＜Invited Article＞

Process-oriented subject didactics
The integrating project of subject didactics (pedagogy) at the University of Vienna, Austria

Alois ECKER

This article discusses the organizational and personal development in subject didactics as a particular field of social science research. Assuming the growing importance of subject didactics as a new field of research, the author invites to pay more attention to the interdependency of three components in the developmental process of a scientific discipline: 1. the personal development, 2. the knowledge management and 3. the organizational development.

On the example of the first project, the article provides insight into the developmental process - conceptualization, implementation and institutionalization - of small organizational units, the 'Centres of Subject Didactics', which were established between 2001 and 2013 in the framework of teacher education studies at the University of Vienna. This process led to the allocation of manpower, of funds and of rooms provided by the university.

The second component of the 'developmental triangle', the personal development of the research staff, is illustrated on the example of the research platform 'Theory and Practice of Subject Didactics'. The four years' interdisciplinary and transdisciplinary project (2009-2012) helped to improve and standardize theory building and methodological competence among the scholars working in subject didactics. The longterm process of cooperation and communication among scholars working in the field contributed to the differentiation of research questions, made the research dimension of the subject didactics apparent and helped to strengthen the identity of both, the identity of subject didactics as a new field of research, and the identity of the scholars involved who got a clearer understanding of their role as 'subject didacticians'.

Key words: subject didactics, pedagogy, organizational development, knowledge management, personal development, pedagogical content management, social system, teacher education

Introduction

My paper will bring closer to you two integrative models in teacher education related to the organization and institutionalization of subject didactics (pedagogy). I was able to realise these projects at the University of Vienna during my work as teacher trainer, as project coordinator of the organizational development project on subject didactics and finally as head of the research platform for subject didactics.

In the first part, I will give an insight into the process of conceptualization, implementation and institutionalization of the 'Centres of Subject Didactics' which were established between 2001 and 2013 in the framework of teacher education studies at the University of Vienna.

In the second part, I will move to the more complex integrating project for subject didactics at Vienna University, the research platform 'Theory and Practice of Subject Didactics': This research platform gave the possibility to co-ordinate 21 disciplines of subject didactics from 12 faculties of Vienna University, all of them working in teacher education. I will describe the organization and the management of this project and give an insight into the process of theory building and research development in the framework of this research platform.

I am grateful to share with you the experiences during these projects but will also talk about the difficulties we faced when organizing these integrating projects.

My approach to subject didactics is an organizational approach: I understand the development of theory and methodology in a scientific discipline as the result of a communicative process of experts contributing to the relevant aspects of the scientific field under construction. Scientific disciplines, in my view, develop well, when three components of the scientific work, get sufficient attention and develop in a balanced process at the same time, which are:

· The Organisation of the discipline,
· The Personal (human) ressources and
· Knowledge (including theory and methodology),

The academic field normally puts most emphasis on knowledge development, without giving sufficient attention to the two other components, the development of the organisational structures of work, the conditions and "context" of the scientific production, and the development of the "personal", i.e. the human resources, the concrete people who work in the given scientific "environment". My proposal here is to give more attention to the interdependency of the three components illustrated below and to improve through this process the quality of both, the quality of scientific discovery in the discipline but also the quality of cooperation and communication between the scholars. In this approach organisational and personal development have therefore to go hand in hand with knowledge management.
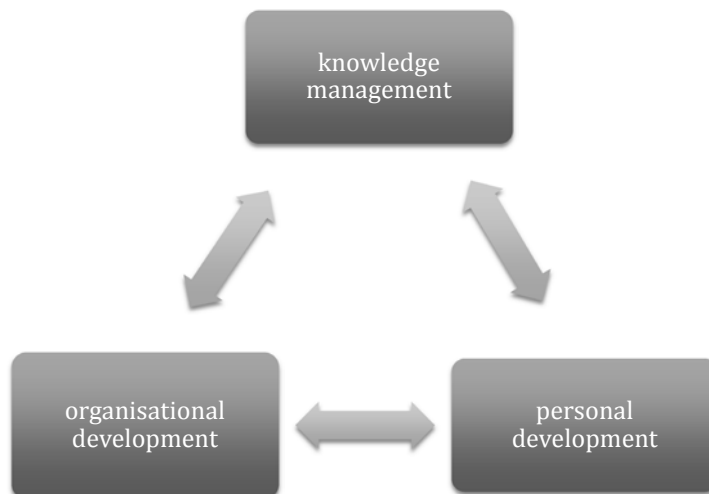

Figure 1. Developmental triangle: the interdependency between organizational development, personal development and knowledge management

Process-oriented subject didactics
The integrating project of subject didactics (pedagogy) at the University of
Vienna, Austria

Organizational development of the scientific discipline consists in multiple processes of organising communication among scholars, bringing together expertise, analyse the relevant problems in the field under discussion and finally come to — hopefully productive strategies and solutions. Such processes of management of scientific research and knowledge development have a structure and dynamic in its own right. They follow - more or less - the logic of projects, not the logic of hierarchic management and/or administration.

Processes of communication and interaction in a given social system (Luhmann 1984) have been discussed for example by Chris Argyris (1992), Donald A. Schön (1996) or Peter Senge (2006). As social processes, they can be the object of organizational development and/or the object of scientific research: they can be steered, observed, analysed and reflected. The model and the theory which lays behind the concrete examples I will present, has therefore been termed process-oriented knowledge management. As far as subject didactics is concerned, I call it process-oriented didactics (Ecker 1997, 2015).

The questions for today will be:
- What were the institutional and organisational assumptions when developing the scientific field of subject didactics at Vienna University?
- What were the challenges when starting the implementation of subject didactics and what were/or still are the difficulties we face(d) in the process of establishing the organisational structures?
- What was the scientific analysis and what were the aims for the scientific field to be built up?
- Are there common theories and/or transdisciplinary aspects and approaches in subject didactics, e.g. for mathematics, sport education, history teaching, language teaching or religious education?
- What were the personal resources available and what were the goals for the future?
- What were the more general structures as concerns teacher education at Vienna University?

The organisation of teacher education at the University of Vienna, some general remarks
Let me start with some general data and remarks on initial teacher education at the University of Vienna. Vienna University is the biggest teacher training institution in Austria
- with approximately 12.800 students,
- following 27 different full study programmes of teacher education, preparing to teach for school subjects such as Biology and environmental protection; Chemistry, Geography and economic studies, History, Social Studies and Civic Education, Informatics and computational sciences, Language education (in German, English, French, Spanish, Polish, Czech, Slovenian, Serbo-Croatian, Russian, Hungarian), Mathematics, Nutrition Science, Philosophy, Physics, Religious education (Roman-Catholic, Protestant, Islamic studies), and Sports education.

Teacher education studies at Vienna University are offered as full study programmes at BA and MA level, the BA with a length of 8 semesters (4 years) the MA with a length of 4 semesters (2 years). To be accredited as a full subject teacher of secondary education, students have to finish MA-Studies. With this organisation, teacher education studies correspond to the more general structure in the European countries, which was consolidated over the last decade within the so called Bologna-Process. Teacher education studies take now place in all the countries of the European Higher Education Area,
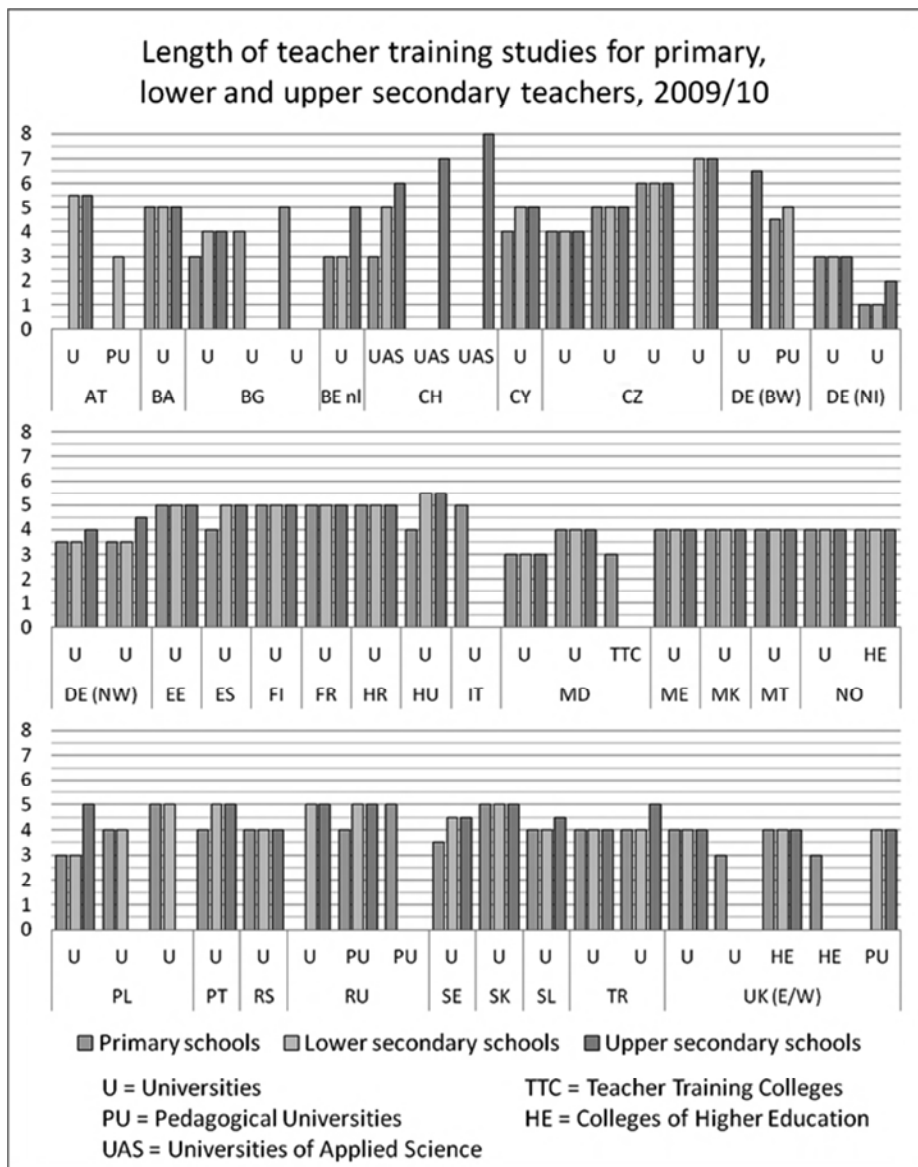
Figure 2. Length of teacher training studies in Europe. Primary, Lower and Upper secondary level, 2009/10 (CHE-Study)

primordially at universities or pedagogical universities, they follow a BA-MA structure and have a length, for secondary school subjects, between 4 to 5 years.

There a two main models of teacher education in the European countries, the consecutive and the concurrent model.

At Vienna University we follow the concurrent model, which means that academic and professional training is offered in parallel within the period of initial training programmes. To be certified as teachers for secondary school level, the students have to study a combination of two subjects − the choice of the subjects is free (e.g. mathematics
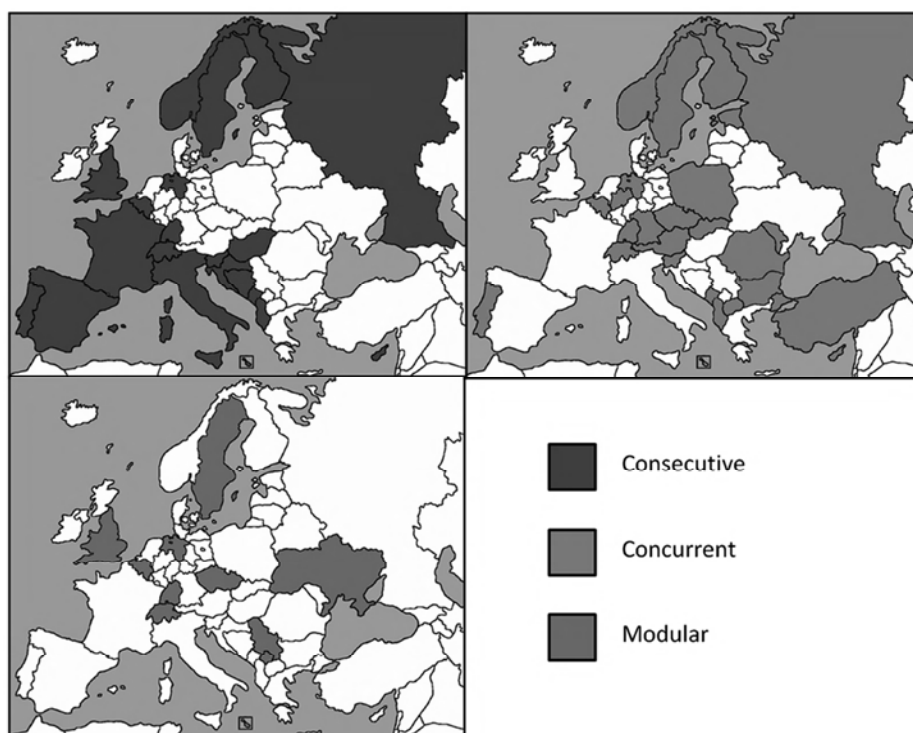
Figure 3. Models of teacher education in Europe. 2009/10 (CHE-Study)

and history, language and sport, history and geography, ...). As for the organisation of studies, the recent reform of teacher education in Austria, executed by the Ministry of Education in co-ordination with the Ministry of Science and Research brought a centralisation and concentration of teacher training institutions. The training institutions have been significantly reduced (52>17), the teacher education programmes are now offered in four regional clusters, within a cluster the curricula have been standardized.

In the Vienna Region (Cluster North East) the study programmes are offered as joint studies of the University of Vienna in partnership with four pedagogical universities[1]. The *curricula of all five teacher training institutions*, since the study year 2015/16 have a *common framework*, consisting of ...

- General aims of teacher training studies,
- Overall goals and principles of initial teacher education at BA and MA level,
- The core curriculum of general didactics /pedagogy, which has to be followed by all the students of secondary school education, including a first practical training,

... and the *individual subject curricula*, consisting of

- subject courses,
- subject didactic courses and
- subject specific practical training.

Since 2014/16 the conception and description of syllabi follows a competence oriented approach. The training programme is based on four pillars: subject, subject didactics, general didactics courses and practical training. The following chart which has been elaborated

Figure 4. The four pillars of teacher education studies at Vienna University: subject courses, subject didactic courses, general didactics, practical training. The example of foreign language teaching.

during the work in the steering group, illustrates this interplay for language teaching studies.

For each of the 27 study programmes there is a study dean (and 2–3 vice study deans) responsible for the overall coordination of the study programme, the administration of the students' exams, the certification of students, the negotiation of the budget and the nomination of lectures.

While the organisation of teacher education studies and study programmes seem relatively clear and manageable, the institutional structure in the background is not as simple as that.

Although being an important quantitative and thus budgetary and personal factor (12 800 students in teacher education; 92 000 students in total), teacher education studies were for a long time underestimated in comparison with regular academic studies. Teacher education has gained more attention of the university management only in recent years. More than twenty years ago already, a group of teacher trainers asked, why there was – at least on the institutional level - such underestimation and ignorance towards teacher education at university? What we identified as a crucial point, was an organisational aspect that is genuine and characteristic for teacher education, but somehow lays in contradiction to the pure academic world. The organizational problems for university based teacher education exist in various dimensions:

1. the training is situated between the two main social systems which contribute to teacher education: the system of science & research (university) and the educational system (schools). The departments or institutes at university on the personal as well as on the material and budgetary level are oriented towards the academic world. Teacher education and training is rarely an added value of an academic career so far. On the other
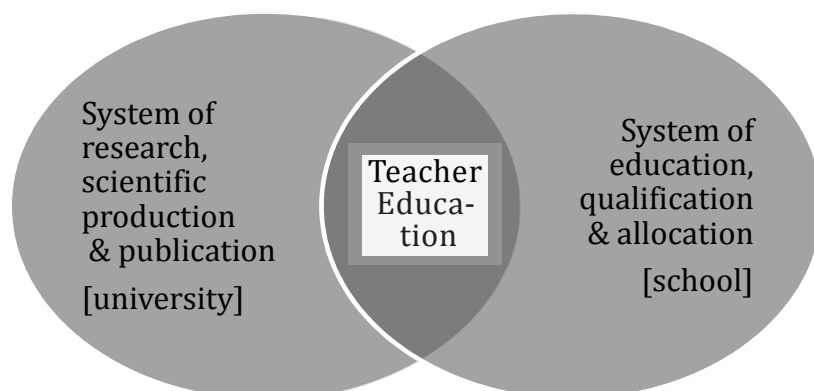
Process-oriented subject didactics
The integrating project of subject didactics (pedagogy) at the University of
Vienna, Austria

Figure 5. The organisation of teacher education. An inter-sectoral social system between university and school

hand, schools are oriented towards instruction and education of the next generation. But in their organisational logic, research and publishing plays a minor role.

Thus, in our approach to an improvement of teacher training structures, we started from the assumption that *teacher education is a social system in its own rights*. Neither does it function in the pure logic of the academic system (teachers are not focused on research and publishing) nor does it function in the pure logic of school (trainee students are not expected to instruct and allocate the pupils they teach − they are in a training position; teacher training has a stronger focus on methodology and learning management than the academic training).

2. Another challenge in the organization of teacher education studies results from the imbalance of the four pillars of the curriculum, the academic, general didactics, subject didactics and practical training. For example, the proportions between these four pillars at BA-level (in sum 240 ECTS/credits) are as follows:

   i. Academic, subject oriented training (60−68% of all the ECTS)
   ii. Training in dimensions of general didactics /pedagogy (14 % of ECTS)
   iii. Subject didactic training (app. 13−15 % of all the ECTS)

Table 1. Proportion of academic, general didactics (pedagogy), subject didactics and practical training in teacher education, BA-level, Vienna University, since 2015

Subject courses subject 1 70−80 ECTS	subject 2 70−80 ECTS	**General didactic courses** 34 ECTS
Optional courses 10 ECTS		
Subject didactic courses Subject didactics 1 15−25 ECTS	Subject didactics 2 15−25 ECTS	**Practical training in schools*** 6 ECTS
100 ECTS	**100 ECTS**	**40 ECTS**

* Practical training is partly also included in general didactic courses and in subject didactic courses and should attain in sum 25 ECTS

iv. Practical training, including the evaluation (observation and analysis) of practical training (3–4% of ECTS)

As can be seen from this overview, on the institutional level, the academic pillar is well developed, p.ex. for history teacher training at VU, five institutes of history (Ancient history, General history [medieval and modern], Contemporary History, History of East- and Southeast-Europe, Austrian history, Economic and Social History) provide subject courses within the curriculum. All these institutes are well established, have individual budget and personal and material resources, partly including individual libraries.
The same holds for general pedagogy/didactics, which has a longstanding tradition at Vienna University and strong networks on the national and international level.
For the two other pillars, subject didactics and practical training bigger deficits had to be considered as concerns the organizational structures as well as the personal staff.
In the following I will describe some examples how the teacher trainers working in the field of subject didactics, reacted to these deficits by initiating pertinent forms of cooperation for practical training and for the institutionalization of subject didactics.

Improving the theory – praxis relation in teacher education: The partnership model
As the universities in Austria offer little opportunities for practical training, we had to look for partners to support us. Since the early 1980ies we started to work closely together with a number of secondary schools in the domain of the school administration of the city of Vienna and of the federal state of 'Lower Austria'. Teachers from these schools (general and vocational education on secondary level I + II) regularly cooperated with the history departments in subject didactic courses, providing teaching opportunities for the trainee students within their history classes.

I. In a first step, (since early 1980ies) the practical training was offered on a voluntary base by teachers (with the consent of their headmasters and the school administration),

II. in a second step (since 1986) we negotiated with the study dean and the rectorate to get more budget for offering formal remuneration for the mentor teachers who then became lecturers at Vienna university.
Since this period the mentor teachers were equally paid for their supervising job. Having achieved this, we were able to build mixed teams of lectures working together in integrative courses with academic and practical advice in the same course[2].

III. in the third step (after 2008) we established formal contracts between the secondary schools and the university by describing the rights and duties of each part (the schools got the right to call themselves "partner schools of the University of Vienna", which helped them in the growing competition with neighbouring schools for selecting pupils of high ability. The university got the right to regularly send students to the school for practical training and tutoring. Both parties have the opportunity to propose research projects on pedagogical, e.g. subject didactic questions).

A) *The integrative subject didactic course: a model of organisational and personal development*
For the fourth pilar, the subject didactics, there were practically no institutional structures

Process-oriented subject didactics
The integrating project of subject didactics (pedagogy) at the University of
Vienna, Austria

before the 1980ies. More than that, we might say, at Austrian universities subject didactics did not exist, neither on the level of study programmes, nor on the level of research or the level of institutionalized organization. The initiatives to develop and establish subject didactics started in the early 1980ies – and my personal professional career at Vienna University was strongly linked to that development.

Looking back the past forty years, we might say, *the institutionalisation of subject diactics started as a bottom-up project.*

At the beginning of this process, there were individual subject professors, lecturers and secondary school teachers, interested in quality improvement of teacher education, who worked together in different kinds of interdisciplinary teamwork and co-operation, collecting experiences on suitable forms of teacher training. A common approach of all these initiatives was, that they were all working in interdisciplinary teams, in a form of mixed staff, e.g.

- A historian, a social psychologist (group dynamics, group pedagogy), a group of advisory/mentor teachers
- A geographer, a pedagogue, three to four mentor teachers
- …

The initiatives were rarely co-ordinated, the situation of subject specific training was rather heterogeneous, motivated colleagues from individual subjects, such as geography, mathematics, sports education and history were partly exchanging their experiences on a private, amical level – but there was no legal framework and no institutionalized structure to support them. The colleagues worked in the individual departments, trying to improve the professional development of teachers during university studies. This was also the case with the dept. for economic and social history, where I had studied and where I started my professional career in 1983 as university lecturer in the field of continuous professional development of history teachers (aiming at bringing to their attention new historical narratives such as the social history of family, of gender aspects, history and civic education).

Our approach to quality improvement in teacher education at that time was an approach that we knew from professional development of private enterprises. Private enterprises had put more emphasis on quality improvement and competence development already in the 1980ies. This approach also implied that we were looking for more balance in the theory-practice-relation in the teacher training courses. We tried to intervene

a. on the organizational level (in the sense of organisational development, aiming at optimizing the structures of cooperation and communication) and

b. on the personal development. We ask for the professional profile of the subject teachers and then started to develop the curriculum following the needs of such a profile.

c. And we tried to establish forms of tutoring and mentoring to optimize feedback and reflection on the training process.

Balance between theoretical advice and practical experience

The central thesis in our work was: If it is true that the complexity of our societies has grown, we need teaching situations which help us to simulate this complexity: complex subjects - and the teaching about a historical process is a very complex subject - need also a high complexity in the learning process.

The split of teacher training courses by the curriculum, offering either academic or didactic or general didactic aspects, had the disadvantage that the students were left

Table 2. Example: The professional profile of a history teacher

Example: the professional profile of the history teacher:

a) subject oriented competence, including
        - historical literacy: flexibility in dealing with subject history knowledge
        - procedural knowledge of historical thinking and reasoning
        - basic literacy in social and political sciences
b) subject didactic competence, including
        - Knowledge of subject didactic theory and concepts
        - flexibility in the application of subject didactic principles and methodology
        - planning and design skills: e.g. process-oriented selection of narratives and media
        - diagnostic skills regarding individual and collective learning processes
        -ability to deal with a/o to apply different historio-political cultures
b) general didactic competence, consisting of
        - social and communicative competencies, incl. conflict regulation
        - skills in the analysis of organisations
        - the ability to self-reflect.

alone in combining the different levels of their education. Academic courses had been separated from didactic courses and subject didactic courses were separated from practical training. Coordination, integration and reflection was left out[3].

We therefore tried to establish *integrated courses*, i.e. a more complex organisation of teaching in the training situation on different levels of the learning process. We aimed to establish

· a balance between the practical experience and the development of theory
· process-oriented structures also in the training courses, not only in the classroom
· teamwork between trainers, not only between students
· Opportunities to reflect upon the practical experiences for the students (p.ex. reflection upon their experience as pupils in the classroom; reflection as students in the teaching situation) but also for the trainers themselves (in permanent evaluation of the university courses).

Didactics as a self-referential learning system

To give the example of the integrated subject didactic courses of history: The training model is based on the following elements:

a) The training courses are organised by integrating representatives from all three fields involved: historians, subject didacticians and school teachers. The courses of didactics of history are thus run by a team of four to five trainers. These are usually one historian who is responsible for supervising the historical content of the course, one subject didactician responsible for the overall co-ordination, moderating the plenaries, keeping track of supervising the learning process, and 3 to 4 mentor-teachers each of whom advises a group of students in the planning and implementation of their classroom teaching.

In this interdisciplinary course-type, historian, didactician and teacher embody for the trainee teachers the three central functions which they will have to integrate in their future professional work:

historical knowledge and understanding
subject didactic skills

practical skills.

What has been created here is a social structure within the institution of the university intended to bring together teachers from both university and secondary school to work on a common project, i.e. the education and training of trainee history teachers. This idea mirrors the systemic basis of our work: we are aiming at re-moulding didactic training into a self-referential learning system.

One of the central concerns of this model is, then, to redefine the relationship between the two educational sub-systems "school" and "university". Teacher training should no longer be seen as a vertical, hierarchic process where the university produces theories to be used by schools but as *teamwork*, as a horizontal co-operation between experts from different parts of the education system who are bringing in their expertise, working for a common goal, the quality of teacher education.

b) Our second strategy is to provide trainee teachers with more opportunities for gaining teaching experience during the time they spend at university. The latest syllabus (effective since the academic year 2014 for BA-studies and 2016 for MA-studies) is showing first results in that direction. In the 12 semester of university studies there are five longer practice phases during which students can gather hands-on experience as history teachers at schools: The Guided observation and analysis of classroom teaching (3rd semester), the Basic History Didactics Seminar including the "Schulpraktikum" (4th to 5th semester), the Advanced History Didactics Seminar (7th or 8th semester) — all three during BA-studies, the Course on Media Literacy (9th semester) and the advanced project seminar (10th or 11th semester) aiming at exploring case studies in the public historio-political sphere (including parliament, media, museums, archives, civil society).

In addition to that the syllabus also includes courses in training of quantitative and qualitative methods of social sciences and courses or lectures of civic/citizenship education (like: knowledge about various political systems, systems of law, conflict resolution and conflict management).

Even though the new curriculum is still biased towards academic historical interests it does allow, especially for the second half of teacher training studies, to take the shape of a series of "projects". This involves the co-ordination of several types of courses around one or several focal topics or case studies. A model like this evidently makes it necessary for those who teach these courses to co-operate in content and organisational matters. It is our aim for the immediate future to win over more university teachers to take part in such integrated projects. In our experience the barriers between specialist historians and specialist didacticians are best overcome by working together on a concrete project. This is the path we want to follow in the education of future history teachers.

B) Developing the institutional structures for subject didactics at Vienna University: building up the Fachdidaktikzentrum (Dept. for Didactics of History, Social Studies and Civic Education)

Having developed the inner line of subject didactic syllabus within the general teacher training curriculum, the group of teacher trainers identified more institutional barriers which hindered them to act as equal partners within the institutional structures of the university. Such barriers were among others:

   i.   There existed no chairs in subject didactics. Those who worked in teacher education and training were mostly lecturers or senior lecturers. Up to the year 2001 there were no colleagues who had an Habilitation (or not even a PhD) with the denomination in subject didactics. And up to the year 2005 there existed no

ii. professor for subject didactics (the first professor on a temporary base was nominated for didactics of mathematics in 2005).

ii. Those who worked in teacher education did not dispose on an institutionally separated budget. They were individual members of academic subject institutes or departments, and as such they were dependant, with every small change in the organizational and/or personal composition of the department's management, on individual negotiation – and/or voluntary contribution – by head of departments, dean or eventually on third party funding for projects.

iii. Teacher education in general, and subject didactics in particular, was understood as being part of academic study programmes. Up to the study year 2002/03 there existed no separated full study programmes for teacher education.

iv. Teacher education was regarded and treated as an applied study programme. But it was not understood or accepted as a field of research. Subject didactics in particular war not regarded as being an individual, stand-alone discipline, or sub-discipline worth to get funding for research by the national or international/European research funds.

This was the situation of subject didactics at the end of year 1999.

At that time, following changes of the legal framework for university studies as decreed from the Ministry of Science and Research[4], a revision of study programmes had to be effected. This revision of curricula made it necessary for universities in Austria, to develop stand-alone study programmes of teacher education.

The new legal framework gave an impulse to establish sustainable structures for subject didactics at university. As a consequence, during study year 1999/2000 an official working group for the reform of curricula ("Lehrausschuß") was established for the overall development of teacher education study programmes at the Faculty of Humanities and individual working groups were established for every teacher education subject, which were at this former Faculty: History, Language education in German, English, French, Greek, Hungarian, Italian, Latin, Spanish, and the Slavic Languages (Russian, Czech, Polish, Serbo-Croatian, Slovakian, Slovenian).

I took over responsibility for the co-ordination of this "Lehrausschuß". The work on the teacher education curricula brought together those responsible and/or engaged in teacher education. Relevant study programmes had already been coordinated on a national level before that reform, but it was for the first time that such a coordinating platform had been established on the level of the institution university. This Lehrausschuß was not only responsible for the development and implementation of the new teacher education programmes, it also opened the possibility for the exchange of information, for comparing different theoretical concepts and methodologies in teacher education in general and for discussing the situation of subject didactics in particular. In addition, when talking on the more informal level, members of this coordinating group found out very quickly, that the institutional situation of the various disciplines working in teacher education did not differ substantially. Although there were little niches of privileges which the one or the other had been able to reserve/negotiate for his/her work, the overall condition of teacher education seemed not to be too good in the eyes of all.

All members agreed on the assumption that there was a lack of institutionalisation, a lack of personal and material resources and a lack in the visibility and acknowledgement for teacher education in general and for subject didactics in particular.

Therefore we decided to organise a *workshop to discuss the status quo* of subject didactics in the individual faculties and disciplines. We invited all those working in subject didactics

Process-oriented subject didactics
The integrating project of subject didactics (pedagogy) at the University of
Vienna, Austria

to exchange experiences, to discuss the common problems and interests, and to come to a proposal to be given to the university management. At this first meeting, in January 2000, representatives in subject didactics of all the big disciplines/teaching subjects were present[5].

At this first workshop we came to the following results:

a) We agreed upon our common interest in the development of subject didactics on both, the level of curriculum development and the level of organisation. As the situation on the organisational level seemed to be relatively heterogeneous, we decided to firstly focus on small projects, which were either dedicated to the development of new subject didactic courses, or to fact finding and analysis of co-operation structures for the institutionalization of subject didactics.

b) We also found that there were bigger differences as concerns the personal and material resources, e.g. personal rooms, course equipment etc. for subject didactics in the various disciplines. To discuss these organisational dimensions of subject didactics more in detail, we agreed to plan a second workshop.

For the realization of this project there was not sufficient support on the level of faculties, therefore we needed the support by the heads of university, the rectorate. For our purpose, the support of the vice-rector for international affairs, education and training, responsible for the study programmes and the development of university studies, was needed. Together with the dean of Humanities, who himself was convinced of the importance of teacher education, I asked the vice-rector for a meeting, to propose a project for the organisational development of subject didactics. Obviously, our arguments were convincing, so the vice-rector agreed to support the project (I wrote a proposal, described the aims, the project plan and the expected outcomes and proposed a moderate sum for the organisation of workshop meetings, refunding of the external expert and for project material).

Four months after the first workshop, in Mai 2000, the project group met for the second workshop, where we constituted the project "Development of Subject Didactics at the University of Vienna". The workshop aimed at developing the individual sub-projects, consisting of small developmental projects up to the needs of the concrete subject didactics, and at making a commitment for the presentation and the publication of the results of these sub-projects. In addition, on the overall level of strategic reflection, we came to that point in our discussion, that the institutional situation in our work would not change, as long as we were not disposing on a more autonomous institutional status, i.e. a small but autonomous unit within the faculties, dedicated to the purposes of and representing the subject didactics. This is how the idea of the "Centres of Subject Didactics/Fachdidaktikzentren" was born.

In our theoretical approach, we understood the discipline of subject didactics to be in close connection with the subjects, therefore we had an interest to install the Centres of Subject Didactics within the respective faculties. During the workshop, we discussed both options: a) to establish the centres within the faculties of the relevant subjects, or b) to establish the centres in close connection with the institute of general didactics/pedagogy/educational science. A predominant majority of colleagues saw their scientific identity more grounded with the subject. So we decided to negotiate for small organisational units within the faculties of the (academic) subjects.

In the second part of the workshop we developed first ideas for these organisational units and decided to write a strategic paper to the rectorate, asking for the implementation of these units on the organizational level.

At that time, over the year 2000, the initiative still had the characteristics of a bottom-up process. The project group developed proposals to be accepted or rejected by the rectorate. To our surprise, the rectorate showed an interest in our idea – but added an institutional wish to our proposal: We were asked to develop the idea in the broader perspective of the presumptive reorganisation of teacher training structures at the university of Vienna.

This was of course an interest that was too big for this concrete project group and the institutional power it was able to represent. - I therefore hesitated to accept the suggestion of the vice-rector. He also felt, that his plans were somehow not adequate to the project group – and over the months of year 2001 we found a way to deal with the multiple interests: The project group was asked to elaborate the strategic paper for the implementation of the 'Fachdidaktikzentren', while the vice-rector started to negotiate with the rector on the idea of a general organizational reform of teacher education, including the units for subject didactics, but aiming at establishing an overall co-ordinating unit for teacher education.

It would take too much of our time to describe all the factors that intervened in this process, but the results were remarkable: Within a year, the senate and the rectorate accepted the strategic paper for the implementation of the Centres of Subject Didactics. A steering group for the reform of teacher education studies was established, the vice-rector started to negotiate with all the 12 deans of faculties and the 40 heads of departments involved in teacher education at that time, gave advice for the fact finding process and a project plan for this change process. I took over the role of head of a small administrative department of the vice-rector for the development of university studies. And in that role, among other duties, I prepared a resource paper describing the resources actually available from all the departments and faculties dedicated to subject didactics and the resources requested from the rectorate for the implementation of basic units for subject didactics.

The deans and heads of department seemed happy as they expected the rector to finance all the additional resources, requested from the rector. Only the rector, at that point, put on the breaks and proposed the faculties to uncover more personal resources to be given for establishing professorships of subject didactics.

For the rest, I suppose the reader to be familiar with the strategies in negotiating, arguing, etc. within the university bodies. The process is not finished yet, but step by step, over the years, a series of subject didactic centres were established.

An important step in this process was the *implementation of the strategic paper* into the *developmental plan of the university by 2005*. The implementation of the Fachdidaktikzentren in the developmental plan was the official acceptance for the request of resources and gave us additional arguments for the realization of such units.

However, the restrictions of the rector caused, that we were thrown back in our negotiations to the level of the faculties, which was not too promising. The compromise we found, was the support of the vice-rector, who, step by step, managed to fund smaller projects for the implementation of individual centres of subject didactics. As one of the first units, in June 2007, parallel with English language, the CSD for History, Social Studies and Civic Education was established.

Today, at the University of Vienna, there exist CSDs for all the big subjects, such as
- German language teaching
- English language teaching
- History, Social Studies and Civic Education

Table 3. Structure and Role of the Centres of Subject Didactics

Structure and Role of the Centres of Subject Didactics
(extract from the decision of the Senate of the University of Vienna, of 23/01/2003)

Following the decision of the Senate of the University of Vienna of 20th June 2002 for the reform of teacher education at VU, the Senate proposes the institutionalisation of Centres of Subject Didactics as one of the primordial measures for the improvement and empowerment of teacher education. These centres have to be implemented in close co-operation with the Faculties/institutes/departments of the relevant subject.

With this decision the Senate agrees on the following:

§ 1. (1) To underline the growing importance of subject didactics and to support its development in research and in teaching, a Centre of Subject Didactics has to be established for every subject of teacher education. This includes the allocation of manpower, of funds and of rooms.

(2) The Centres of Subject Didactics are distinctive organisational units of the University of Vienna. As such they will be implemented in the organisational plan of the University.

§ 2. Role and duties of the Centres of Subject Didactics (CSD)

(1) The CSDs are responsible for research and teaching of subject didactics of the concerned subject.

(2) In this role the CSDs coordinate the study programme for subject didactic courses and take care for quality assurance and improvement of the relevant teaching in initial and in-service training.

(3) To guarantee high quality of teacher education the CSDs co-operate on a disciplinary and interdisciplinary level (subject, pedagogy, practical training) with relevant institutes/departments of the university as well as institutions outside the university (e.g. secondary schools, school administration, museums, archives, NGOs, etc.).

(4) To develop and promote research in subject didactics, the CSDs commit themselves to look for additional third party funding at national and international calls.

(5) To enhance sustainability of the new field of research, the CSDs take over responsibility as far as their resources allow, for educating, advising and supporting master students a/o junior scientists in their field of research.

§ 3. Direction and Management of the CSDs (…)

§ 4. Scientific advisory board of the CSDs (…)

- Geography and Economic Studies
- Informatics and Computational Sciences
- Philosophy and Psychology
- Sports education
- Biology and Environmental protection
- Chemistry
- Physics

So we can say, since the implementation in the developmental plan of the University in 2005, the subject didactics were acknowledged to be disciplines worth to be institutionalised. This support to get resources and funding for the institutionalisation of subject didactics, in a next step, also helped to apply for funding on the level of research.

C) *Research platform "Theory and Practice of Subject Didactics"*
Up to the early years of the 21st century, subject didactics was primarily understood as

a means of transfer of research results, coming from the academic field, thus as an elaborated methodology for teaching and learning the subject. The idea to look on subject didactics as a discipline or sub-discipline in its own right and logic and thus demanding for epistemological grounding, for theoretical and methodological elaboration and differentiation was not the common understanding within the European universities.

However, the discourses on subject didactics had started already in the 1970ies, especially in Germany and in the UK, where professorships had been established very early. For most of the European countries the discussion on subject didactics developed slower. At Vienna university the discourse on subject didactics started in the early 1980ies in some of the teacher education subjects, among them history and geography. But research in subject didactics could be realized only on the initiative of individual members of the university who applied for third party funding at various national and international programs.

Having gained ground on the institutional level with the establishment of the Centres for Subject Didactics in the developmental plan of 2005, the project group started to ask for a successful strategy to develop the subject didactics also as a field of research. Again, we thought that it might be helpful not to apply as individuals, but to use the opportunity of the networking process among the subject didactics and the co-operation we had been able to establish between the members of the project group.

We took advantage of an innovative programme proposed by the vice-rector of research at Vienna University at that time. The vice-rector launched a call for application for innovative interdisciplinary research programmes, which were expected to develop basic theories for futures research & developments of the university. The application for these "Forschungsplattformen/Research platforms" was highly competitive, only 12 among a number of 69 applications finally got funding. The project group of subject didactics reached the final round, had to revise the action plan and the financial plan, but at the end of 2008 finally got substantial funding for the development of the Research platform "Theory and Practice of Subject Didactics".

The overall idea for this interdisciplinary research platform was to overcome the existing fragmentation and heterogeneity of approaches and models in subject didactics. The proposed project aimed at furthering the development of theory in subject didactics by asking for the common theoretical ground of the subject didactics involved.

It was a joint proposal of 12 faculties, representing 21 teacher qualification programmes taught at the University of Vienna. It was the explicit aim of the network to develop and disseminate adequate theories in subject didactics at the University of Vienna itself and to feed back the results into the discourse of the international scientific community. In addition, the results of the empirical research would serve as feedback for the courses of subject didactics at the University of Vienna.

Over a period of four years, the project group got the possibility to investigate the underlying concepts, models and theories of teaching and learning in the individual subjects, and to identify commonalities and differences. The aim was to establish a coherent model of subject didactics and/or to identify several subject clusters.

Beyond the aims in theory development and interdisciplinary co-operation, the research network was designed as an initiative to foster young researchers in the field of subject didactics, taking them through several steps of personal qualification from MA thesis into doctoral research.

In the realisation of these aims, the research strategy consisted in four different sub-projects:

1. Investigation on the state of the art: structures, concepts, existing theoretical basement of subject didactics (SD) – asking for communalities and differences.
2. Delphi-process: Enquiry among students and teachers of the SD involved about their understanding of SD, especially in its relation to the subject, to general pedagogy/didactics and to practical training.
3. In-depth interviews with the teacher trainers asking for their understanding of subject didactics.
4. Empirical research on 106 subject didactic courses: Participant observation following a structured observation matrix – Analysis on a) the role of teacher trainers, b) the communicative learning arrangements, c) the function of feedback and reflection in the SD training courses.
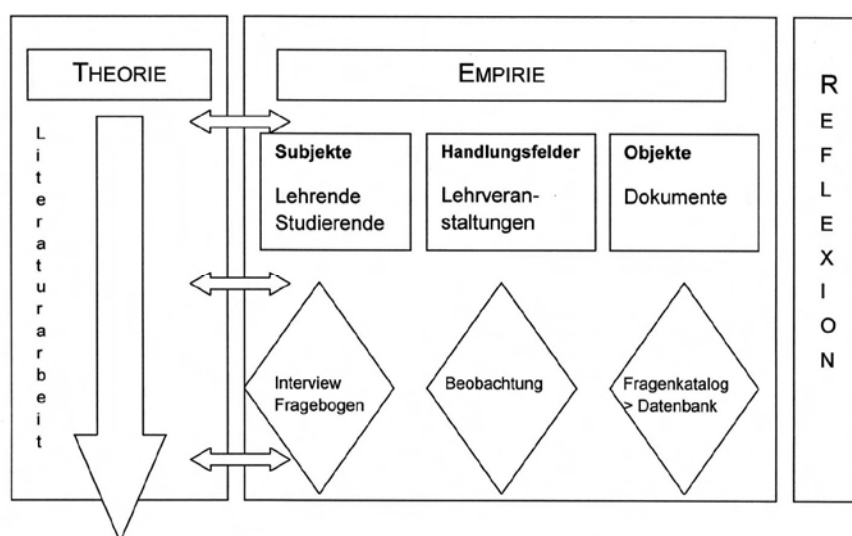

Figure 6. Organisational scheme: Research strategy of the Research Platform: Theory and Practice of Subject Didactics

Over a period of four years (2009 – 2012) the platform worked on the research questions. The results achieved were substantial and put forward the development of theory-building in the field quite substantially. The research led to a better understanding of the new sub-disciplines and thus to a clarification of the identity of subject didactics and to a clarification of the core competences in subject didactics with regard to and delimited from general didactics.

The systematic research (observation, analysis, and interpretation) into the models of instruction in subject didactics with regard to the underlying organisation of knowledge, the didactic standards, the concepts of epistemology, and the philosophy of the emerging new science highlighted a broad scope of tasks to be tackled in subject didactic research over the next decades.

As the members of the research platform came from different faculties and disciplines, the coordination of the platform requested high attention to the communicative and the organizational process during project work. Looking back, we might say that we were able to develop a fruitful and productive organizational culture. The form of communication and cooperation we had chosen – a kind of 'change management' - was able to integrate

**Figure 7. Research assistants and professors in an interdisciplinary working group
on theory of subject didactics**

different cultures of research, different traditions and disciplinary orientation (e.g. social
sciences vs. natural sciences), different experiences and histories within the institution
'university', different personalities and also: different positions within the hierarchy of
university structures: professors, senior scientists, lecturers and research assistants.
To find a fruitful balance between the various positions, we choose a few stable elements
in the organisation of the research platform: we had an equal number of representatives
from every subject didactics involved (1 senior researcher, 1 research assistant), the
project direction worked as a team and hold regular meetings with the project manager,
the project manager maintained the communication to all parties involved and organized
special meetings for the coordination of the research assistants. The project group as a
whole had regular meetings and workshops and was supported by an external moderator
of communication, who guaranteed a balanced communication during the workshops

Figure 8. Co-ordinating process in the plenary session

Process-oriented subject didactics
The integrating project of subject didactics (pedagogy) at the University of
Vienna, Austria

(reminded the goals of the meeting, made suggestions to reflect on the process of communication in case there were stronger tensions, proposed new methods for the elaboration of research questions etc.).

Self-evaluation and reflexion of the work in the research platform

Wihile working on a theoretical understanding of subject didactics we learned to acknowledge the interdisciplinary dimensions of subject didactics: SD combines contributions coming from

- ・Subject sciences (segments of world and reality…)
- ・Educational sciences (theories of education, instruction…)
- ・Social sciences (teaching and learning as social system…)
- ・Cultural sciences (teaching and learning as text, as performance…)

Each of these disciplines has research questions in its own right and logic, has its specific concepts and theories and its specific methodologies and research strategies (qualitative, quantitative, mixed methods). But we also learned to acknowledge that subject didactics is more than the sum of research results of the individual reference sciences: it is a genuine scientific approach with specific categories, theories and methods.

In this approached, we moved from an interdisciplinary view on SD to a transdisciplinary understanding of the new discipline: Today we understand subject didactics as a transdisciplinary field of research and investigation: With its specific approach and thinking SD acts as a social- and cultural science. It combines subject oriented and social processes and develops relevant concepts and theories for doing so. SD acts in a dynamic perspective by newly defining the relationship between theory and practice in teacher education and beyond. Through this specific approach, SD can be characterized as genuine epistemological science: she can use the self-reference of the learning group as well as the self-reflection of all parties involved in the process of teaching and learning as data of research and analysis. By doing so SD takes into account the individual AND the collective aspects/perspectives of a learning group.

To conclude, we might say that SD contributes substantially to the professionalization of teacher education studies and the professionalization of teachers and teacher trainers.

Figure 9. The project group of the Research Platform on Subject Didactics

Conclusion

With the integrated model of subject didactics, teacher trainers managed to contribute substantially to the improvement of teacher education structures at the University of Vienna. For the development of the new sub-discipline they choose an organizational approach: They understood the development of theory and methodology as an integrative process, where the interdependency of the organisation of the discipline, the personal (human) ressources and the knowledge management (including theory and methodology) interplayed as crucial factors.

By implementing the Centres of Subject Didactics into the developmental plan of the university, the project group managed to institutionalize the new discipline as an organizational element of the university. This led to the allocation of manpower, of funds and of rooms provided by the university. In a second step, by coordinating research as an interdisciplinary and transdisciplinary field of action, the project group succeeded to promote and enhance the visibility of research upon subject didactics and to make the research dimension of the subject didactics apparent.

The process of cooperation and communication among colleagues coming from various disciplines contributed also to the strengthening of a critical discussion of subject didactics within the university and to the development of identity of subject didactics. Another relevant factor was the contribution to the personal development of the staff involved, who was able to expand the scope of competences in manifold dimensions of research and interaction. Last but not least, the project gave sponsorship for young scientists working in the field of subject didactics and by this hopefully contributed also to the sustainable development of the new discipline.

Notes

1. While the pedagogical universities have the lead for the overall coordination of teacher training studies for primary school teachers, the (general) universities have the lead for teacher training studies for lower and upper secondary schools.
2. See Ecker (1997) Process-oriented didactics of history, in: http://www.geschichtsdidaktik. eu/index.php?id=150 (15/1/2018)
3. Luhmann/Schorr 1989 Reflexionsprobleme
4. Universitätsstudiengesetz of 25th April 1997, see https://www.ris.bka.gv.at/Dokumente/ BgblPdf/1997_48_1/1997_48_1.pdf (15/1/2018)
5. To moderate our discussion, I had invited an expert in organizational development from a private enterprise outside the university. Although not all the colleagues liked this kind of approach this external, neutral expertise was very important. Whenever I planned to make a new step on the organizational level, I invited an expert on developmental processes, so that I had my hands free to argue and to keep close to my role and interests, without being obliged to take over two roles, that of moderation of the communication process and that of the coordination of the thematic argumentation.

References

Argyris, Chris (1999). *On organizational Learning (second edition)*, Oxford: Blackwell Publ.

Argyris, Chris and Schön, Donald A. (1996). *Organizational Learning II*, Reading Mass.: Addison-Wesley Publ.

Ecker, Alois (1997c). Process-oriented didactics of history. *New avenues in the initial training of history teachers at the University of Vienna*. Retrieved from http://www.geschichtsdidaktik.eu/index.php?id=150

Ecker, Alois (Hrsg.) (2005) *Fachdidaktik im Aufbruch. Zur Situation der Lehramtsstudien an der Universität Wien*, Frankfurt/M.: Peter Lang Vlg.

Ecker, Alois (2015). Bausteine einer Theorie der Prozessorientierten Geschichtsdidaktik, in: NÖ Landesarchiv u. Institut für Landeskunde von Niederösterreich (Hrsg.) *Tagungsbericht des 26. Österreichischen Historikertages*, Krems/Stein 24. bis 28. September 2012, St. Pölten, S. 496–511.

Luhmann, Niklas (1984). *Soziale Systeme*, Frankfurt/M.: Suhrkamp.

Luhmann, Niklas and Schorr, Klaus E. (1989). *Reflexionsprobleme im Erziehungssystem*, Frankfurt/M.: Suhrkamp.

Nagel, Reinhart und Wimmer, Rudolf (2014). *Systemische Strategieentwicklung. Modelle und Instrumente für Berater und Entscheider (Systemisches Management)*, Stuttgart: Schäffer-Pöschl Vlg.

Senge, Peter (2006). *The Fifth Discipline. The art and practice of the learning organization (revised edition)*, New York: Doubleday.

Simon, Fritz (2009). *Einführung in die systemische Organisationstheorie*, Heidelberg: Carl-Auer Vlg.

Author
Alois Ecker
University of Vienna
E-mail: alois.ecker@univie.ac.at