the scientific component has increased over the decades, has benefited from a certain impact, notably thanks to the research's closeness to professional practical experience and decision-makers. In contrast, Weiss also observes less of a contribution to the advancement of science and recognition within the Swiss and international scientific communities.
We note that the service departments indeed respond to one specific function of educational research, a function that the university also performs, but to a far lesser degree. The redistribution of roles, whether within service departments or between services or universities, deserves to be the focus of close observation. Will we see the clarification or a greater blending, even confusion, of roles?

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The growth of service departments directly incorporated into cantonal administrations constitutes the institutional translation of the close relationship between social demands and the discipline, with research and development centres having been created where crucial decisions are made. The exception of the IRDP has resulted in a shifting of decision-making mechanisms to the regional level. This dispersion currently seems to be thwarted by a greater integration of service departments within nation-wide projects.
The trends that may be observed at present are contradictory. On one hand, we observe, especially in French-speaking Switzerland, a certain degree of concentration of service departments and the stabilisation of collaborative efforts between service departments. On the other hand, we also notice the trend toward an increase in outsourcing procedures; here the service departments perform a relaying function. The research itself is led, according to mandate, by private organisations.
We still need to better understand the effects of these new trends. The increase in projects on a national and international scale and outsourcing procedures have undeniably helped to encourage the creation of new synergies and to stimulate research. These trends, however, also run the risk of expanding existing problems, in particular due to their limited nature, hardly contributing to the professionalisation and specialisation of researchers. Such qualities are needed to guarantee the capitalisation of findings as well as their repetition and recognition within the scientific community in addition to the practical applications of such findings. In addition, there is the issue of the definition of research priorities; the current tendency to favour mandates, defined in accordance with the needs of educational systems, may advantageously enhance educational research by guaranteeing its topicality and better articulation of social issues. At the same time, however, it threatens to flout the necessarily critical dimension of research if it is not accompanied by measures guaranteeing a parallel development of fundamental research, which constitutes the platform on which a discipline may achieve scientific recognition and allow the sciences of education to be presented as a bona fide representative of the other social sciences.

4.3 Teacher education institutions outside universities

Teacher education potentially constitutes the focal point where the complex relationship between profession and discipline is presented, where a dynamic tension is created between demands made on the profession and the requirements for the systematic production of

theoretical and scientific findings, the discipline's exclusive right. And yet, as we have stated, this institutional meeting point, historically very weak, has only been reinforced in recent years, thus creating great potential that should be used optimally for the development of both the discipline and the profession.

The meeting point between discipline and profession

As opposed to most other European countries, Switzerland, alongside a few other exceptions, has scarcely just begun the process of tertiarisation of primary teacher education, having favoured seminars or pedagogical institutes and normal schools for a long time.[54] Professional primary teacher education, with regard to its tertiarised establishment, occurs widely outside university structures, in institutions generally lacking research mandates and budgets destined for this activity: both in institutions that educate secondary I teachers in reference and professional functions subjects and, after disciplinary education at the university level, in institutions dedicated to professional education, often during employment and based on a peer-education procedure.[55]

In addition to the extreme heterogeneity of institutional configurations, most teacher education courses are consequently characterised by their "distance" from the discipline of educational science, notably due to the fact that the structures create a rift between education and research[56]:

- the educators are not researchers, and their terms and conditions do not include the function of research (even if some educators pursue it on a personal basis).
- professional education institutions lack a research mandate.

The sciences of education are, of course, evident in these institutions, notably in the education curricula; nevertheless, as Criblez and Wild-Näf (1998) show, the dispensed contents are often less demanding and out of touch with the current state of research; the system often teaches contents as acquired truths without showing their relativity and without teaching them as results of research that is still provisional.
The study by Grossenbacher, Schärer and Gretler (1998) offers an exhaustive analysis of the position of research and development within teacher education. The study has led to the following, amongst other observations:

- In non-university institutions, research activities essentially depend on the initiative of teachers and take place outside of work; certainly we have noticed a definite increase in such activities, notably since the 1980s and 1990s. Depending on personal investments,

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54 The work published by Criblez and Hofstetter with the collaboration of Périsset Bagnoud (2000) offers a good presentation of certain aspects of the history of primary school teacher education in Switzerland and some perspectives on current trends and the recent evolution of such education in other countries (Quebec, Germany, France, Italy).

55 For a complete view of the more current basic essentials, see: Poglia, Grossenbacher & Vögeli, 1993; also see Frey *et al.* 1969, for a discussion of the pre-reform situation.

56 We recall that the joint unity of these two dimensions constitutes, according to Stichweh, 1987, one of the fundamental characteristics of a discipline; see our above-mentioned definition of the discipline.

the research has nevertheless remained chancy, short-lived and short-ranged, often employing simple methodological procedures without the use of scientific communications networks.

- Research is geared toward application and is aimed at problem-solving, innovation and teacher education through participation within research; it especially concerns issues of scholastic pedagogy and didactics.
- Individuals conducting research within these institutions are usually educated either in the sciences of education or a didactic reference discipline, with the tendency to require a doctorate.
- We should also specify that, within the university, the contributions of the sciences of education to professional education programmes remains modest and that research in this field has only truly developed since the 1980s, perhaps even the 1990s. (p. 56).

Issues relating to tertiarisation

The CDIP theses (1993) for the Higher Colleges for teacher education (*Hautes écoles pédagogiques;* French acronym: HEP) have tried to transform this established fact: they allow for the generalisation of teacher education tertiarisation and, with research being a constituent element of all tertiary-level education, full integration of research into the HEP: "The Higher Colleges for teacher education are distinguished by the dialectic that takes place between so-called education and research, much as it also takes place between theory and practise." (CDIP, 1993, thèse 10). This thesis was developed and expanded in numerous texts,[57] from which the study brought out two essential aspects, one concerning the relationship between education and research, the other pertaining to the very conditions of research undertakings within the HEP.
With regard to the relationship between education and research, three generally mentioned dimensions justify a closer relationship between education and research:

- the integration of recent results, from research to teaching
- the expansion of educators' abilities
- the education of future teachers using the introduction of scientific procedures and, consequently, the construction of an attitude that is more distanced from the practise of the discipline

As for the issue of conditions of research undertakings, unanimity is reached on the three following points:

- the awarding of budgetary resources and significant time frames
- the requirement of inspections of the quality of research, whether by external bodies or participation within scientific communications networks
- the necessary integration of HEP research into research networks, especially within the context of a collaboration with the university, as well as respect for the autonomy of research and the freedom of researchers

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57 We have notably inventoried the following groups that have proposed theses or recommendations: CODICRE in 1994; SSRE in 1997 (SSRE, 1997) CSDIF in 1998, a CDIP work group in 1999; on has to add the detailed report by Kyburz, Trachsler & Zutavern (2000).

What are the institutional structures dedicated to research? In German speaking Switzerland, there is already one official HEP in Saint Gall. Due to the fact that there is a relatively autonomous research group at this institution that articulates teaching and research, it is officially recognised by the Swiss Confederation as a High School and financed like an university. Concerning the other institutions, there is currently no systematic information available.

Weiss (2000) provides an exact image of the current state of the discussion within the French-speaking Swiss cantons. Three configurations seem to surface, all explicitly guaranteeing academic freedom but leading to a gradual decline in the institutional presence of research:

- a specialised research department created within the HEP, consisting of professional researchers who conduct research in collaboration with educators, for whom a working timeframe and budget for research are reserved
- a sector within the HEP that would carry out several functions, including research (in general with documentation and media). This would be a sector to which researchers with currently uncertain mandates and statutes would belong
- no specific service department or sector, but the educators' terms and conditions would allow time for this activity

The first model is obviously the most favourable for the effective development of research, even if this institutional solution does not, in itself, guarantee sufficient critical mass for undertaking research on a certain scale: the possibility that the specialised service departments would regroup individual researchers, with each working in his or her own domain, is not excluded.[58] With regard to the second model, the risk of dispersion as concerns the activity of researchers – motivated to pursue very different tasks - is not excluded, repeating what has happened in service departments linked to administration. Furthermore, the third solution does not allow for the professionalism of research.
From a few brief indications supplied in the text, we observe that the trend is tending rather toward a type of research and development department, closely associated with teacher education but without any real possibility for autonomy or participation with other research institutions.
With regard to the issue of synergisation and inclusion within the scientific networks it would seem that all the institutions have expressed such a desire, but few of them have offered structural guarantees to turn that desire into a reality (with the notable exception of the University of Fribourg, and, from another point of view, the HEP of Saint Gall).
The solidification of these principles and objectives will completely and fundamentally transform the relationship between the discipline and the teaching profession; occupying until now somewhat of a fringe position within the scientific community, the professional education institutions could tendentiously gain greater recognition and enjoy a central position, especially serving as the meeting point between research and education.

58 In their report, Kyburz, Trachsler et Zutavern (2000) insist upon the need to have a bona fide research group to reach a sufficient mass to conduct research on a certain scale and to become established within research networks.

It is consequently probable that the development of educational research, after having been carried out in response to political-administrative demands[59], will, over the next few years, instead be undertaken in response to this trend toward increased qualifications within the concerned professions.[60] It is certain that all this would certainly have a profound effect upon the long-term evolution of the discipline if the minimal conditions are guaranteed for undertaking the research (personnel and infrastructure) and for allowing their true synergisation and inclusion within scientific networks.

Education of teachers involved with professional education

A significant sector of education has not yet been discussed: that of teachers working in the field of professional education. This sector currently functions without direct or structural links with research institutions, with a possible exception being some elements within the framework of the *Wirtschaftspädagogik* in St. Gall (see http://www.iwp.unisg.ch). As in other education institutions, we nevertheless observe a clear tendency, often on a voluntary and individual base, to conduct research (Straumann, 1999; Kiener, 2000). Moreover, we specify that the recent project of the law of the Federal Council grants the future Institute for Professional Education (French acronym: IFP) the function of conducting research, as is the case for the HEPs, although neither the structural nor financial conditions are currently defined. We could suppose that our analysis of what has occurred tendentiously within the HEPs would also be applicable here.

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This first structural analysis of the HEPs (including the IFPs) shows that tertiarisation undeniably reinforces the status of educational research, favouring praxeological dimensions of research, developed first and foremost as action research or research and development.
If the means available for research are far from considerable and reinforce the research's potential, the structural arrangements deserve to benefit from more solid bases to guarantee the development of scientific research that is partially autonomous and capable of being established lastingly within already existing networks.
We observe, however, that in regions where powerful university referents also exist (Berne, Zurich, Geneva, for example), the status of research within the teacher education institutes seems to enjoy a broader base. Once again we note the phenomenon of a strong university centre encouraging the development of the discipline through different institutions.
The issue of the synergisation of different institutions and their status on the Swiss educational research scene is far from being resolved. For some, the HEP constitutes a third centre, beside universities and service departments linked to administrations; for others, given their functions and institutional structures, they will without a doubt have to register within the network of existing institutions and align themselves with their requirements and modes of production if they aspire to undertake quality scientific research.

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59 We will see that these demands nevertheless continue, more emphatically than previously, but adopting different forms, which will exert considerable influence on the sciences of education.

60 See our analysis, discussed above, of the first tension as a motive behind the development of the sciences of education and possible obstacles (chapter 1).

4.4 Private institutes

In the presentation of recent institutional trends within the sciences of education in Switzerland, Gretler (2000) draws attention to a phenomenon already observed in CSRE (1996): the explosive growth of private institutes that conduct research in education (increasing from 7 to 39 institutions between 1989 and 1996). This trend is confirmed by the data of the National Research Project (French acronym: PNR) 33 (Meyer, 1999), which included more individuals affiliated with private institutions than with service departments linked to administration for German-speaking Switzerland (19% versus 15%); whilst no working researcher was affiliated with a private university in French-speaking Switzerland.
The appearance of these new institutions and their uneven distribution over Swiss territory deserve to be analysed against the backdrop of changing policy amongst administrations. In general, the expectations of administrations with respect to research seem to be growing (new systems, notably within professional education; more complex systems management due to school autonomisation, tertiarisation of education, etc.). To respond to these needs, administrations are reacting as follows:

- increased resources for research in education
- the trend to not develop service departments, even to concentrate them or assign them other functions by inserting them within other structures (ex. HEP), to use outsourcing and to create financial channels to fund private institutions[61]

The second phenomenon is less evident in French-speaking Switzerland, where the existence of relatively powerful service departments, achieving a good critical mass, and the frequent creation of research groups, bringing together researchers coming from several service departments under the leadership of the IRDP, generally allows for responses to administrations' needs.
We stand once again before two models of development. Without being mutually exclusive, they nevertheless produce medium- and long-term effects and contribute differently to the development of the discipline. We might suppose that the strong dependence of private institutions with respect to their representatives, the fact that these service departments are very small and have only limited research projects that scarcely lead to a significant accumulation of data, and the fact that the institutes generally participate very little or not at all in scientific communications mean that these institutions hardly contribute to the reinforcement of the discipline, but rather to its dispersal with the primary goal of responding quickly and selectively to precise needs. The institutes reinforce the tendency to define research methods and themes using the needs of administrations and to a lesser degree, using practises. If the advantages for administrations and even for educational systems themselves seem far from being negligible, that the replenishment of issues and networks of researchers have become undeniably stimulated, the actual works with regard to the discipline are mixed as concern the benefits of such a trend on research itself and especially on the durability of findings thus produced and the development of high level scientific research that is predefined by more than praxeological issues alone.

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61 All the same, we observe the creation of new funds for research in education at the federal level (we will return to this topic in chapter 8).

Conclusion

Without offering a detailed review of the trends observed for each of the institutional types presented in this chapter and placing us on a more abstract observational level, it seems possible to make some general remarks about observable trends on the institutional landscape of the sciences of education in Switzerland. The great push of the 1970s, noted by all observers, has been essentially solidified by the growth in the number and size of service departments linked to research in accordance with social demands coming from the political-administrative sphere. Except at Geneva, the university-level development of the discipline has been restricted. It has occurred through a moderate quantitative development in the traditional institutes of the sciences of education/pedagogy and some growth in the education of secondary school teachers. We witnessed a second, less intense institutional push during the 1990s, which perfected the institutionalisation of research service departments at the cantonal level, without offering a new response at the federal and regional levels; this led to some degree of reinforcement at the university level (especially within the context of teacher education), to the appearance, in German-speaking Switzerland, of new institutions, whether university-associated or private, responding to the calls for more massive offerings that essentially stemmed from political-administrative authorities, and the start of fundamental changes of teacher education, which became, at least potentially, a driving force behind the discipline's development. All these trends have allowed for a reinforcement of the discipline and institutional diversification responding to a variety of functions ensuing from various social demands; these trends, however, do not seem to offer, for the time being, solutions to the discipline's most pressing problems from the point of view of its institutional foundation: fragmentation, the precarious position of posts, the fragility and short-lived nature of networks and co-ordinations, imbalances between fundamental research and that geared toward practical experience and weaknesses in terms of fundamental research and the possibilities of capitalising research findings all hinder the formation of a quality restaffing plan. These problems, which could ensue from a weakness relative to the university component and the great disparity of institutions concerning the discipline and their tenuous co-ordination, will also be covered in the following sections.

5. Research projects

A discipline is defined by the subjects that it encompasses, the problem that it tackles and the methods implemented to resolve them, thus delimiting its own field. These subjects, problems and methods are defined in accordance with their social and scientific context, as well as the conditions for producing findings within both the concerned and other disciplines at a regional, national and international level. This chapter offers a revealing look at the contents of educational research in Switzerland and the main trends observed over the past few years.
As we have shown in chapter 3, the information concerning research projects essentially stems from the CSRE database. Although we must be aware of the limits of this database, it constitutes an invaluable source in evaluating the main trends in Swiss educational research.[62]

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62 We recall that all analyses suffer most notably from two methodological limits: the databases are not exhaustive, and the blanket term "project" regroups very diverse realities: from work toward a university qualification to a FNRS or PNR project.

5.1 Analysed sectors

An analysis of research projects regularly conducted by the CSRE allows us to identify the sectors of educational systems that have been studied. The results, very constant in this respect (Gretler, 2000), show the following distribution:

Level	1993–1998
Pre-school, kindergartens	4,4
Primary school	19,6
Secondary school I	19,6
Secondary school II and professional education	10,4
Teacher education	5,5
University and higher colleges for educational studies	8,6
General adult education	3,3
Continuing professional education	2,1
Special school systems	3,0
General educational system; studies not dealing with any particular level; others	23,5
Total	100.0*

Table 8: Research projects according to educational sectors
(Taken from Gretler, 2000, p. 133)
* Calculation based on 1956 projects (267 of these fall into more than one category)

The main observations are as follows:

- Most research (more than one-third) deals with compulsory schooling (primary and secondary I).
- Professional education and post-compulsory academic education have been relatively neglected by educational research.
- Tertiary education, continuing education and adult education have received a certain degree of attention (see especially the category University and higher colleges for educational studies with 8.6%).
- A substantial proportion (almost one-fourth) of research has not been linked to any one precise sector of the educational reality. We observe that, for this sector, the analyses demonstrate a distinctly upward trend.

This distribution, relatively stable over time, is nevertheless still difficult to interpret. We will thus limit our comments on the subject:

1. There is no direct correlation between the percentage of research investments and the importance of a sector within the Swiss educational scene (for example, in terms of relevant class sizes or allowed financial investments). If such a correlation is not justified - research does not have to be modelled after reality, the criteria of scientific relevance not only being those of social relevance - we nevertheless observe that the several important sectors undergoing massive change are still studied very little, and that the

restructuring to which they have been subjected would profit from a thorough knowledge of their evolution, workings, issues and aims.

2. We still have yet to fully understand the reasons for the preponderance of works relating to compulsory schooling to the detriment of other sectors. We believe that at least two factors are worthy of mention:
   - The dominant influence of child psychology since the origins of educational research[63] has defined a series of issues that still continue to prevail, especially in universities; this is linked to both the performance and research of researchers and as the expectations of key players. Moreover, teaching is perceived to be dependent on psychological factors relating more to young children than to older children, thus reinforcing the aforementioned trend even more solidly.
   - Many service departments linked to administration favour sectors for which the cantons are responsible: compulsory schooling. In the absence of federal institutions, research stemming from service administrations linked to administration will develop little or not at all with respect to other sectors.
3. The growth of multi-focused research, not being classified in precise sectors, may be linked to the growth of so-called generalist topics (violence, multiculturalism) and an expansion of the field of educational research, currently spilling over onto the scholastic scene (family, adolescents, social work, marginalisation).[64]

5.2 Researched contents

For over two decades, the inventoried project contents have been regularly analysed by the CSRE, based on the same criteria for analysis, offering, as we have underscored, an invaluable serial perspective that we should, of course interpret with caution, given the stated methodological limits. What have been the generally observed trends?

Aspects	1974–1983	1993–1998
Structural and organisational aspects	12,4	15,0
Curricula, contents and goals of learning	13,1	9,3
Teaching and learning methods	10,5	7,6
Means of teaching and media	3,7	4,0
Evaluation of students and teachers	9,9	2,3
Interactions, teaching and learning processes	7,9	5,1
Teachers: attitudes, conduct, education	9,6	7,6
Individual conditions; learning determinants	8,4	7,4
Social, political, economic and legal conditions of learning	12,1	7,8
Effects of the educational process	8,4	21,3
Others	4,0	12,6
Total	*100,0	**100,0

Table 9: Contents of research projects in The sciences of education (Gretler, 2000, p. 134)

63 Numerous histories of the sciences of education show this fact. For example, see Depaepe, 1993; for Switzerland Herzog, 2000; Kiciman, 2001; Lussi, Muller & Kiciman, in press.

64 We will return to this issue a bit later, within the context of the analysis of research contents.

* Calculation based on 498 projects
** Calculation based on 526 project descriptions

In the absence of clear and precise category definitions, it is difficult to interpret the table. We will make three general remarks that in part concur with those of other studies dealing with the same data (notably Grossenbacher and Gretler, 1992; Gretler, 1994 and CORECHED, 1996).
Research projects are, to a large extent, focused on the teaching/learning processes (see the first columns of the above-displayed table), using somewhat micro-analytical approaches instead of analyses that focus on general conditions in which these processes come into play (meso- or macro-analytic). These conditions display a distinct downward trend.[65]
We will then note a significant increase in the category "Effects of the educational process," linked to the realisation of PNR 33 on the effectiveness of school systems. This phenomenon displays the significant tendency of the distribution of research projects to follow categories, which might indicate a distinct fragility, even weakness in the very structure of the sciences of education.
We also note the notable increase in the category "other," using other studies for full interpretation. Indeed, the CSRE conclusions (reports from 1991, 1993, 1995, 1997, 1999) show a growth in research relating to the history of education, the issue of computers in schools, the "family-school" complex, multicultural education or the role of girls and women within education. Based on an analysis of the same CSRE data using other analytical criteria, Patry and Gretler (1993) indicate a growing tendency to pursue more general themes, such as personality or ethics, which would also help explain the increase in the category "other."
Furthermore, Patry and Gretler (1993) conclude that teachers and curricula are the topics most commonly explored in projects. Patry and Gretler also indicate an increase in didactic topics, undeniably linked to the development of research connected to teacher education over the past fifteen years.
Swiss research is thus especially distinguished by its close connection to issues associated with teaching and education activities, especially for its contributions to findings with respect to evaluation and learning processes, means of teaching and curricula. The overwhelming orientation of research is praxeological, closely connected to professional practise and the management of educational systems.

5.3 Characteristics of research projects

Over the last several years, the main projects that feed this base have been stemming equally from universities, institutions within cantonal administrations and other institutions (Confederation, private services, schools). During the 1990s, the CSRE noted an increase in the total number of announced projects (activity reports from 1991 until 1998). As the report on educational research within the framework of the study on the situation of the social sciences in Switzerland (SOWI) has already indicated, the projects are relatively limited in terms of time frame (1 to 2 years) and are, more often than not, led by just one person or by a small group of two to four researchers (Grossenbacher and Gretler, 1992).
This observation is closely related to another observation concerning employed research methods. The SSRE report (1988, p. 58), we remember, was based on a survey of researchers

65 By showing specialised contributions in their own field, the studies concerning more limited fields within educational research, namely curative pedagogy (Rosenberg, 2000) and professional education (Marty, 1998; Kiener 1999) show these same trends taken as a whole.

and indicates a preponderance of practical field research (15,4%) and an accompanying evaluation of study (14.2%). By combining all investigations, covered by praxeological dimensions (action research: 6.3%, developmental research: 10.9%) that have been led in close connection to the practise of education and geared toward the response to social demands, we obtain a total of 42% of research projects, which is substantial, especially if we calculate the percentage using experimental research projects (7%) or theoretical research projects (10.5%). According to Patry and Gretler (1993) who employ another system of categorisation that is, of course, not incompatible with the previous system, the method that is by far used most often is the questionnaire. If interviews are somewhat frequent, other methodological tools, such as observation, experimental procedures and larger-scale analyses (from a quantitative, geographical or time-based perspective), which are more taxing on time and financial resources, not to mention scientific ability, are much less frequent.

Of course, we observe a tendency for Swiss educational research to participate increasingly in large-scale projects, especially within the context of international projects that involve other qualifications of researchers and another type of know-how. This has occurred especially in evaluative projects, but also in those linked to the qualitative analysis of in-class teaching/learning processes or in projects that have attempted to explore comparative approaches in education (educational systems, histories of the sciences of education, etc.) on a large scale.

Conclusion

Research in the sciences of education in Switzerland has developed alongside the topics that it has encompassed since the turn of the century, namely those associated with compulsory schooling and teaching/learning processes in the broader sense of the concept. As this study does not aim to describe the acquisitions of research from the point of view of its contents, it is not possible to evaluate the results of this research from a qualitative perspective; however, it is useful to keep in mind the influence of Swiss research in these domains, recognised in several assessments (SOWI, evaluation of the Section of The sciences of education at the University of Geneva). This undeniable force in leading domains is, however, accompanied by a structural weakness in others, which the data analysed in this chapter have shown: professional education in a broad sense (post-compulsory, HES, continuing education and adult education) and early child education with respect to the sectors of the educational system; meso- and macroanalytic approaches with regard to the adopted perspectives; more cumbersome methodologies (quantitative and qualitative) involving larger teams and longer time frames; fundamental research.

Faced with these observations and comments, it would be worthwhile for us to wonder about the effects of restructuring programmes currently underway on the evolution of the contents of Swiss educational research. We recall that the structural effect that seems to be most evidently imposed is the reinforcement of research within the context of teacher education, which, based on the facts, will not cause a shift in the indicated trends. We might instead think that this remodelling will reinforce them: concentration on already favoured sectors and contents (compulsory schooling, microanalytical aspects and research geared toward practical application) and small-scale projects using relatively simple methodological tools.

If it seems possible to temporarily invert these trends through economic measures, as shown by the significant effect of PNR 33, structural measures that guarantee lasting results -and

especially a reinforcement of the discipline's institutions - seem necessary in order to completely overcome the observed weaknesses.
The conclusions that we have just drawn remain very general, even rough. Only the most systematic data collection tools and the most sophisticated analytical criteria will allows for in-depth analyses and observations, as well as precise research management.

6. Communications networks

A number of historians and social scientists, such as Keiner (1999), propose the thesis that a discipline is first and foremost defined by its communications networks. These allow for the capitalisation of produced findings, as well as their diffusion and critical discussion within the scientific community, thereby guaranteeing the synergisation of teams and research institutions at a national and international level. Such networks also constitute the guarantors for a critical discussion and sharing of research products, synergising the abilities of different individuals and teams in order to promote excellence and scientific recognition of the discipline.
These communications are organised systematically:

- through publications
- by the creation of exchange networks

One of the mainstays allowing for these exchanges and networks, as well as stabilising, developing and supporting them, consists of the scientific associations.
In this chapter, we will provide a few elements for understanding the current structure of communications in the sciences of education. The data available for describing this structure are still rudimentary, so we will have to rely only on a few polls.

6.1 Publications

Two studies relating to publications allow us to form an idea about the structure of scientific communications in the sciences of education.
The first study (Grossenbacher & Gretler, 1992), based on a survey of educational research institutions (924 publications in 2 years) indicates a high level of publications in so-called practical journals (24%) and in types of grey literature publications (brochures, reports, etc.), for a limited audience, usually consisting of practising professionals (35%). Only 14% of publications are bound for scientific journals, whilst 15% comprises books or book chapters. This structure is sharply distinguished from those of other social sciences or, as is shown by Moessinger (1992), a small minority of publications belong to the category "others," essentially encompassing works directly geared at professional practise.
The second study, undertaken in the context of this mandate on 4 university institutions of the sciences of education, leads to conclusions that are slightly more precise and textured, but nevertheless confirm the broad trends that we have just observed.

	N	%
Books	79	7.2
Contributions to books	249	22.7
Articles in scientific journals	234	21.3
Articles in practical journals	264	24.0
Contributions to congress proceedings	79	7.2
Edited books	43	3.9
Other publications	151	13.7
Total	1099	100.0

Table 10: Number and percentage of publications from the sciences of education departments in 4 universities in accordance with 7 categories (created using the findings of Cusin, Grossenbacher and Vögeli-Mantovani, 2001).

We note that contributions appearing in practical works constitutes the largest category (24%), to which the "other" publications (13%), often brochures and reports for audiences of non-researchers, might be added. The rate of publication in scientific journals is particularly low (21%); we recall that the same rate for other SOWI disciplines is about 50%. In other words, more than one third of the publications do not directly target the community of researchers. Moreover, we might suppose that a high proportion of books also indicates a rather practical aim and is not subjected to the criteria of scientific evaluation. Thus, the procedure of undergoing peer evaluation does not appear to be prevalent within the sciences of education, even if this type of evaluation constitutes one of the essential mechanisms in the production of findings within the scientific disciplines.

With regard to the geographical areas in which these publications appear, we have found that between 30 and 75% of scientific articles are published in foreign journals. Thus, a significant proportion of publications produced within the field of the sciences of education are diffused abroad (Cusin, Grossenbacher and Vögeli-Mantovani, 2001), especially in France, other Latin countries and Germany, but very few appear in the Anglo-Saxon countries. This tendency corresponds to social practises underway within the different scientific communities, where the international dimension currently prevails; nevertheless.

With respect to the disciplines to which both Swiss and international journals are affiliated, 50% cover the sciences of education, 14% cover psychology and 12% cover linguistics or other fields associated with language; other disciplines, such as sociology and social sciences do not amount to more than 3%. At the same time, an analysis of support systems for the publication of scientific articles thus clearly reveals the multidisciplinary dimension of the sciences of education, the representative of several other social sciences, and their progressive disciplinarisation, here symbolised by their ability to promote their own quality scientific support systems. It is certain that, at the national and international levels, these support systems are still limited and are worthy of better establishment and recognition within the scientific community (we will discuss this later).

According to the inventoried works and the activity reports of different Swiss universities and research institutions, researchers within the sciences of education appear to be somewhat present at Swiss and international congresses, seminars and workshops. A systematic, quantitative and qualitative analysis of this participation would thus be desirable, inasmuch as it contributes, in its own way, to the reinforcement of communications networks and the development of a discipline.

With respect to the number of researchers and institutions, the scientific community in Switzerland seems to have sufficient means at its disposal to publish its scientific studies. Here, we will only mention the supports specialised in sciences of education. There is above all the scientific journal with peer review – *Swiss Journal of Sciences of Education*. Close to teacher education, one can mention the journal *Beiträge zur Lehrerbildung* which publishes often articles presenting scientific studies. Two series, one in French and one in German, headed by the Swiss Educational Research Association, edit monographs and collected papers, written by Swiss or other researchers, reviewed by peers. Over 150 books have been published and contribute to the national and international acknowledgement of the discipline. Other Swiss editors also publish regularly work in sciences of education, be it in French (e.g. *Editions Universitaires de Fribourg*) or in German (*Sauerländer*).
As in many other countries and other disciplines, these means of publication have not sufficient human and financial resources to guarantee an optimal quality, diffusion acknowledgement. It is interesting to note that pedagogical journals whose first mandate is not at all scientific, are much more prolific (the CSRE has listed more than 80 such journals in Switzerland which are of course very different in nature, scope and periodicity).

6.2 Collaborative networks

As is the case for publications, we do not have access to precise data concerning collaborative networks. Here we employ three indices or examples to show that their structuring is relatively not very advanced. The Swiss networks, which could serve as springboards for recognition within international networks, struggle to stay afloat in the long run, and institutional exchanges remain heavily confined to set linguistic regions.

1. The first index concerns the networks of researchers specialised in one field of the sciences of education; these networks are the effect of a discipline's internal differentiation. In Switzerland, these networks hardly exist at all, often remaining rudimentary or short-lived. In effect, with very few exceptions, neither the work groups of the Swiss Society for Research in Education nor the networks supported by the CSRE currently play a serious role. This fact is precisely the result of the relative neglect of internal differentiation, of poorly advanced specialisation, with each researcher potentially working in several fields; all this hinders the construction of specialised networks. This could be a consequence of the precarious state and scarcity of research posts.
2. We will now study the issue of networks using the example of PRN 33, entitled "L'efficacité de nos systèmes de formation, compte tenu de l'évolution démographique et technologique, et des problèmes posés par la plurilinguisme en Suisse" (The effectiveness of our educational systems, considering demographic and technological evolution, and problems posed by multilingualism in Switzerland) conducted between 1991 and 1996. It comprised 39 projects, and institutional collaboration across linguistic borders was one of its explicit objectives. The four analysed institutes (Cusin, Grossenbacher & Vögeli-Montovani, 2001) participated separately in 11 of the 39 projects, 2 of them collaborating within 3 of the projects (two of which crossed linguistic borders). Of the 11 projects in which institutes participated separately, 3 collaborated with cantonal services, 2 with private bureaux and 2 with other university institutes. The language barrier was broken in 3 of the 7 projects involving co-operation.

3. The third index results from an in-depth analysis of "foreign relations" of three of the four university institutes carefully studied within the context of the mandate. This analysis shows that contacts with foreign countries are frequent, even regular and sustained, but that such contacts are, in contrast, infrequent and restricted with institutes located in Switzerland's other linguistic regions.

Zurich		Fribourg		Geneva	
Approx. 40	Approx. 80	Approx. 125	Approx. 140	Approx. 360	Approx. 340
Germany England Austria Denmark USA	German-speaking Switzerland	Germany England Austria Holland USA	German-speaking Switzerland	Belgium Canada Spain France South America	Romance-speaking Switzerland

Table 11: Networks of exchanges and scientific communications (conferences, lectures) (Cusin, Grossenbacher & Vögeli-Montovani, 2001)

These few indices concerning collaboration amongst researchers and the informal internal structuring of the discipline display at least two facts:

- Although informal internal organisation of the discipline exists in an embryonic state, the work is still poorly evolved, at least in part due to the discipline's lack of internal differentiation and little specialisation characterising it; this would undeniably lead, to a large degree, to the precarious number of research posts, the high degree of fluctuation observed within these posts and the insufficient critical mass.
- The international integration of Swiss researchers is satisfactory, even if we might observe that this integration is often confined to well-defined linguistic borders. At the national level, collaborations remain deficient, especially at the university level.[66]

6.3 Scientific associations

In 1975, Swiss researchers in education formed an association to structure their community and develop the necessary infrastructures for scientific communications: the Swiss Society for Research in Education. Since then, this association has carried out the above-mentioned function, by means of the following support services[67]:

66 However, we should also mention the BENEFRI collaboration agreements for studies in the sciences of education that allow students to move freely between universities. Unfortunately, we do not have access to an evaluation of this experience.

67 According to these statutes, it also plays the role of defending the interests of researchers as a community.

- It publishes Switzerland's only scientific journal in the sciences of education.[68]
- It sponsors two scientific collections with a commercial publisher with an international scope.
- It publishes a bulletin which diffuses important information relating to the discipline and serves as a liaison between researchers.
- It organises an annual congress, focusing on various subjects, often in collaboration with other societies (social science societies; Schweizerische Gesellschaft für Lehrerinnen- und Lehrerbildung [Swiss society of teacher educators]).
- It allows for the creation of work groups that tackle specialised issues (see above).
- It facilitates the organisation of scientific events, functioning as an intermediary with the Academy of Social and Human Sciences.

The only association of its kind in Switzerland, the SSRE constitutes an important body for the cohesion and structuring of communication. Currently uniting over 400 members, the SSRE may be considered to be the representative of the major fields and institutions dealing with the sciences of education. Nevertheless, it suffers from the same stumbling blocks that plague the discipline itself even if the very existence of the association aims to overcome these Limits: we note in particular the difficulty of constructing lasting networks across linguistic borders.
There are other national organisations that also contribute to the consolidation of networks of communications.[69] We will briefly discuss two of these organisations, which seem especially pertinent to the discussion:

- The *Schweizerische Gesellschaft für Lehrerinnen- und Lehrerbildung* (SGL), a society of teacher educators, of whom many are also members of the SSRE. Originally concerned essentially with issues relating to education, this society has been participating increasingly in the field of research; at the same time, it increasingly consists of academics who now take on major responsibilities within the society.
  The SGL also organises an annual congress, sometimes in collaboration with the SSRE; this congress is, of course, considerably more geared toward the issues of professional practise. Its journal provides an essential support service for communicating with professional centres and seems to be increasingly coveted and dynamic; nevertheless, it does not function according to the principles of peer reviewing. Moreover, we emphasise that this society is essentially German-Swiss and that currently the similar French-Swiss structure does not conduct regular activities.
- The *Schweizerische Gesellschaft für angewandte Berufsbildungsforschung* (SGAB) was found following the wake of PNR 10, upon the hypothesis of developing research applied to professional education through subsidies coming from the economic sector. If this hypothesis has not been verified, the SGAB nevertheless continues to function as an association that brings together individuals interested in this field, including, of course, researchers, yet not assuming the functions of a scholarly society. Kiener's analysis (2000) shows very clearly that the SGAB has played an important role in the granting of substantial research contracts (he mentions notably the larger project in the field of professional education with respect to professional maturity, entirely led by the above-

68 *Beiträge zur Lehrerbildung* also publishes scientific contributions, but it also serves another function, is not peer-evaluated and only covers German-speaking Switzerland.

69 Here also, an analysis of the types of organisations and members, as well as the inflow of members would be pertinent; we unfortunately do not have sufficient data for such an analysis).

mentioned society in collaboration with the *Institut für Wirtschaftspädagogik* (IWP)). In the opinion of the experts consulted by Kiener, the SGAB does not really assume the role of a society of researchers, and its journal does not constitute or intend to become a scientific journal. Consequently, there remains the question of its function, especially given the failure of its constituent hypothesis.

Furthermore, we note the existence of a certain number of other societies regarding more limited topics[70]. As far as we know, there is currently no inventory of these associations.

Conclusion

The networks of communications of educational research seem to have been stabilised at a basic level: they currently guarantee the minimal workings of a discipline lacking in sufficiently advanced internal differentiation. These minimal networks are surrounded by other, very dense and numerous networks, more or less distanced from the hard core of scientific communications and their rules, loudly articulated throughout the different spheres of practical education (teacher education, curative pedagogy, professional education, but on a broader scale teaching, etc.). This offer, which guarantees visibility to research, exerts a strong pull upon researchers and can be seen within the structure of effective communication. In effect, an analysis of this structure reveals that is atypical when compared to other disciplines, even within the social sciences. At least half the publications target channels aimed at practising professionals and, to a lesser degree, administration. Researchers in the sciences of education in Switzerland, whilst maintaining close-knit collaborations with representatives from other disciplines and the international communities of researchers in education, as shown by their activity reports and publications networks, do not seem to favour participation in Swiss or international journals that functioning according to traditional assessment procedures.

7. Socialisation toward research and professional perspectives

The future of a discipline mainly depends on its capacity to form a quality scientific restaffing plan, conditioning the very possibility of the capitalisation and repetition of produced findings. The role essentially but not uniquely falls to university institutions, mandated to educate new researchers through institutionalised curricula to this end and to grant diplomas that sanction an academic career and guarantee the scientific abilities of their degree-holders. By socialising, even thus selecting professionals working within the institutions, the institutions define, at the same time, the criteria of legitimacy for reproducing them.
The issue of restaffing today constitutes one of the key issues of the future of the sciences of education. As with other academic disciplines, they will be confronted with a significant turnover of academic personnel over the next decade, compounded by a turnover of researchers established in service departments linked to administrations. Furthermore, the institutes are currently witnessing a major generational shift, ensuing from the development of academic curricula in the sciences of education over the last forty years. Whilst only the exception to the

70 We should mention for Switzerland: didactics of mathematics, didactics of German, didactics of French as a native language.

rule in the past, a student can now complete his or her entire academic education in the sciences of education and aspire, through a thesis and scientific dossier, to an academic career within the field. If, until now, most of the field's representatives came from other fields, the sciences of education will now be able to recruit part of their restaffing efforts from within the field and those that it has educated. It is still necessary for the field's representatives, as well as the entire scientific community, to recognise the full disciplinary legitimacy of the sciences of education and offer high-level conditions of scientific education to the "young researchers."

The data currently available on the issue of restaffing efforts are still deficient: in addition to the partial study funded by this mandate - which also touches on the study by Lévy, Roux and Gobet (1997) - the main sources used here are the report by Grossenbacher and Gretler (1992) on one hand, composed within the context of SOWI, on the other hand, the study by Poglia, Grossenbacher and Vögeli-Mantovani (1993), and especially Criblez's article (1998; see also 2001) focusing on this exact issue.

We present the issue of socialisation on two levels. First, we observe the education curricula proposed by the university institutions. Then we concentrate on the professional perspectives, studying the context in which a scientific career in the sciences of education may be carried out, such a career being the indispensable counterpart of the "social production" of a researcher.

7.1 Research education

Socialisation toward scientific research is a long-term process that is undertaken through successive, progressive steps and assumes a degree of increasing specialisation. If the base structure of research education is relatively standardised in most Swiss, like most European universities, including the first, second and third cycles, followed by the doctorate and possible authorisation to supervise research, the same structure includes very diverse contents and assumes a wide variety of forms; the very place and concept of research vary in accordance with the relevant disciplines and subdisciplines, as well as cultural and linguistic regions, just as there is variability amongst the social conditions in which this socialisation toward scientific production takes place.

Basic education

We have already presented the structure and contents of basic education within universities and have noticed a preponderance of professional contents. If all the analysed subjects contribute toward research education (courses in methodology, research seminars), this contribution – of which the amount and contents should be subjected to a more formal analysis - seems proportionally modest within the curricula as a whole. We recall that the international experts responsible for evaluating the sciences of education in Switzerland (Poglia, Grossenbacher & Vögeli, 1992 p. 22) have gauged that these subjects do not sufficiently integrate education in research methods: we note that only at Geneva is it theoretically possible to follow a specialised programme of study in research (a bachelor's level degree with the special distinction of "research and intervention"), of which the "intervention" component is, however, widely favoured by students.[71].

[71] An in-depth analysis of concrete routes followed by students could give us more information about this subject. Such an analysis, to our knowledge, has not been undertaken.

Post-graduate education

With respect to post-graduate education, we will only discuss specialised curriculum in research education, even if we are aware that other, more profession-oriented postgraduate offerings also contribute, at that level, to this education.
First, we will mention the national priority research program “Schweiz von morgen/Demain la Suisse” (Switzerland of Tomorrow), which has allowed for the establishment of a doctoral programme in the sciences of education. This programme, resulting from the synergisation of several universities, is being pursued by about fifteen students, all undertaking doctoral work, as the very concept of the programme implies. Funded within the context of a priority programme, this, however, has not been deemed a long-term offering.
Only the University of Geneva has implemented a lasting third-cycle curriculum specialising in research education; its Diploma of Advanced Studies currently comprises two fields: one in disciplinary didactics, the other in the theories of learning; both favour scholarly issues. Note that this diploma is not a pre-requisite for obtaining a doctorate in the sciences of education.
We observe that the possibilities for postgraduate education in research are extremely limited. The professional education of researchers is thus undertaken almost exclusively through doctoral study.

The doctorate (PhD)

Criblez’s analysis (1998) shows that the number of doctorates granted in the sciences of education in Switzerland between 1987 and 1998, although stable (between 19 and 28 per year), is somewhat low in relation to the discipline’s total number of students (see comparisons drawn in Moessinger, 1992). The doctoral rate is especially low in French-speaking Switzerland. The time invested in the completion of a thesis also differs drastically between French and German-speaking Switzerland: an analysis of the data collected within the context of this mandate (Cusin, Grossenbacher and Vögeli-Montovani, 2001) shows that, if the time frame of theses is quite variable (30% of respondents completed their thesis in 3-4 years; 20% in 2-3 years and 20% in more than 7 years), significant differences also appear between French- and German-speakers.
These differences probably have two independent raisons d’être, which allow us to clarify the status of the thesis within research education.

1. The status of the thesis within the hierarchy of academic titles differs between German-speaking and French-speaking Switzerland. For example, at Geneva, the thesis constitutes the highest academic level; there is no *Habilitation*, i.e. a granting of authorisation to supervise research. Nomination to a professional level is based exclusively on a candidate’s dossier. The opposite occurs in German-speaking Switzerland, where such authorisation is required for obtaining a chair.
   This difference is also marked in terms of the methods of evaluating the thesis, which are more consistent in the Geneva context (formal acceptance of the thesis’s framework by the Section; the construction of a committee of topic specialists; the defence before a jury of 4 members, of whom at least two are from outside the relevant university). In German-speaking Switzerland, the principle of “Doktorvater” establishes a greater relationship of closeness and dependence between the doctoral candidate and his/her promoter, with peer evaluation being less highly developed.

2. In French-speaking Switzerland, the conditions under which a thesis is completed seem to be less favourable than those enjoyed by German-speakers; in addition to the insufficiency of infrastructures available to doctoral candidates, the terms and conditions of collaborators (assistants) are more cumbersome in French-speaking Switzerland, thus greatly reducing the time that could be invested in the thesis.

The concept of the "doctorate" thus does not seem to enjoy a homogenous reality within the discipline, at least in terms of intent and structure, which are more heavily oriented toward research education in French-speaking Switzerland, constituting the start of a career in research. In contrast, in German-speaking Switzerland, the doctorate instead serves as an introduction to research, with the granting of authorisation to supervise research constituting the candidate's true consecration as a researcher.
In addition to these differences, the survey of doctors (Cusin, Grossenbacher and Vögeli-Montovani, 2001) reveals a certain number of common problems to which women are particularly vulnerable:

- The creation of a doctoral thesis is essentially the result of solitary work: the doctoral candidate is rarely placed in research groups and often subsists on financial resources that are not linked to his or her thesis work (76%)[72] It then results that a candidate can only work on his or her thesis on a (very) part-time basis, which hardly encourages outstanding scientific research education and, eventually, extensive research professionalisation.
- Supervision depends almost entirely on the thesis promoter, without any other structure, with the short-lived exception of the doctoral school, which did not lastingly yield this contribution.
- The employed methodological procedures seem to be poorly diversified and often favour tools requiring modest infrastructures and equipment; hermeneutic and qualitative approaches are often encouraged over quantitative techniques.
- The evaluation of thesis projects remains unsatisfactory, with doctoral candidates in fact participating very little within networks of scientific communications (Criblez, 1998, p. 190; Cusin, Grossenbacher and Vögeli-Montovani, 20001, p. 38). A systematic policy relating to the promotion of the projects of "young" researchers remains deficient.
- We also note that very few of the grants for exchange programmes are requested in the sciences of education[73], indicating that an international establishment is still poorly developed. It remains to be seen if the conditions for obtaining these grants have been adapted to suit the particular characteristics of doctoral candidates in the sciences of education (the age factor seems particularly discriminatory).

With respect to the *Habilitation* diploma, Criblez also analysed procedures that determine academic careers in German-speaking Switzerland between 1987 and 1986. Regarding the 12 projects presented for such authorisation during the analysed period, 2 dealt with curative or special pedagogy and 2 with economic pedagogy; 10 of these post-doctoral theses were advanced by men, and 2 by women. According to Criblez, half of the successful candidates

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72 Remember that qualification-level projects are composed of one third of research projects in Switzerland is composed of qualification-level projects (among them doctorates), notably theses, we find that the subsidy rates lack the above-mentioned research…

73 Data supplied by the FNRS.

went on to teach in foreign universities, with only one such individual occupying a chair in Switzerland.
In other words, if the concept of the "doctorate" constitutes the essential education route to research in the sciences of education, the conditions are never satisfied so that the concept may carry out its function optimally: heterogeneity of requirements, thus expanding the risk of inconsistencies and inequalities; unsatisfactory time and financial resources that would be conducive to completing the thesis within a reasonable time frame; the insufficient development of research education institutions and structures guaranteeing quality supervision; insufficient integration within networks of communications and within research teams.

7.2 Professional perspectives

We will now shift our discussion from a study of research education institutions to a study of professional perspectives, that we will tackle through the study of posts allowing individuals to pursue the profession of researcher in Switzerland.
An analysis of researchers participating, in one way or another, in research shows that there is a "hard core" of perhaps one hundred individuals, whose principal activity relates to the sciences of education, and a "diffused peripheral zone" of maybe one thousand individuals (Criblez, 1998, 177; Gretler, 1994, p. 37; Patry & Gretler, 1992, p. 36; Poglia et al., 1993, p. 11). This situation is the result of several factors:

- a large number of part-time and non-tenure positions (universities, posts financed by subsidies), in which researchers only devote a portion of their total work time to research
- many researchers, often coming from disciplines other than the sciences of education, only work for time to time on an issue relating to education

In addition to the fact that this structure does not encourage a bona fide accumulation of findings and abilities, the structure, characterised by a instability and a lack of continuity, drastically limits the possibility of a scientific career in the sciences of education. Many careers are prematurely interrupted, notably at the end of the doctoral period, which often constitutes a short-lived "biographical episode"[74] or such careers are achieved circuitously, involving other, supplemental professional activities.
We will take a closer look at existing posts for researchers in Switzerland.[75] We believe four substantial categories to be significant in order to grasp the process of socialisation and analyse the professional perspectives within the discipline:

- the intermediate staff
- the professional staff
- posts for researchers within research service departments, including the HEPs
- posts created by subsidies

74 The doctorates offer nonetheless in most cases interesting career perspectives outside university.

75 We do not have access to an analysis of existing posts in Switzerland, in accordance with different types and different institutions; the following considerations are consequently taken as a whole, without an estimate of their relative importance.

The intermediate staff

All existing studies reach a consensus with the recognition of endemic problems facing the status of the intermediate staff at most universities (amongst others, see Maurer, 1993; Lévy, Roux & Gobet, 1997; VAUZ, 1995; for the sciences of education, see Criblez, 1998; Hofstetter & Lévy, 1992). Three categories of problems seem to be especially crucial in the sciences of education:

- *Terms and responsibilities.* The growth in the number of students in the sciences of education and the increase in administrative tasks and services have considerably burdened the terms and responsibilities of the intermediate staff, especially those of assistants, to the detriment of investment in scientific activities. For example, during the doctoral period, whilst the scientific requirements for obtaining a post continue to increase, the work conditions hardly allow the intermediate staff to accumulate a quality scientific dossier.
- *The status.* The available positions are mostly temporary; in German-speaking Switzerland, there is really no upper-level intermediate staff. The rotation to which the intermediate staff are subjected has led to two negative consequences: a loss of abilities for the university that must continuously educate new students within a very short time frame; an impossibility to be educated as a researcher within the university beyond the brief assistantship period. The possibilities for grants are not sufficiently appealing from a material perspective.
- Finally, one can see that in sciences of education, the intermediate staff is constituted by many persons who are in a second cycle of education, who are older and who are still active, on a part time basis, in their initial job. Their scientific career does not follow a classical schema. This can create important problems, especially for women, given the fact that the structures are not at all ready (financing, age limits).

To have a more precise evaluation of the situation of the intermediate staff, it is necessary to distinguish two categories.

The non stabilised intermediate staff, assistants and *maître-assistants* have a status which should permit a deepened education in research (doctorate, post-doc). The very conditions of the staff we have just described impede very often the optimal education in research. For the assistants, this concerns more particularly the problem of finishing in time their doctorate, the *raison d'être* of this part of the staff being precisely the socialisation towards research by means of the completion of a thesis. The analyses show that many do not reach this goal (see for instance the report on sciences of education at the University of Geneva: De Ketele, Reuter & Tardif, 2000). In what concerns the *maître-assistants*, they very often do not have sufficient support and the necessary conditions to polish their scientific curriculum and to participate in international networks.

There is almost no stabilised intermediate staff in the German speaking part of Switzerland, at least if one considers persons directly implied in research. But there are many persons (lecturers) engaged in teacher formation (mainly secondary teachers) who do not have a research mandate nor, generally, have been educated on the post-graduate or postdoctoral level. In the context of new demands in the domain of school evaluation, new posts have been created, financed by temporary limited projects (see above). This has had a dynamic effect on the staff, but has even sharpened the problems of continuity and of the construction of know-how in the institutes. Very recently, some stable posts have been created which could reinforce the status of

the intermediate staff. In the French speaking part of Switzerland, more particularly in Geneva, the stabilised intermediate staff is more important. The so called *maîtres d'enseignement et de recherche* have essentially scientific tasks and constitute an excellent means for educating researchers on a high level. Many posts of *chargés d'enseignement* (lecturers) have been created in the context of the new function of educating professionals at the university; they are generally integrated in research groups – many have a doctorate or are preparing one -, but have quite heavy tasks in giving courses and seminars, what inhibits their activity in research.
At the time being, the situation of the intermediate staff is not satisfactory enough to guarantee a high quality education in research and the restaffing in the discipline, inside and outside university. There is no stable infrastructure neither to accumulate and develop knowledge; the staff of professors cannot do this alone.

The professorial body

The post of professor constitutes a discipline's central factor of structuring and a decisive stage over the course of an entire scientific career. Consequently, it would be particularly worthwhile to conduct a detailed study of how such posts are defined, the terms and responsibilities of their title-holders, the nomination procedures and selection criteria that prevail in the selection of candidates. However, such studies and data are currently thoroughly deficient or are not accessible, even though a certain degree of transparency and homogeneity with respect to criteria help to guarantee selection of the best candidates.
In addition, there is the difficulty of defining the activities and functions undertaken by active professors, not to mention the fact that their practices, responsibilities and duties differ widely between linguistic regions, institutions, teams and even posts. The few available data show that the difficulty lies in devoting a substantial portion of time to scientific activities. This problem is, of course, not specific to education sciences (Moessinger, 1992, p. 31), but within this discipline it seems to be particularly acute due to the many "service" functions that are expected of the discipline's representatives.
Although the number of professorial posts is relatively low in Switzerland (with the exception of Geneva), the impending retirement of a considerable number of professors over the next decade (69% for the four universities studied by Cusin, Grossenbacher and Vögeli-Montovani, 2001) currently implies a concerted policy regarding restaffing within this discipline. We must reiterate the unique situation of the sciences of education, which have until now recruited the majority of their professors from other disciplines (especially psychology). If benefiting from the contributions of other disciplines is thus advantageous, it would seem necessary to expand this targeted recruitment area, especially since the generational shift now allows for this possibility: a discipline that does not recognise its own representatives, especially when nominating candidates at a professional level, thus discredits itself. Consequently, it is currently necessary to provide the means to resolve the above-mentioned deficiencies with respect to the processes of socialisation toward scientific research within this discipline, to allow for the accumulation of high-quality quality dossiers within this discipline, as occurs in others.
Let us take a closer look at the situation of women within this process. Cusin, Grossenbacher and Vögeli-Montovani (2001) show that at all levels of the university hierarchy, women are particularly vulnerable to identified deficiencies, when compared to other disciplines. A critical or discriminatory "glass ceiling" exists not only at the doctoral level (cf. above), but also at the stage of promotion from the lower to upper intermediate staffs.

Education	Professional posts
71% of students (1998-99 year) total no. = 2,037	57% of the lower intermediate staff (1998) total no. = 226
68% of bachelor-level degree holders (1998) total no. = 144	27% of the upper intermediate body (1998) total no. = 294
38% of doctorates (1998) total no. = 16	21% of the professional body (1998) total no. = 28

Table 12: Situation of women in the sciences of education at Swiss universities (Cusin, Grossenbacher and Vögeli-Montovani, 2001)

The authors indicate that "at a professorial level, women only display a considerable presence at Geneva, in proportions that are nothing short of remarkable as compared to the prevailing situation in other institutions (39% of professorships)" (p. 25)

Posts for researchers within research service departments, including the HEPs

Recent analyses show that the situation of researchers differs considerably between institutions, notably with respect to their size, mandates and participation within scientific networks. (see notably Bain, Brun, Hexel & Weiss, 2001).
Decent-sized institutions that are clearly dedicated to research benefit from posts that are entirely devoted to educational research and specialise in different fields; these posts allow for the stabilisation of a certain degree of expertise in research, especially through increasingly frequent collaborations with other research institutions at the national and international levels. The situation of researchers is more fragile in the many small institutes, inasmuch as researchers undertake, in addition to their research mandate, many tasks of expertise, development and support for reforms, which leaves only a portion of researchers' work time for so-called research.
Two constraints burden research undertaken within the service departments, and their impact is felt more acutely by the small institutions:

- Research is very much defined by mandates established by administrative authorities in accordance with a type of internal logic regarding research and the discipline.[76]
- Research that is undertaken is diffused more often through a network of communications dealing with educational issues than through networks of scientific communications.

The evolution of these posts is currently dependent on the evolution of research service departments themselves (see above). The direction of current restructuring programmes threatens to expand the observed constraints if such programmes are not accompanied by measures that guarantee high levels of scientific qualifications, established within Swiss and international scientific networks. These comments also apply to posts created within future

76 This does not mean absolute dependence. The paradigms change according to a logic partially motivated by research, as is shown, for example, by Weiss, De Pietro, Jaquet, Pochon & Wirthner (in press) in their presentation of the evolution of research to the IRDP. The deep intricacy of the logic of research and its demands would be worthy of analysis.

HEPs, which could, if they offer satisfactory conditions for scientific production, yield interesting opportunities, but only by creating new posts for researchers and thus new possibilities for developing the discipline.

Posts created by subsidies

Meyer's study (1999) of posts created by PNR 33 puts forth an interesting image of the situation of researchers supported by research subsidies. The study shows that most researchers work on projects on a very part-time basis (average 30%); only one fourth of researchers invest more than 50% of their time to projects. The frameworks of conditions are very complex for most researchers, who generally take on one or several other activities. The essential problem lies in the fact that half the researchers participate in the same activities before and after working on the project. This in itself is a significant indicator of the dramatic precariousness of the researchers' working conditions and the obvious consequences with regard to the construction of a sustained scientific career. It is nonetheless interesting to observe, as show the study by Cusin, Grossenbacher and Vögeli-Mantovani (2001) the these jobs in the domain of research generally constitute a step to other interesting professional destinations.

Conclusion

The socialisation toward research, one of a discipline's principal functions, seems to be extremely problematic. One of the main causes lies in the weak university presence, compounded by the extraordinary tension, between social demands and scientific requirements, to which the discipline, including within universities, is subjected. In addition, this multidisciplinary discipline could benefit from more recognition within the scientific community and by authorities responsible for the definition of posts and selection of candidates. Consequences of this weakness include the following:

- the absence of stable research education structures, notably at the third cycle level
- the absence of a true doctoral policy, heavily subjected to traditional canons
- a substantial difficulty in foreseeing interesting professional perspectives and pursuing a relatively sustained scientific career within this discipline

We might also add that the great lack of posts for researchers, especially young researchers, makes it even more difficult to envisage a true scientific career. As an expert claims, within the context of the survey by Poglia, Grossenbacher and Vögeli (1993, p. 32): "It must be observed that the sciences of education are not especially attractive for those who truly want to conduct research: too few posts, part-time opportunity, no real research education, lots of service activities. These are all part of a tradition which leads to problems with regard to education in set terms of an academic structure…".
Several factors, however, allow us to think that it would be possible to tackle the problem currently:

- the very reinforcement of the discipline means that the issue of restaffing is especially pronounced today

- this reinforcement means that the first outlines of more stable structures dedicated to the education of young researchers are being created
- the evolution of the discipline (generational shifting within institutions, service departments and universities; increased research potential through the HEPs and new sources of funding) creates appeals for offerings to which the discipline must respond. Today it potentially has the means to do so

This concerns the solidification of opportunities.

8. Regulating mechanisms: funding and co-ordination

The discipline's regulating mechanisms are both internal (for example, the attribution of roles, power and influence according to the criteria that endeavour to describe the sociology of sciences; Bourdieu, 1994 and 1995) and external: the creation of institutional sites for the discipline (research and teaching) within and outside academics and the availability of funds for undertaking research.[77] We will concentrate on the latter[78] inasmuch as the complex relationship between social demands, in this case especially administration and policy, and research occurs in a particularly precise manner, especially focusing on education, which constitutes a central issue within modern societies, which spend an increasing portion of their budget to this end. (OCDE, 1997). Moreover, these mechanisms significantly influence, through the definitions of research priorities, the sectors and topics handled by educational research, as is shown, for example, by the evolution of research contents presented in chapter 5. The often observed weakness of fundamental research within the field is undoubtedly a reason for this dependence.
In this chapter, we will first try to identify current trends of the funding policy for projects in Switzerland; then we will describe some of the main mechanisms of co-ordinating research and the priorities that have been defined by official organisation.

8.1 Funding of research projects

We have no information regarding the funding of research projects of a certain scale at the national, regional or even cantonal level in Switzerland before the 1980s.[79] It would thus seem that the EVA (English: Education and active life, 1980-1987), the FNRS's first national

77 We recall that the *Plan* (SSRE, 1988) led to a very poor financial investment in educational research (0,015% of resources devoted to education), especially in comparison to other countries, such as the United States, without mentioning industry research efforts.

78 The first aspect is obviously outside the scope of such a report as ours; in-depth studies regarding this issue would nevertheless be appreciated, within a discipline particularly exposed to outside pressures linked to social demands, where it as much the expert as the researcher who determines policy. With respect to institutions, we have discussed this issue in chapter 4, including that which concerns institutions responding to social demands for professional qualifications, yet without discussing the issues of financing and decision-making, for now outside the scope of the analysis. We recall that some information concerning financing will be supplied by Siegfried Hanhart's study, financed by CORECHED.

79 Here again precise, historical research is lacking.

programme dedicated specifically to educational issues (SKBF, 1988, gives a precise description of it) and SIPRI (*Ueberprüfung der Situation der Primarschule*, 1978-1986), established by the CDIP (Heller and Salamin, 1986) were the precursors to such funding schemes. This first phase of funding, irregular and relatively deficient, was followed by a series of initiatives begun in the 1990s to assure more regular funding for research projects in the sciences of education using the following means.
At a national level, initiatives have been taken since the early 1990s:

- After the EVA project, there has continuously been at least one national research programme addressing educational topics: from 1993 until 1999, PNR 33 "L'efficacité de nos systèmes de formation" (The effectiveness of our educational system), supplied with 15 million francs and having financed 39 projects; PNR 43, which was launched in 1999, supplied with 8 million francs to last 5 years.
- The Confederation created a significant research fund within the context of the CTI for professional education. Supplied with 10 million francs for a period of 4 years, it funds research projects in all fields of professional education.
- Within the context of the HES's, including the HEPs, the DO-RE research fund was also set up to fund research projects in education (FNRS-CTI cross funding). It is equipped with 4 million francs, also for a period of 2 years.
- The OFES has a fund that allows to finance projects in the domain of educational research with a international dimension and scope.

Moreover, there exists, especially in German-speaking Switzerland, a large number of canton federal, cantonal, municipal and even school offices that have access to funds to fund research projects supporting scholastic reforms, the development of new teaching and education models, different political initiatives within the field of education. To our knowledge, there is currently no estimate regarding the total sum of these funding schemes; the mechanisms for distributing and controlling these funds are not known and are not very transparent. The very existence of a certain number of institutions financed mainly, if not exclusively by subsidies (private institutions, institutions incorporated into universities, as well as an increasing acquisition of research projects by service departments incorporated into administrations), generally stemming from different administrations, allows us to deduce that these funds are relatively substantial. The importance of having access to precise data regarding the funding of research in education is even greater given that we might assume that such funding is developing rapidly and heavily influences the direction of research topics and methods, stemming from precise social demands for the management of systems.
These two categories of funding sources do not operate exactly according to the same logic, even if the boundaries between the categories are vague. The former operates according to a principle of a call to offer with project evaluation according to criteria that are pre-established around relatively precise and limited issues. This concerns tools for directing research in education toward fields deemed to be particularly significant because research in such fields is lacking, there are particularly loud demands for the research, or because new institutions appear without appropriate sources of funding. The participation of these funding structures has yielded a two-fold effect: in addition to directing research toward precise fields and topics, this participation has transformed the very workings of research in the sciences of education by introducing partially competitive regulatory mechanisms and research planning and management according to the most professional modalities. The effect of the second category of

funding sources is much more diffuse, even underground, and our opinion is that it should become more transparent.
We must add, in addition to these funding sources, the FNRS subsidies, bestowed in accordance with requests made by researchers in accordance with their own inquiries and centred around fundamental research. Now, surprisingly, we observe that these subsidies are only relatively rarely requested in relation to their university potential.[80] The same observation could be said for subsidies at an international (European) level, apparently also rarely requested for research in education. The weakness of fundamental research, the fragility of university structures, and the loud social demands that are occurring with increasing frequency, as we have just seen, at the level of available research funds may constitute several factors that might explain this phenomenon.
This brief analysis of recent trends in the field of funding for research projects has led to a somewhat paradoxical observation. New sources of funding allow for an undeniable reinforcement of research in education, a re-centring around a certain number of key social issues and some degree of research professionalism. At the same time, this trend, whilst positive in itself, is accompanied by particularly problematic perverse effects for the disciplines due to several reasons:

- by also creating new professional posts, the trend takes up the time and energy of already existing forces that invest part of their time in the assignment and management of research projects that are heavily centred around applied research, to the detriment of investments in already underdeveloped fundamental research.
- it adds even more deficiencies to the profession of researcher in the sciences of education insofar as it offers only posts limited in time and often only (very) part time jobs..
- It could reinforce the trend to multiply many short-term projects without positive long-term effects, at the structural level.

We believe that recent trends - for reasons of a rather economic nature - seem interesting and able to unleash their full potential, while their perverse effects may be controlled through structural measures that guarantee the long-term development of the discipline.

8.2 Co-ordination and definition of main themes by mandated authorities

The EVA and SIPRI programmes constitute the first attempts to co-ordinate research in education through research programmes of a certain scope, thus propelling the field in a certain direction. These attempts have been accompanied by others, aiming for similar goals, if only to encourage a better exchange of ideas in terms of the definition of research priorities in direct connection with administrations and practising professionals in order to respond optimally to the many national and especially international requests (notably IEA, OCDE).
The main attempt lies in the 1991 creation of CORECHED, which gathers the main partners concerned with research in education (cantonal and federal administrations responsible for education and research; politicians dealing with education, practising professionals, researchers) and is financed by large administrations. Responsible for co-ordinating research, it has

80 The experts of the SOWI project who evaluated the sciences of education are very explicit in this regard and loudly criticise the fact that researchers are not sufficiently proactive in appealing to existing sources of funding. (Poglia, Grossenbacher and Vögeli-Mantovani, 1993)

facilitated the establishment of many nation-wide projects, permitted the launching of others, made the results of research more accessible and taken initiatives to analyse the evolution of research in education in Switzerland. This organisation has been subjected to substantial restructuring geared toward increasing its effectiveness: it is now directed by a piloting group that regroups the four major authorities in charge of funding of research in education (OFFT, OFES, CDIP, FNRS) and researchers' representative (the president of the SSRE) and by a Council responsible for discussing the main themes defined by the piloting group.

As it is written in its statutes, the *Conférence suisse des directeurs de centre de recherche et de développement pédagogique (CODICRE* [Conference of the directors of pedagogical research centres linked to administrations]) has also the function of co-ordinating research in the different centres. [81] It can constitute an important motor to favour the constitution of networks between cantonal centres, in articulation, if possible, with universities, even if, at the moment, it lacks sufficient financial support in order to assume this role with efficiency.

Still on the national level, the *Centre suisse de coordination pour la recherche en éducation (CSRE)* [Swiss centre of co-ordination of educational research] plays an important role of co-ordination in different ways: it is responsible for several research networks (on evaluation, adult education, secondary school, gifted children), bringing researchers into contact who come from different institutions and making the synthesis of the research in their domain; as we have seen, it collects, as far as possible, the research projects in education of all institutions and disciplines; it plays finally an important role in supporting the SSRE.

At a regional level, only French-speaking Switzerland makes use of research-co-ordinating organisations on two levels:

- Amongst other functions, the IRDP federates different cantonal institutions for the undertaking of projects concerning all of French-Speaking Switzerland (evaluation of reforms; development of teaching methods, etc.).[82]
- Based on the model of CORECHED, the CIIP-SR/TI Research Council's (*Conseil de la recherche*[83]) mission is precisely that of co-ordinating research, notably at intercantonal level, defining research priorities, evaluating the state of research and the development of research institutions.

In contrast, there is no real co-ordination of educational research for universities that develop their policies independently of each other. Although present as such within the different research-co-ordinating organisations, the different institutes, departments and sections have no arena in which to meet and co-ordinate. The strong integration of researchers in international networks could be a reason that explains that they are not really engaged on the national level. Linguistic barriers can also reduce collaboration; a less developed consciousness to belong to a

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81 Article 2 of the statutes of CODICRE says: "CODICRE takes all measures in order to favour co-operation and interregional exchange between research centres, but also with universities in Switzerland and outside."

82 The IRDP's evaluative report is very explicit in this regard. We note, moreover, that the report has also assigned the function of undertaking fundamental research to the IRDP. We will return to this issue later.

83 This institutions replaces the C3R (*Commission de coordination des centres de recherche de Suisse romane* [Commission of co-ordination of research centres in French Switzerland]). This latter began to become active in the eighties, under the direction of the IRDP. The C3R has also created the *Consortium romand de recherche* that allows to organise different research centres for concrete projects, as for instance the PISA project.

discipline can also explain the fact: the researchers come often from other disciplines than sciences of education and maintain their initial belonging.
This brief analysis allows us to note certain deficits:

- the absence of co-ordination in the different German-speaking regions of Switzerland (with the possible exception of central Switzerland, which plays a role slightly similar to that of the IRDP)
- the absence of systematic work co-ordination in the different service departments linked to administration
- the complete absence of co-ordination between university educational research institutions

Through these organisations, still insufficiently developed, administrative and policy-making bodies have created a series of guidelines that define the major themes of their policies in terms of research in education:

- At a national level, without having truly defined research priorities, CORECHED has published several documents and has adopted a policy of which the major themes may be described as follows (CORECHED 1994, 1996, evaluative report Landert, 1997): to develop the following fields of research: macroanalysis for systems regulation; research regarding professional education; continuing education and adult education, as well as tertiary education; to form a closer link between research on one hand and policy and practise on the other hand; to offer better research co-ordination; to guarantee better education for researchers.
- At a regional level, the CRE has defined three priorities for research: systems evaluation; the learning of languages; teacher education.[84]

These outlines for the definition of priorities are the result of two types of analysis:

- on one hand, the analysis of certain deficiencies in research in relation to existing educational systems
- on the other hand, an analysis of the evolution of systems and policies, and the need for findings ensuing from such an analysis

In both cases, to a certain degree the topics of research are what dictate its priorities[85]. The scientific issues are heavily over-determined by this evolution, but hardly developed within the framework of a logic that could be considered to be inside the discipline, be it created in accordance with the advance of scientific findings. The quasi-absence of fundamental research thus makes this very difficult, even risky. We will thus return to the considerations proposed in the chapter on funding.

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84 See the document “Priorités de la recherche en éducation” (Priorities of educational research), adopted by the CIIP:SR/TI

85 Of course, the evolution of policies and systems is always the result of a better familiarity of systems to which research contributes, but undoubtedly to a lesser degree.

Conclusion

Our analysis of some aspects of the funding of its discipline and regulation - the funding of research projects and regulation by state-run organisations - has revealed a profound transformation that has begun over the last several years and which will certainly have major repercussions on the future of the discipline. On one hand, we observe an undeniable growth in available funds and a tightening of co-ordinating and regulating mechanisms. This will undeniably deeply transform the discipline, from the point of view of its contents, its capacity to produce findings and also the very management of research, tendentiously more professional. On the other hand, however, these trends imply the heavy risk of being undertaken to the detriment of fundamental research, the production of findings on systems and educational key players who are sufficiently distanced so that they may play a critical role, not be subjected to trendy ideologies and attempt to arrive at findings without being pressured to come up with an immediate response. This implies that if these elements are maintained, even developed at the same time that funding for limited research projects is increased, stable and independent institutions will be able to assume a portion of research responding to social needs and fundamental research projects, contributing to the former by giving such projects their perspective and giving them methodological support. Without the support for and the development of this dialectic, research runs the risk of being turned into an alibi.

The means for formulating a more in-depth analysis about these issues are also direly deficient: a precise evaluation of personnel and time frames allotted for research (one might, however, refer to information appearing in SSRE 1988; Gretler 1994); an estimation of funding of research and teaching institutions). The discipline should also be equipped with more in-depth, sustained means of observation.

Part III

Elements of outlooks

An analysis of the sciences of education, based on currently available data, has shown the discipline's impressive development over the past forty years. A careful study of the trends that have led this development has allowed us to simultaneously identify promising directions and new potentialities, as well as some notorious imbalances within the very evolution of the discipline. These imbalances increase the risk of obstacles presented in the first chapter. Such an analysis demonstrates that these obstacles can be reduced, with the discipline's potentialities being optimally developed through the balancing of certain trends and a reinforcement of the discipline itself. The Federal Council has argued for this reinforcement in its "Message relating to the encouragement of education, research and technology during 2002 and 2003", which demonstrates the importance henceforth accorded to the subject of reinforcement by official authorities responsible for making policies that concern research and education.
The proposed analysis allows us to define a few general principles that could perhaps encourage this balancing and reinforcement in order to guarantee optimal development of the discipline[86]:

- the reinforcement of the institutional base of the discipline and the balancing of the discipline's different institutions, especially between universities on one hand and other institutions on the other hand
- increased standing of educational research and its results: upkeep and development of sites where fundamental research may be carried out, where the use and synthesis of knowledge may be undertaken, where new models and theories may be constructed, followed up with the further development of praxeological results of research and public service offers[87]
- the improved structuring of the discipline in order to intensify exchanges between researchers and guarantee the co-ordination of all the sciences of education to enable more methodologically complex projects on a wider scale to take place, to allow for greater exploration of certain, relatively poorly explored sectors of education
- the guarantee of a high-quality relief staff through effective mechanisms at every level, also offering professional perspectives within the discipline itself, perhaps even within disciplines interested in working on an analysis of educational phenomena

These principles, which will guide our entire reflection within this part, dedicated to outlooks, may be solidified in terms of strategic plans of action for the transformation and reinforcement of the discipline. We have developed these in accordance with eight successive, closely intertwined points, but which we will distinguish for the sake of the presentation's clarity:

1. Development and co-ordination of university institutions
2. Reinforcement of other research institutions
3. Definition of research priorities
4. Improved education for those who will be involved in scientific restaffing
5. Differentiation of the networks of communication
6. Co-ordination of policies relating to research in education
7. Increased standing of educational research at the international level
8. Development of means to learn more about and observe evolution of the discipline

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86 The principles that consider each of the five definitive dimensions of a scientific discipline, namely its institutional foundation, subjects of investigation, communications networks, restaffing, regulatory mechanisms.

87 Domains where the discipline is already strongly involved and is largely recognised; this is the reason why we don't develop this aspect in a special chapter of these outlooks.

These strategic polices are directed in various ways toward the field's different key players: some of these policies more specifically involve key players outside the field (point 2, for example), other policies pertain especially to researchers (notably 3, 4, 5 and 7), whilst still others policies concern all the key players, whether acting separately or together (1, 6, 8).

1. Development and co-ordination of university institutions

The panorama of the sciences of education at the university level has been revealed to be very rich and complex. Specialisations exist within the field, showing that the discipline is characterised by a certain degree of internal differentiation. But more extensive co-ordination between the discipline's different components at universities and an accumulated degree of differentiation seem to be desirable in order to allow for the discipline's improved internal structuring. In this regard, three identifiable routes seem capable of starting a dynamic that could be reinforced in the long run.

1. The first route lies in the *reinforcement of university institutions* associated with the sciences of education. There are three possibilities offered to this end:

- *The creation of new chairs accompanied by stabilised teams* (see point 4, regarding the need for a stabilised upper intermediate staff). This should allow for the discipline to be better differentiated internally, especially in the German-language Swiss universities, so that it will thus be able to cover the main fields of the sciences of education.
- *Development of the university pole in direct interaction with the development of the HEPs* through mixed structures, notably within the field of research. As such, it seems more worthwhile to create networks of collaboration (also see point 2.1) than to end up with an accentuation of activities relating to professional education from the university to the HEPs. It is necessary that the relationship between the universities and the HEPs does not develop as a relationship of competition or as one involving the strict division of labour; instead, the universities and HEPs should enjoy a relationship of co-operation and networking. Contacts between the institutions should be established as soon as the HEPs are prepared and set up.[88]
- *Creation of research institutes with mixed sources of funding*. The possibilities for the creation of such structures are currently all the more numerous as sources of financing exist on the level of the Confederation and the cantons (Commission for technology and innovation (CTI); *Project for international students assessment* (PISA); evaluation of reform projects, etc.). Others are geared in the same direction. The experiences that have gleaned in this area within different university institutions and that have been described above should be dealt with in an in-depth assessment so that their advantages and disadvantages might be weighed against each other. Thus, the potential of research might be increased whilst an adequate amount of autonomy is maintained. The integration of such institutions into the university setting constitutes a guarantee of these goals.

88 This seems to happen quite naturally where there are universities. For the other HEPs, modes of cc-operation have to be found.

2. At the level of the network of Swiss universities, it would be worthwhile - as a possible second route - to bring up again the proposition, contained in the report by Poglia, Grossenbacher and Vögeli-Mantovani (1993) of *creating three main centres, or university poles, for the sciences of education* in Switzerland: Zurich, BENEFRI and Geneva and to favour certain poles of specialisations in each of these sites.[89]
   Considering the analyses, notably those proposed in the report by Cusin, Grossenbacher and Vögeli-Mantovani (2001), it seems difficult to support the propositions of specialisation that are contained within this report. Instead of at once presupposing the applications, this process of creating poles could be established through a process of co-ordination of university institutions. Such an initiative could stem from the SSRE, possibly interacting with the CSS and CUS (Swiss Council of Universities), using more precise analyses of current realities and trends at different places (this study serves as a first step toward this end). This work should lead a) to a precise description of different specialisations relating to the sciences of education that have been proposed at the different university centres; b) to the definition of poles of specialisation for each of the university centres; c) to the proposal of structural measures aimed at reinforcing these poles in relation to public authorities and funding organisations.
   The concrete routes for undertaking this last goal are difficult to find inasmuch as the storehouse of existing tools for structural interventions is not necessarily operational for the social sciences. The difficulties in advancing along this route should not be underestimated. We recall that the above-mentioned analyses that show that the process of disciplinarisation of the sciences of education is very different in accordance with cultural contexts, with there thus being great contrasts in terms of the discipline's configuration between the German-speaking and French-speaking parts of Switzerland- the development in the Italian-speaking part of Switzerland is currently starting on the implementation of its instructions in the sciences of education. The challenge is even more deserving of exploration, since it deals with an issue that the discipline will have to face on a much broader scale at the greater European level.

3. A third route, within each university, consists of *reinforcing the relationships between university institutions* associated with the sciences of education, often widely dispersed and engaging in little contact with each other. The task at hand is less that of aiming for institutional unification as it is that of making joint consultations, even creating, in a co-ordinated manner, the developmental plans of institutions completely or partially associated with the discipline:

- pedagogical institutes
- institutes that specialise in secondary school teacher education
- institutes specialising in curative pedagogy
- other institutions, such as those associated with new technology, adult education, social work, university-level didactics, speech therapy, etc.

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89 The courses given in sciences of education in the context of sciences of communication at the University of Ticino could constitute the beginning of another pole, less developed, in strong interaction with the others. One should try to find ways to create spaces of reference for the different institutions producing research in education (HEP, services linked to administration) in the Eastern art of Switzerland and in the region of Basel. Without necessary constituting poles, teaching and research in sciences of education have to be guaranteed and maintained in the universities of these regions.

This process of co-ordination is undoubtedly difficult, if only because the professionalising functions largely determine these institutes' structures of curricula, taught contents, types of teaching and research. Some of these institutes and structures have, however, evolved over a long period of time, independently from each other. Nevertheless, it seems not only possible, but also necessary to devise institutional solutions that would allow for institutions to come together, since all of them are currently subjected to weighty pressures leading to thorough transformations, on one hand in accordance with international evolutions and, on the other hand, through significant restructuring programmes for teacher education: co-ordination of curricula; planning for posts according to a logic of defining subdisciplines from the general perspective of the sciences of education, taking advantage of synergies between institutions; research co-ordination; university-level and political lobbying.

2. Reinforcement of other research institutions

In addition to the transformation of university institutions, the analysis has demonstrated that the landscape of Swiss educational research is also characterised by the following trends:

- reorganisation of research service departments linked to administrations
- creation of the HEPs as new potential research sites

2.1 Research service departments linked to administrations

The research service departments serve as an invaluable link within the discipline's institutional structure. Their support, even their development, appear to be indispensable and deserves to be equipped with measures that are capable of guaranteeing their optimal workings and their establishment within networks. These service departments, in effect, serve as effective sites for translating scientific findings to be integrated within the process of making decisions with regard to policy, a process that has always been very heavily contextualised. The service departments linked to administrations may thus bring to this process a necessary, added dose of rationality that outsourcing alone, currently favoured by politics, cannot guarantee. In effect, outsourcing, in certain cases, allows for the contribution of quick solutions to localised, limited problems. Nevertheless, given that these limited mandates, which have been predefined in accordance with specific needs, have been allocated to researchers with a less in-depth familiarity with the context, this procedure also runs the risk of leading to a greater dependence upon on research without fostering the accumulation of knowledge, and runs the risk of a mechanical, uncontextualised application of data and methods of analysis. Far from only being go-betweens that serve the needs of administrations, these departments in effect also constitute the places where high-level research is carried out in close conjunction with the various sites where practical education takes place. This research may possibly be conducted in collaboration with universities or other research sites.
In order to dispose of effective tools to respond to very diversified political and administrative demands that will undoubtedly be further developed, and to guarantee greater cohesiveness amongst service departments, it seems necessary to *broaden the current plan* of the service departments in two directions:

- Numerous problems associated with the educational systems are not handled at the cantonal level, but within *regional structures* (see, for example, the increasing activities of the regional CDIPs) that do not have access to a guarantor for handling a certain number of problems relating to educational policy with scientific equipment. Regional centres (notably those of the north-west and east), to be created, for example, according to the IRDP model, could assume the dual function of serving as a guarantor and to put existing service departments into networks. Such service departments, lacking federating mechanisms, lack the material and organisational means needed for effective co-operation. In effect, as has precisely been shown by the example of the IRDP, this networking would not result from the mere goodwill of the service departments: it presupposes institutional sites that assure such networking and make it not only possible, but also necessary. It is by means of these sites that the issue of a certain concentration of research efforts and the achievement of sufficient critical mass may be united with equally legitimate imperatives of decentralised services, near sites where decisions are made and practises are conducted.
- The absence of centres at the federal level cannot be surprising within a highly federalist system. However, the Confederation has precise duties, notably within the professional and, to a lesser degree, university-level educational systems. The CDIP also acts at the federal level, yet without making use of a bona fide research service department. These authorities essentially function through mandates. Moreover, they make use of a certain number of service departments that supply information to them, without, however, serving as true research sites: notably the OFS and the CSRE. The creation, within these institutions or other structures, of research service departments that stand out at the national level, currently seems to be indispensable. Such departments would surely serve as the guarantors of a better co-ordination of research and would probably help reduce the problems of scattering and fragmentation; these departments could also ensure the role of synthesising as concerns research undertaken in Switzerland within education's strategic fields; furthermore, these departments would take part in within the framework of the federal authorities' current aims. For these authorities, we recall, the development of research in education constitutes a priority.

Corresponding to this institutional development of centres is a *clarification of their functions*. An analysis of trends here also allows us to define some main themes. Through the participation of service departments in national and international projects, a dynamic is created, having the dual effect of networking services and yielding greater involvement in research regarding the evaluation of systems. Whilst pursuing this phenomenon, we should wonder about the advantages ensuing from a specialisation of the service departments' research activity in order to encourage its quality and scientific recognition. This reflection should not, however, neglect the precious benefit of versatility for upholding contacts with practical spheres and administrations and for responding to the particular needs of these administrations.

2.2 Higher Colleges for teacher education (HEP)

The process of the tertiarisation of pedagogical education calls for sustained, concerted reflection, as well as precise structural measures to guarantee the development of scientific research worthy of being called such within the HEPs. This implies the setting up of institutional structures that are specifically devoted to research, making use of a sufficient

infrastructure and teams of highly qualified researchers, whose research projects may certainly be accomplished in close relation with the educators and those who are being educated. By constituting entities of a certain scale, these institutions may be more easily placed within networks with other research sites (universities as well as research service departments) to successfully complete projects within the varied fields of educational research, in this case, close to the needs of teacher education. The very statues of these institutions may include the need to develop collaboration with universities that already have research potential in the sciences of education and even provide for the possibility of mixed-status research institutions (see point 1). Furthermore, it would be desirable for the constitution of such research centres to be undertaken in a concerted manner between the different teacher training institutions located in the same region in order to be able to carry out a certain degree of specialisation and the possibilities for reciprocal participation within the different institutions, thus preventing redundant duplication. As for the service departments, this specialisation should, however, be relative, insofar as it is also necessary to guarantee minimal versatile within the HEPs to be able to respond to diversified needs.

Alongside the HEPs, which deal with the education of primary and secondary school teachers within the scholastic systems administrated by the cantons, there should also be plans for similar institutions, tightly co-ordinated within the different linguistic regions, within the field of the education of teachers of professional education, for which the Confederation would play a central role. Even more diversified than the compulsory and post-compulsory school system, due to the many involved professions, the system of professional education rests on a structure of teacher education, administered by a decentralised confederational unit that is undergoing restructuring: the IFPs[90]. If it seems impossible to grant them the central role in research in the field of professional education (see the summary of positions regarding this issue in Kiener, 1999), these institutes, however, could contribute to the benefit of scientific research within their own field, on the same model as that serving the HEPs, which implies the availability of financial and human researchers and the creation of stable structures specialising in this research. In the long run, it would thus serve as one of the only places where research would be undertaken with regard to issues defined at the confederational level and focusing on issues relating to professional education. Immediately, we are faced with the issue of possible places for establishing this research at the university level and the possibilities of networking, an issue that needs to be addressed by reflection whilst the IFPs (see the above-mentioned idea of the joint development of university structures and HEPs, which, however, would have to be undertaken with respect to the principle of the creation of poles) are being developed. It is, moreover, perhaps by means of this that confederational participation in a university-level development plan could be approached.

We recall that the financial conditions necessary for guaranteeing a critical mass for high quality scientific research have been estimated to constitute 5-10% of the budgets of the HEPs (and, thus, the IFPs) by several reports.

90 See the new law addressing professional education, which redefines the role of institutions of education and research in professional education. Also see the SSRE's theses about this subject.

3. Definition of research priorities

The synergisation of these different research institutions that encourage the construction of a more powerful, more concentrated disciplinary system seems possible today. This could allow for the reinforcement of collaborations between universities, service departments and HEPs/IFPs, without negating the specificities of different sites and their relative autonomy. The effect of this potential synergy could, nevertheless, bring about an undesirable, paradoxical effect: that of reinforcing already existing powerful fields of research to the detriment of other, weaker fields for which development would, in fact, be desirable. These obstacles could be reduced through a concerted reflection on research priorities that also considers the criteria for scientific relevance (and not only for social relevance), especially equipped with compensatory measures that encourage the preservation and development of research topics and fields that are overly neglected today (see point 8 in this respect). *First and foremost, it is indeed by means of a detailed analysis of the evolution of educational research and the results of scientific production that we deem it possible to legitimately determine research priorities in an enlightened, concerted manner. These should be articulated with due consideration given to institutional synergising and the definition of poles of specialisation (cf. point 1).*

Lets nonetheless remember that the analyses conducted in this report and in several others underline that two fields seem particularly underdeveloped.[91]

The first is that of *education beyond compulsory schooling*: professional education, continuing education, education at the tertiary level, adult education. The Confederation's funding efforts, not negligible in this respect, cannot hope to be fruitful without the existence of university and extra-university centres that focus on the long-term accumulation, development and expansion of findings within this field. If it is undoubtedly difficult, even counterproductive, as shown by Kiener's report (1999) to create a specific site at the national level to assume this role, it is nevertheless important to create or reinforce places where research may be undertaken. We believe that the main avenues to be explored to this end seem to be the following: the logical development, within the IFPs, of research service departments (see point 2.2.); substantial reinforcement of the existing pole of adult education at Geneva; the creation of a second university-level pole for research and education within the field of adult education, using already existing structures (Berne or Zurich) (see point 1).

The second field is that of *the politics, economy and management of educational systems*. Given the weighty dominance of rather microanalytical approaches - probably linked to the close, interwoven relationship of the process of disciplinarisation of the sciences of education with areas of professional practise and the age-old obedience with regard to psychology - there is not a bona fide tradition of education and research within this field; there is an obvious deficiency in terms of competent professionals and specialised sites for university- and extra-university-level research (Geneva already makes use of its small potential). The development of such sites should at once be considered to be a concerted action between federal service departments (OFS, CDIP), certain cantonal service departments and certain universities, above all aiming for an increase of academic potential within the field to guarantee high-quality individuals for restaffing purposes.

These highly desirable developments remain essentially been directed by socioprofessional, political and administrative needs. This direction, even more legitimate since education serves as one of today's most pressing social issues, may, however, reinforce the dependence of educational research with regard to social demands and criteria outside the discipline to a

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91 Of course, many other domains could be mentioned deserving a significant development

greater degree. It is thus all the more necessary - in order to reinforce these fields and render them, like all other fields associated with the sciences of education, more autonomous and independent - to uphold and develop at the same time powerful research centres, capable of undertaking *fundamental research*, in other words, research that is not primarily or only (pre)defined in accordance with praxeological objectives, but which is also defined in accordance with its own criteria, as much in the determination of its issues and research topics as in the methodologies that are chosen. These centres - whether university-related or not, even if the strong universities constitute its hard core and the *condition sine qua non* – must address at least three criteria to be in the position of guaranteeing long-term high quality scientific research:

- They should benefit from a critical mass of stabilised personnel to develop fundamental research of a significant scope, which are not only dependent upon economic mandates for research.
- They should be constructed in a multidisciplinary manner, also including contributing sciences, such as economics, sociology, history or linguistics, and should be able to collaborate with other faculties of the human and social sciences.
- They should be integrated within international research networks regarding leading issues.

Later on (point 8), we will return to the need to also develop fundamental research regarding the discipline itself, to gain access to greater knowledge regarding its functioning and what it produces, as is accomplished in other disciplines, most notably within the social sciences.

4. Improved education for those who will be involved in scientific restaffing and professional careers

The possibilities of action for creating a high-quality relief staff first assumes improved *co-ordination between the different universities* in Switzerland, which once again demonstrates how action is central at the university level. At this level of co-ordination, many avenues for action are possible: first, the circulation of information regarding initiatives taken at different universities, then an exchange, to this end, of experiences gleaned through the many mechanisms of research education; and finally, the setting up of stable structures at the national level for training those who will be involved in restaffing. Here again, it is necessary to create a minimal structure with regard to co-ordination between universities at a Swiss national level.
From a more institutional point of view, we believe that three strategic policies seem to be able to contribute to the training of high-quality scientific staff replacements.

1. Reinforcement of university-level degree courses in research

First and foremost, this concerns the reinforcement of current mechanisms within the curricula of the first and second cycles that are supposed to *sensitise students to research practises*: a methodological course, (research) seminars, practical applications or research, a thesis notably concerning research but also, within coursework, a display of research procedures used for the production of scientific findings. Bachelor's level theses deserve particular attention insofar as they constitute the possibility of a first scientific work of a certain scale that capitalises findings

acquired within the perspective of a procedure used to produce new findings.[92] Given the absence of systematic data regarding both Swiss and international mechanisms - toward the creation of comparative perspectives- it is difficult to solidify this point other than by underscoring the need a) for initial training in research, especially during the second cycle, b) for greater familiarity with existing mechanisms and their advantages and disadvantages, c) for a certain harmonisation of requirements at the national and international levels.

The *third cycle* (post-graduate) level entails issues that are particularly significant insofar as it allows for the first direct contact with the real profession of researcher. A dialogue at the Swiss national level to define needs and possibilities within this scope is desirable. And one should consider the issue of whether this diploma should possibly be required to proceed to doctoral study, notably to guarantee doctoral candidates coming from different disciplines a minimum of general education in the sciences of education.

The *doctorate* may be considered to be the title that validates the position of researcher. It ensues the need to redefine the conditions for obtaining this diploma more clearly. Given the fundamental structural difference between the academic degree programmes (with or without authorisation to supervise research) within the two major linguistic areas, it seems neither possible nor necessary for there to be plans for a standardisation of Swiss doctorates. However, it is nevertheless desirable that the processes of development (especially supervision) and the criteria for requirements and assessment (a jury of experts for the thesis assessment and viva voce) should integrate international standards that apply to the particular subject. During the creation of the thesis, which should be able to be completed within five years, doctoral candidates should be systematically introduced to the world of research (conferences, publications in journals). In other words, doctoral candidates should be able to pursue real training as researchers. The experiences gleaned through the first doctoral school in Switzerland, funded by subsidies of the priority programme *Demain la Suisse* (Switzerland of Tomorrow) were seen to be positive, and the task at hand is to institutionalise such a school at the national level. Here again, if the linguistic and cultural differences undoubtedly constitute obstacles, they especially offer invaluable enrichment, notably within a greater European perspective, insofar as how such a school could give participants access to theoretical and scientific concepts stemming from different regions of Europe. Here again, it must be determined to what degree the promotion to doctoral candidacy requires a minimum of education that is closely related to the discipline, as is the case in other European countries. Moreover, such schools have the effect of depersonalising the relationship between the doctoral candidate and the thesis promoter, often described in surveys as being problematic, because this relationship is thus often mediated by an external institution.

2. Working conditions and scientific production of the intermediate staff

The intermediary body's current working conditions are very difficult, a fact emphasised by several reports pertaining to the social sciences; the situation in the sciences of education is particularly fragile: student training rates have increased considerably, and they are supported increasingly by the intermediary body itself, especially its most fragile sector: the assistants. The teaching and administrative workloads have thus increased at the expense of the educational dimension and scientific investment.

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92 See, for example, the reference text produced by the Section of sciences of education at the University of Geneva, which paved some ground, for which concrete development, however, should be subjected to serious evaluation.

At the same time, scientific demands have been transformed and considerably reinforced over the last few decades. If we believe that these demands contribute to quality-and thus, the increased standing-of scientific productions, these should be accompanied by structural measures so that the intermediary body might be in a position to respond optimally to these demands, at least in academia.
The problem of insufficient time made available for scientific education, especially the writing of a thesis, is particularly widespread. It would thus seem necessary that a significant percentage of time (at least 40% for assistants) should be reserved for this task, and such a principle should be recognised in the terms and conditions of the contracts of those concerned individuals.
A reconfiguration of the very context in which research, especially doctoral research, is carried out also seems to be necessary. Scientific research, and that carried out in the sciences of education is not or should not be an exception, is being increasingly perceived as a *collective team enterprise*. This primarily means that such teams should be established, notably through subsidies (see below); this thus requires that the professorial body itself is willing to promote these teams and to accept its educational responsibilities with regard to its collaborators. This also supposes the possibility of planning for the construction of theses within the context of collective research enterprises (without excluding other models). Finally, the notion of collective team enterprises supposes that the concerned institutions may develop infrastructures that are necessary in order for researchers, especially new researchers, to join international scientific networks (by facilitating and increasing the standing of scientific publications, exchanges and trips abroad, participation in scientific events...)
Furthermore, better use should be made of the possibilities provided by the FNRS for doctoral candidates. All these measures could allow for an increased number of theses undertaken within the discipline, as the current number is notoriously insufficient.

3. Scientific career paths in the sciences of education

The possibility of ensuring high-quality staff replacements depends largely upon posts that allow individuals to carry out the profession of researcher, thus guaranteeing post-doctoral education and long-term, in-depth scientific production. This will also eventually guarantee optimal turnover with regard to the most recognised scientific posts in Switzerland and abroad, at the university level or other levels. We believe that five steps should be favoured in order to achieve these goals; these steps are as follows:

- Grants for young researchers are requested relatively infrequently in the sciences of education. A more active policy in this field should be implemented by the community of researchers, and the criteria considered for the granting of these grants should also be developed in accordance with the specific needs and conditions of the sciences of education.
- The number of stable posts at the level of the upper intermediate staff is very low in German-speaking Switzerland, with the number of research posts in French-speaking Switzerland following a downward trend. Nevertheless, key posts are necessary in order to allow researchers to plan a scientific career: these posts should thus be maintained and, if possible, multiplied; the definition of the terms and conditions of researchers' contracts would guarantee the possibility of scientific investments so that tenured researchers could build up high-quality scientific dossiers.

- The posts that are completely or partially dedicated to research in institutions outside the scope of universities may also contribute valuable means of scientific education and specialisation. The replacement staff thus depends upon their maintenance and especially upon effective conditions for scientific production.
- The definition of posts, terms and conditions of contracts and criteria used to recruit candidates for researchers' posts, especially professors' posts, which constitute a decisive cog in the discipline's "wheel" of development, deserve to be subjected to greater transparency and dialogues. Thus, the definition of posts, terms and conditions of contracts and recruitment criteria should increasingly be part of a long-term policy for the discipline's development.
- Different measures taken to allow for greater gender balance, especially at higher-level academic posts, should, based on facts, be not only upheld, but also better used and adapted to particular solutions, notably concerning different sites, disciplines and members of the university community, to be able to take greatest advantage of the measures' action.

5. Differentiation of the networks of communication

Two essential support systems condition the development of a discipline's networks of communications: publications and scientific events (on one hand, topical scientific networks generally associated with associations of researchers; on the other hand, congresses, colloquia, workshops and seminars). These two support systems are behind the crux of the organisations belonging to the community of researchers, in particular the associations and academies.
As we have seen, and considering the existing critical mass and available resources, the *network of publications* in Switzerland within the field of the sciences of education is substantial and has experienced a decent amount of development over the last few decades. Nevertheless, a qualitative leap has yet to be made. With due reference to the analyses made above, we might distinguish different levels of strategic policies:

- There is a stunning scarcity, at both the Swiss and greater European levels, of journals specialising in the sciences of education and corresponding to the minimal criteria of scientific debate - their limits are known, but the need for their existence is all the same recognised. To combat this scarcity, existing scientific journals should be energetically supported to guarantee their professional and scientific function so that they might be able to optimally carry out their role of communicational support systems between Swiss and international researchers. It then seems necessary to commit to the creation of specialised scientific journals at the greater European level and, thus, to support active associations, groups or organisations serving this purpose at the international level. This should also be accompanied with greater awareness within the scientific community of the need to participate, by means of such creations, more effectively within scientific debates of an international scale. Both the research institutions, through the availability of material means and administrative work time, and the funding bodies have a great responsibility here for guaranteeing the necessary infrastructure for scientific communication.
- The publication of books and works is flourishing to some degree and seems to serve as one of the main vectors of communication within the sciences of education. The majority of publications seem to aim for participation in rather removed areas of professional

practise, thus debunking the current myth that educational research is already developing in close proximity to the needs of professional practise. A push toward the creation of more scientific publications would also seem to be judicious.

- In general, it is necessary to promote the most systematic practises of scientific communication within the sciences of education, notably by promoting synthetic works regarding research projects undertaken within one field and systematic peer evaluation- through the use of assessments, reviews and critical notes. Analyses of publishing practices show in effect that the participation of researchers in scientific communication networks, both national and international, is still rather insufficiently developed. Peer assessment of research quality also remains an unfulfilled wish of educational research in Switzerland.

As far as *scientific networks and events* are concerned, two closely interwoven vectors of development may be foreseeable:

- an activation of existing networks regarding key research topics, in tight collaboration with those active networks on the international scene, networks that often initiate scientific events
- an intensification, notably by means of networks and using more frequent common scientific events, of relations between the research traditions present within Switzerland's different cultural regions, as Swiss educational research could play a key role in taking advantage of the diversity of approaches offered by the country's different cultures

The associative infrastructures available to researchers within the sciences of education or those with which such researchers are affiliated reflect the diversity of the field and the tensions running through it. To achieve greater representation and defence of researchers, as well as a strengthening of networks of communications, it seems not only possible, but also necessary to develop more deep-reaching and organic links between societies. The SSRE, which is the only organisation with the essential goal of organising researchers, should, from a disciplinary perspective, spearhead the task of co-ordination. In addition to already close ties to the SGL, organic contacts should also be created with other organisations, especially the SGAB (*Schweizerische Gesellschaft für angewandte Berufsbildungsforschung*) and the Association pour le Secrétariat de pédagogie curative et spécialisée (Association for the Secretariat of Curative and Specialised Pedagogy). These two organisations regroup the most significant segments of researchers in education. Moreover, international links should be intensified, especially with the EERA, too little known amongst Swiss researchers, which supports networks that could facilitate international integration. Furthermore, systematic documentation, undertaken by the CSRE and concerning other research organisations, associations and societies that are more closely linked to specific or regional topics, would also allow for the construction of closer links between these groups, even the planning of organic meeting points (for example, through facilitated dual affiliations).

The Academy plays a very active role in the defence of researchers' interests at the level of political authorities. Here again, the repercussions of this role are undeniably too weak; the SSRE, notably through its members, does not play a sufficiently active role within this organisation, which regroups scholarly societies, as much as the organisation would allow, through certainly modest but nevertheless existing means, for the effective and relatively simple stimulation of the different facets of academic life. Conversely, it seems necessary that the Academy should continue to give financial support to the association of researchers. The troops'

current system is on the verge of implosion, especially with regard to publishing activities (journals) that are extremely costly in terms of time. Without a logical administrative infrastructure, more in-depth editorial work cannot be ensured.

6. Co-ordination of policies relating to research in education

The underlying increase and diversification of sources of funding would demand an intensive co-ordination of their definition, greater visibility of existing funds and greater transparency of their criteria for awards. Moreover, we are not certain that the discipline is making maximum use of existing sources.

As far as federal funding authorities are concerned, the Swiss conference of co-ordination of research in education (CORECHED), henceforth also including the FNRS, will undoubtedly be able to play the *role of regulator*. Insofar as all the federal sources of funding that sustain research in education may be clearly identified, all key players-researchers, practising professionals, politicians-will be able to have an exact idea of the totality of channels of funding currently existing in Switzerland and thus for the achievement of maximum transparency, which would serve as the basis for effective co-ordination.[93] By co-ordinating the funding efforts of the various federal bodies, the CORECHED must also ensure that the distribution of funds is made in accordance with clearly established criteria (being clearly defined invitations to bid, the possibility of submitting projects or some combination of solutions) and allocated in accordance with explicit criteria. Furthermore, respect for these criteria is controlled by the researchers themselves, possibly in collaboration with other key players. In other words, the organisation of research at the federal level does not need to be undertaken by a central control body, but rather by an institution that co-ordinates the efforts of different bodies that direct research and place the proper means at its disposal, whether geared toward precise objectives or basic research.

As far as the *FNRS* is particularly concerned, several joint strategies should be pursued.

- Funding by the FNRS of research projects, grants, and scientific events is proportionally rather low in this field. Of course, this established fact once again reflects the structural weakness of the teams, which are too small to develop large-scale projects whilst responding at the same time to the many requests stemming from the discipline's practical dimension. Nevertheless, it seems necessary that researchers and institutions should implement any means possible to make greater use of existing financial resources, especially those of the FNRS, which have been specifically developed to foster excellence in scientific production. As regards this authority, it would seem worthwhile for it to make its project selection and assessment criteria more well-known, as such criteria fit into a long-term policy of evolution for Swiss scientific production. Consideration should also be given to the particular conditions of disciplines and fields that have traditionally held a lower standing; the dissemination of these criteria and their discussion within the community of researchers would be able to guarantee a greater familiarity with such criteria and could familiarise our discipline's researchers with these means of scientific production and regulation.

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93 There should also be the creation of a reliable base for the precise estimation of the total financial sum invested in educational research in Switzerland. To this end, see the preliminary study undertaken by S. Hanhart following this project; also see indications listed under point 5.

- It is thus necessary to continue to guarantee the existence of the PNRs on educational topics, this being a way to reserve financial sums of a certain scale for research in education. This has been deemed a priority by the CSS since 1973, and more recently, in the Federal Council's messages. However, as has been stated even by the FNRS, these measures only have limited structural effects; it has consequently diversified its arsenal with the PRN. However, the effectiveness of this tool must be re-assessed in light of recent decisions in order to eliminate all projects in the social sciences, and other paths must be explored to allow for necessary structural changes when the facts dictate them.

As for the *regional and cantonal financial flow channels*, precise and exhaustive data are still lacking for the entire country of Switzerland. Within the field, transparency is also desirable. In addition, it seems necessary to create flexible co-ordinating organisations at the national level, much like the CRE of the CIIP/SR-TI, responsible for making an inventory of research projects and demands, co-ordinating them and defining the main themes for educational research at the intercantonal and even the cantonal levels.

7. Increased standing of educational research on an international level

Within the context of the increasing internationalisation of research and the emergence, as well as the development, of European institutions which are endeavouring to define certain aspects of the discipline's evolution, the issue of increased standing, on an international level, of research is of primordial importance, since it alone will be the underlying force to allow for the overcoming of relatively important rifts between the different models that coexist within the discipline at the Swiss national level. At some level, all the previously defined strategic lines of action include an international dimension, with the convergence of the proposals that have been produced. We will mention some of the most important proposals:

- the internal differentiation of the discipline according to very diversified models existing at the international level
- the adaptation of certifications to greater European standards (diplomas, doctorates, forms of post-doctoral education)
- the participation of university, regional and cantonal research centres in international projects
- the participation of research teams within international networks
- the reinforced backing of Swiss scientific support systems to facilitate their development and recognition at the international level; the development of publication possibilities at the international level
- greater participation within international networks of communications and collaboration between associations at the international level[94]

94 The SSRE plays an important role in this respect that should even be strengthened, in implying more its members into these activities: participation at EERA; organisation of congresses in collaboration of international associations; initiating publication projects on European level.

This list shows that the international dimension is and should be present within all the forecast dimensions that have been mentioned within this part of the presentation. The internationalisation of research serves as a condition for a discipline's development and sets up part of its autonomy in relation to social pressures. This internationalisation, however, should not be undertaken through the further reinforcement of Anglo-Saxon domination whilst erasing the particular regional and national characteristics that make up all the richness of the greater European landscape.[95] Once again, in this regard, Switzerland may and should serve as a laboratory in which to explore the possibilities of cross-cultural contacts. This goal is being attempted by the *Revue suisse des sciences de l'éducation* (Swiss journal of the sciences of education) and deserves to be developed by other structures (see point 5, for example). But, as we have already stated, this laboratory only works well if it has been integrated within the international level.

8. Development of means to learn more about and observe the evolution of the discipline

Currently available data used to learn about the evolution of the sciences of education in Switzerland are rich - our review of the literature and diverse source bear witness to this fact - and these data have allowed for several analyses of the recent evolution (at least since 1985) of institutions, personnel and contents. Nevertheless, these findings are still not sufficient enough to be used for an understanding of the concrete motives behind the process of disciplinarisation of the sciences of education over the long term, as well as for an exact familiarity with the discipline's current situation (from the perspective of the five definitive definitions) in order to define clarified, concerted strategic plans of action, adjusted to fit the discipline's specific need, to be undertaken by its main representatives, as well as by the Swiss and international scientific community. Three perspectives appear particularly promising for overcoming these limits; such perspectives may be seen as similar to the construction of a type of "observatory" for the discipline.

First, it seems judicious to promote *research projects that provide a detailed analysis of the process of disciplinarisation of the sciences of education and the results of Swiss educational research.* This work could also enrich a reflection regarding all the social sciences and the currently fashionable issues of multidisciplinarity and transdisciplinarity, insofar as the sciences of education study a subject, education, at the crossroads of all the social sciences. In addition, work regarding the disciplinarisation of a multidisciplinary field may offer an original, invaluable contribution to the relations upheld by the different social sciences with each other and to the analysis of the process of differentiation that is taking place within the discipline. This should occur notably through the observation of how this discipline has become progressively emancipated from so-called "mother" disciplines, whilst continuing to ask such disciplines to construct methodological and conceptual definitions and issues, not without addressing the issue of disciplinary boundaries and territories with particular acuity. This analysis should be carried out with simultaneous regard to the entire discipline and each of its fields or subdisciplines In addition, there is the need for a systematic analysis of Swiss

95 The *Social Sciences Citation Index* is an indication of this tendency of Anglo-Saxon hegemony. The EERA, together with other associations, is currently exploring the possibility of completing it by an index that takes more into account scientific productions in other languages than English.

educational research from the point of view of the considered contents and the first results to be obtained; such an analysis would allow for better evaluation of such research.
Secondly, it would be worthwhile to develop the means to carry out an inventory of fixtures of the systematic, regular sites of educational research and the discipline's institutions of reference. It first seems necessary, to this end, to *consolidate existing databases*. It seems necessary that institutions in charge of collecting data should pursue this activity more actively, since information exists for the majority. If the principle that researchers themselves should announce projects seems to continue to be upheld, it is also necessary to show that researchers do not see themselves as necessarily indebted for such information to institutions further removed than those to which they are primarily affiliated. There should thus be an active "screening" of institutional reports to indicate as much available information as possible.[96] This cannot be carried out without a reinforcement of national and regional institutions that are responsible for this function.
At the same time, it is necessary to develop *more productive analytical tools* as far as concerns the definition and description of the base unit, knowledge about the projects (what is a research project? What types are to be distinguished? How might their funding be evaluated?), as well as the analytical frameworks for the projects (notably sectors, contents, methods). Moreover, it is of primordial importance to gain a thorough understanding of the financial flow channels invested in educational research. These tools should be developed at the international level by organisations of researchers or international organisations, or both (analysis of institutions, individuals, contents, financial flow channels). Switzerland may effectively contribute to this end, for example through exploratory studies such as that currently being undertaken with regard to financial flow channels. Such studies should then be discussed at the international level, on one hand, and rendered operational to lead to long-term systematic observation on the other hand, notably under the auspices of co-ordinating organisations (CORECHED in Switzerland).
Thirdly, like that which has been achieved for the social sciences and that which has been accomplished in Sweden, in the Netherlands and in Great Britain, external assessments of the discipline by international evaluators could finally be undertaken on a regular basis (every 10 years, for example), leading to a systematic inventory of fixtures and allowing for a possible reorientation of both researchers and research institutions.

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Greater understanding about a disciplinary field, its history, its inventory of fixtures and the results of its investigations makes the field more visible and legible at the same time. This is particularly important for our discipline, which has struggled to achieve true scientific recognition, including that by those encompassed by the discipline. The contribution, through an analysis of this discipline, to the transformation of this perception, held by different key players within and outside the discipline, and, thus, of its status, is particularly appreciated today. A number of indices in effect allow us to believe that the discipline is being driven to achieve greater importance, with the findings that it produces being increasingly necessary for the management of educational systems and the education of those who will hold professions within these systems. As has been shown by Bourdieu (1995) for the social sciences, moreover, the

96 The partial study undertaken within the context of this mandate shows that the available sources are substantial. Here, also, there should be the tendency toward a certain degree of eventual harmonisation to facilitate the screening task.

reflexive study of a discipline contributes a particularly significant route toward the redefinition and pinpointing of central issues tackled by researchers. “Social science has the privilege of being able to consider its own workings and to be thus able to shed light on the constraints that hinder its own scientific practise. It may thus make use of the awareness and understanding that it possesses with regard to its functions and workings in order to overcome certain obstacles that stand in the way of the progress of awareness and knowledge.”(p. 3)

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List of abbreviations

BENEFRI	Berne-Neuchâtel-Fribourg
BIE	Bureau international de l'éducation
CDIP	Conférence suisse des Directeurs cantonaux de l'instruction publique
CERI	Centre for Educational Research and Innovation
CIDREE	Consortium of Institutions for Development and Research in Education in Europe
CIIP (SR-TI)	Conférence intercantonale de l'Instruction publique (de la Suisse romande et du Tessin)
CODICRE	Conférence suisse des directeurs de centre de recherche et de développement pédagogique
CORECHED	Conférence suisse de coordination pour la recherche en éducation
CRE	Conseil de la recherche en éducation
CSDIF	Conférence suisse des directeurs d'institutions pour la formation des maîtres
CSRE	Centre suisse de coordination pour la recherche en éducation (en allemand: SKBF)
CSS	Conseil suisse de la science
CTI	Commission pour la technologie et l'innovation
CUS	Conseil des Universités suisses
DES	Diplôme d'études supérieures
DIP	Département de l'instruction publique
DO-RE	Do-Research
DSE	Département des sciences de l'éducation
EARLI	European Association for Research in Learning and Instruction
EERA	European Educational Research Association
EPFZ	Ecole polytechnique fédérale de Zurich
ESREA	European Society for research on the education of adults
EVA	Education et vie active
FNRS	Fond national suisse de la recherche scientifique
HEP	Haute école pédagogique
HES	Haute école spécialisée
IFP	Institut de formation professionnelle
IP	Institut pédagogique
IRDP	Institut romand de recherche et de documentation pédagogique
IWP	Institut für Wirtschafspädagogik
OCDE	Organisation de coopération et de développement économiques
OFES	Office fédéral de l'éducation et de la science
OFFT	Office fédéral de la formation professionnelle et de la technologie
OFS	Office fédéral de statistique
PISA	Project for international students assessment
PNR	Programme national de recherche
PRN	Programme de recherche national
SGAB	Schweizerische Gesellschaft für angewandte Berufsbildungsforschung
SGBF	Schweizerische Gesellschaft für Bildungsforschung (en français: SSRE)

SGL	Schweizerische Gesellschaft für Lehrerinnen- und Lehrerbildung
SIPRI	Ueberprüfung der Situation der Primarschule
SKBF	Schweizerische Koordinationsstelle für Bildungsforschung (en français: CSRE)
SOWI	Etude sur les sciences sociales en Suisse (Sozialwissenschaftliche Forschung in der Schweiz)
SRED	Service de la recherche en éducation du Département de l'instruction publique du Canton de Genève
SSED	Section des sciences de l'éducation
SSRE	Société suisse pour la recherche en éducation (en allemand: SGBF)
TECFA	Technologies de formation et apprentissage
TSER	Targeted socio-economic research
ZBS	Zentralschweizerischer Beratungsdienst für Schulfragen

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