

*The Role of Graduate
and Postgraduate Studies and
Research in Teacher Education
Reform Policies in the
European Union*

Edited by

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ENTEP

European Network on Teacher
Education Policies

2001

The Role of Graduate and Postgraduate Studies and Research in Teacher Education Reform Policies in the European Union

Proceedings of the Conference on
the Role of Graduate and Postgraduate
Studies and Research in Teacher Education
Reform Policies in the European Union, Umeå,
Sweden, June 10-11 2001

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Swedish Presidency of the Council of the European Union
European Network on Teacher Education Policies
The Faculty Board for Teacher Education, Umeå universitet, Sweden

Acknowledgements

The conference received financial support from the European Commission, the Swedish Ministry of Education and the Faculty Board for Teacher Education, Umeå universitet. A team from the Faculty Board for Teacher Education, Umeå universitet was responsible for the organisation of the conference.

Title: The Role of Graduate and Postgraduate Studies and Research in Teacher Education Reform Policies in the European Union

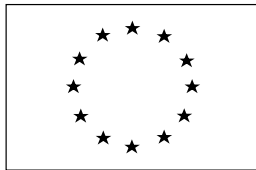
Edited by: Per-Olof Erixon, Gun-Marie Frånberg and Daniel Kallós

Publisher: The Faculty Board for Teacher Education, Umeå universitet, Sweden

ISBN: 91-7305-229-9

Printed in Umeå, Sweden, December 2001

This publication can also be found at: www.educ.umu.se/aktuellt/



Co-funded by the European Commission

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Introduction

Myrna Smitt

In connection with the Swedish presidency, the question arose as to whether an ENTEP seminar should be held in Sweden. The reason was that a proposal had recently been submitted to the Riksdag for a comprehensive reform of teacher training. This reform includes a substantial reinforcement of postgraduate studies and research related to teacher training and educational activity.

Research on learning is attracting increasing attention in view of the important part played by teachers and teacher training in the development of the contribution made by schools and the education sector to Europe's economic development and competitiveness.

The idea for a seminar on this topic assumed a more definite shape in collaboration between ENTEP's secretary, Professor Bártolo Paivas Campos, Professor Daniel Kallós at Umeå University and the Division for Higher Education at the Ministry of Education.

An exchange of views and a discussion among the members of ENTEP on how an infrastructure can be created for research on learning is a very important task for the network.

It has now been possible to hold the seminar with the support of Umeå University, members of ENTEP and the Commission of the European Communities.

The result from the questionnaire sent to Member States by Dr Per-Olof Erixon and Dr Gun-Marie Frånberg has given rise to an extensive discussion as to how research on teaching could be developed in a positive way.

With this compilation of the responses to the questionnaire, contributions from researchers in the field and the introductory address held by State Secretary Agneta Bladh at the opening of the seminar, the Swedish Ministry of Education wishes to pass on questions related to development of knowledge about learning to those interested and active in teacher training in Europe.

Address

Agneta Bladh

Ladies and gentlemen!

I am very honoured and pleased to participate in this seminar on Teacher education and the role of postgraduate studies and research in teacher reform policies. I especially want to thank Dr Bártoło Paiva Campos for taking this initiative together with Professor Daniel Kallós and his staff, and also Vice-Chancellor Inge-Bert Täljedal for making available all the competence and facilities of Umeå University.

It is also nice to find so many European Union member states represented in the far north of Sweden

Globalisation increases the need for international cooperation in many different fields. As a result, higher education – including teacher education – and research have also become international political issues.

Even though decision-making powers remain at the national level, many of the Union's employment and growth policies since the Lisbon, Nice and Stockholm summits have focused on the importance of education and research. At the very heart of this matter we find teachers and teacher education. In the knowledge society, education, research and research on education have climbed higher up on the political agenda. Here ENTEP has a very important role to play.

The challenges for educational research in the construction of a knowledge-based citizen's Europe must be developed and taken into account by the policymakers – i.e. YOU and your ministers. The contributions made by the educational research field should be given greater visibility and be put to more widespread use in the making of Europe.

Research is important because it helps us to understand the society and framework we live in and because it gives us the means to make life better. This is particularly true in schools and education, for both individuals and society. Technical and scientific developments, also impelled on by information technology, have posed great challenges to the school system, and the learning opportunities outside it. Vital research in these areas can help us to increase the understanding of societal phenomena by giving a historical perspective or contribute to solving concrete problems. Let me cite the example of Sweden.

The perspective of education policy in Sweden is that we believe in education as a public good. We regard investments in education as the most effective way of developing the economy and competitiveness of our country. For the school and education system the perspective of lifelong learning is important – from pre-school, compulsory school and upper secondary to adult and higher education. Higher education has a strong science-based research connection and is the basis for promoting researchers and research.

The OECD report “Education at a glance” illustrates the very high level of investment per capita in education and research in Sweden, an investment we think is necessary for a small country like ours. We do not regard education solely as an economic issue but also as a question of democracy and citizenship.

In this context, teacher education is crucial. In Sweden as elsewhere, teacher education reflects developments in the school system and in society, and reforms in the school system have accordingly been followed by reforms in teacher education. One major change in recent years is the general three-year upper secondary school, where all educational programmes lead on to higher studies. In addition, the general pre-school system has been extended and the introduction of a maximum charge has led to a further broadening of the pre-school intake. These reforms have both fallen within the framework of the lifelong learning approach and help to provide a good basic education from which it is easy to proceed to higher studies or to acquire broader competence for employment purposes. Sweden has found that the opportunity to return to the educational system for continuing professional development is very valuable, and a good basic education has proved an effective means of reducing the risk of unemployment when times are bad.

Demands that the school system should provide a good basic education and be very flexible have repercussions in the demands made on teacher education. Teacher education also reflects society’s requirement that young people should be brought up to be responsible citizens, capable of absorbing and evaluating the great changes in society due to science, technology, etc.

A major reform of teacher education was carried out in Sweden in 1977, when all teacher education was transferred to the higher education system. This step represented an acknowledgement that teacher education must have a scientific basis and be integrated into the academic tradition.

The most recent major inquiry on teacher education, conducted by the Teacher Education Committee, was very far-reaching and enjoyed firm parliamentary support. The crucial points of departure for the inquiry were the new mission of teachers, as formulated by society and the school system. This new mission

entails that teachers are to work in a learning and multicultural society, and must be prepared to encounter a generation that asks new questions. They must be prepared to win authority and to create new environments and a new agenda for knowledge and learning.

The capacity to develop new knowledge about teaching methods and practice, so as to be able to actively influence the future, was also made a very explicit objective for teacher education.

The Swedish Government some years ago laid the ground for this latter task – the development of new knowledge, i.e. the advancement of research on teaching – by allocating funds to the higher education institutions via National Agency for Higher Education. These funds were designed to support the building of an infrastructure for research on teaching and for developing educational science at higher education institutions. Master courses and PhD programmes for faculties without a PhD were regarded as one of several instruments for improving the quality of the schools and not least of teacher education, and for completing the step teacher education had taken by becoming a part of the university system.

At the same time, the research infrastructure of the universities was strengthened by the newly established regional development centres for teacher education. These centres have been set up at each institute of higher education offering teacher education and have the task of regional coordination of cooperation between schools and society, including the business sector, on issues that have to do with the school system and teacher education. Some have special tasks, e.g. to develop teaching methods in the field of Swedish for immigrants or adult education. These centres fit in with the tradition in Swedish higher education of cooperation with the surrounding society and play an important role in taking up issues of current interest in the school system and teacher education, such as continuing professional development for teachers.

Other similar centres have been established on a temporary basis, e.g. the centre for fundamental ethical issues here at Umeå University, which cooperates with similar expertise at Göteborg University. This type of national responsibility - in service training linked to local or regional centres – is also used to give an added impetus to developments in such fields as mathematics and natural sciences. In the field of science and technology we are attempting by various means to encourage the schools to develop teaching methods and practices that will increase pupils' interest in these subjects.

Extensive research on schools has also been pursued over a prolonged period with financing from the National Agency for Education. The research and development

carried out with this funding focuses sharply on the school system and. This research, as well as the research carried out in different disciplines at the universities, mostly in the field of social sciences (not least the disciplines psychology and pedagogy) has – if we want to be self-critical – not become as widely known as it should have been. This is because it has lacked a strong link between this research and the teacher education.

The Government bill for a new model for teacher education was presented to the Swedish Parliament last spring and will be implemented from 1 July this year. So we are now in the midst of a very exciting process.

Apart from good subject matter knowledge, the new model for teacher education emphasises professional, “teacher” skills, i.e. the skills that all teachers must manage in order to direct the teaching and learning process, irrespective of the age group that they work with. The programme is also characterised by great flexibility so as to ensure that it is also a link in the chain of lifelong learning. You will find information on the contents, goals and duration of the teacher education programme in a fact sheet distributed for the seminar.

The goals of the teacher degree are set in the Higher Education Ordinance, which all universities and university colleges that award teaching degrees are supposed to follow. The National Agency for Higher Education assesses the quality of different programmes and guarantees that the institutions satisfy the goals set by the Government. If there is an unsatisfactory result of the assessment, the institution will lose the right to award the degree.

Last but not least, the new model for teacher education is characterised by a great investment in research in educational science, including efforts in PhD education in the field. This investment was motivated not only by statistics revealing too low a proportion of holders of PhD degrees in the field of education both in the higher education institutions and in school, but also by the new role of the school in the knowledge society. This new role means that the school now makes new and more advanced demands on teachers, in terms of a capacity to analyse and develop conceptual approaches to the content and organisation of schoolwork. Teachers must be able to select teaching matter and make it comprehensible and interesting, and to assess and evaluate knowledge.

The more intensive a flow of information we have – and this is a reality brought by new technology – the more important is the role of the school in guiding pupils to an attitude of critical evaluation.

Moreover, teachers must be able to evaluate their own activity and its results, and the knowledge and working methods of their pupils. Here research on teaching and educational work can contribute to the development of the teaching profession and equip it to meet its new educational responsibility more adequately.

Even outside the school system, society has become increasingly dependent on knowledge and the development of knowledge in a broad sense. Here research and development work are important levers for progress. The need for increased knowledge about the learning process and the conditions for learning is brought up not just by the schools but also by working life and society at large. It is important for teacher education to meet this responsibility too and thereby contribute to the process of lifelong learning. The society needs teaching competence also outside the traditional school system.

The expectations are that this development will increase quality in schools and also help to make the teaching profession more attractive since it gives better working conditions and also attractive career paths.

We think it is a national interest to guarantee research and postgraduate studies in the fields of teacher education and the teaching profession. It is also necessary to integrate this research field into the general structure – for purposes of national assessment and competition in the development of quality. One way is to stimulate the higher education institutions to strengthen the links between relevant research and the undergraduate education – another is to increase the resources for research in the funding organisations.

For this reason, it was decided to set up a Committee on Educational Science within the recently established Swedish Research Council. The Swedish Research Council is responsible for supporting fundamental research in all scientific fields. Its tasks include promoting renewal, promoting profile establishment as well as mobility in the research community.

We believe that research on learning can help us with are to improve the conditions for teachers and work in schools, which ultimately will result in better conditions for pupils.

We also hope that the new research facilities and the new teacher degree will meet the decline in recruitment to the teaching profession. Knowledge and cooperation are needed along a broader front than the merely national to stimulate the teacher education in all fields. Here ENTEP's discussions and information exchanges will contribute to valuable progress.

In connection with the introduction of the Swedish Research Council that was part of the Government's major bill on research in the spring of 2000, the Swedish Parliament also decided to establish research schools for PhD studies. No less than 16 of these schools were set up and two of them specialise in the school system and teacher education.

One of these schools of research is attached to Umeå University and has "Educational work" as its theme. The other is attached to Linköping University and its theme is "Teaching methods for technology and natural sciences".

Research in different fields, including teacher education and educational science, will play an important role in the development of Europe and in our plans for meeting the future in school and in society. This seminar plays an important part in raising questions of the structure and content of the educational sciences in Europe. We can all agree that this is essential for the development of the knowledge-based Europe we are building. I hope that this seminar will give us much new knowledge about the role of postgraduate studies and research connected to teacher education and in the development of education. I think European cooperation in this field will bring much added value to our cooperation in the educational field as a whole!

Thank you for your attention!

Preface

Bártolo Campos

The ENTEP seminar whose proceedings are now published was organised during the Swedish Presidency of the European Union in the Umea University on 10th and 11th June 2001. It was about the role of post-graduate studies and research in teacher education reform policies.

The European Network on Teacher Education Policies (ENTEPE) exists to promote cooperation among European Member States regarding their teacher education policies. Until recently the European cooperation in the field of teacher education has focused mainly on cooperation among teacher education providers and among teachers themselves. The establishment of ENTEPE during the Portuguese Presidency aimed to develop the political dimension of this cooperation. That's why ENTEPE is constituted by representatives of the Ministers of Education and of the European Commission.

ENTEPE exists to promote mutual learning opportunities (*i*) by analysing and comparing policies and issues, (*ii*) by analysing and debating projects or new initiatives of teacher education policies taken at national and European level and (*iii*) by sharing good teacher education policy practices.

The ultimate goal of all these mutual learning opportunities is to contribute to raise the quality of education and training, to develop the education for the European citizenship and to promote teacher mobility.

ENTEPE activities can contribute to the quality of education and training in a way to respond to the challenges of life long learning in a knowledge society by raising teacher education quality. The education for the European citizenship can be improved if teacher education programmes have some similar objectives in order to prepare teachers for this aim. And in improving mutual trust in the quality of teaching qualifications awarded in the Member-States, ENTEPE activities can promote teacher mobility.

Therefore this seminar was the opportunity for mutual learning about public policies regarding the role of post-graduate (master and doctorate) studies and research in teacher education. The Swedish Ministry of Education and Science has proposed ENTEPE members to analyse, compare and debate our policies regarding this issue because recently the Swedish government proposed and the Swedish

parliament approved a bill aiming to reinforce the post-graduate studies and research related to teacher education and to teachers' work.

In her address the State Secretary told the seminar participants that past Swedish policies for promoting and assuring research based or informed teacher education have in some way failed. Despite the fact that the Swedish government has invested a lot in educational research "it has lacked a strong link between this research and teacher education", what justifies the recent bill.

In fact, the main justification usually given for the transfer of teacher education into university is that teacher education must be based or informed by scientific knowledge and research and this kind of education belongs to the university tradition. Therefore, the theme of this seminar refers to the central aspect of teacher education universitisation.

The need for research based or informed teacher education is linked to a new way of perceiving the teacher role given the social demands laid on school education. As Professor Anne Edwards shows in her key note speech, teaching is less and less a technical activity and more and more a professional one. In this perspective, a teacher is a problem-solver and teacher education is an education for a profession, as the seminar rapporteurs stressed.

Linking the issue of research in teacher education to the new teacher role helps us to have a different view on its relevance and to see clearer what kind of research is needed and in what way teacher education has to be research illuminated.

However, the fact is that some analyses about the universitisation process show that in many cases the universities have only added their *academic* tradition to the *technical* tradition of normal school; the challenge ahead is the construction of the *professional* teacher education culture as university has already achieved in the field of medical education, for instance.

Most of ENTEP members produced reports showing how national policies are handling this issue and Professor Daniel Kallós and his team, acting as seminar rapporteurs, critically organised these reports' main contributions. The general report concludes that there is still some way to be run.

As the process of teacher education universitisation has been evolving so have the universities become more and more autonomous. Therefore, the challenge of constructing a professional teacher education culture has to be solved by the universities themselves and the governments can no longer relate with teacher

education in the same way they did when it was assured by institutions without scientific and pedagogical autonomy.

Therefore, teacher education for a new teacher role – as a professional – assured by autonomous universities not only challenges these ones but also the public policies. These are challenged for the construction of a new teacher education policy that respects the universities' autonomy and stimulates their mission of constructing professional teacher education culture. At the same time, this new teacher education policy must also define the role teachers have to be prepared for and assure society that teacher education programmes prepare teachers as professionals and that teachers are prepared to meet the social demands laid on school. This is the question of teacher education *external regulation*, an issue the Secretary of State has also approached.

These two issues – the new teacher role (as a professional) and the new teacher education policy role –, intimately linked to the question of teacher education research dimension, will undoubtedly be in the future agenda of ENTEP activities.

The Role of Research and Scientifically-Based Knowledge in Teacher Education

Anne Edwards

Abstract

The paper has three inter-related themes which are developed through a socio-cultural analysis of how teachers use knowledge. One theme is that problem-solving pupils who are able to contribute to the knowledge economy and societal well being need problem solving teachers who are able to take deliberative action. Another is that teachers who are able to theorise are best able to use knowledge to inform their deliberative professional action. The final theme is that a focus on individual teachers and their theorising is inadequate. Instead we need to consider how schools position teachers in relation to knowledge about teaching and how universities and governments might collaborate to support schools in positioning teachers as both users and producers of educational knowledge.

Introduction

I've been set a broad question and in order to offer an answer which has some coherence and depth I'm going to pursue just one line. That line will take us from definitions of science and research to practice and expertise. It will weave its way through some of the currently pressing issues associated with teaching for the knowledge economy, social inclusion, lifelong learning and teacher retention. It is a sociocultural line, which allows me to look at knowledge, mind, professional identity, the complexity of teaching, the situated nature of learning and the implications of these for teacher education. It particularly calls for attention to the importance of research for teacher education.

Links between research and practice have been dogged with difficulty (Hargreaves, 2000; Kennedy 1997; Schoenfeld, 1999). Hargreaves' response has been to suggest that this difficulty is due to what he believes to be the poor quality of much educational research. Kennedy has suggested that we have all expected too much. Schoenfeld's conclusion is that research and its applications should not be in binary opposition. I'm with Schoenfeld. My premise is that the separation of research and practice; theory and practice; knowledge and action are unnecessary and unhelpful. Unfortunately teacher education has all too often been based on these dualisms and the belief that theory can be applied to practice like paint to a wall.

It patently can't. But that doesn't mean that theory is irrelevant to practice. Quite the reverse – the best practitioners are those who continuously theorising.

But we have a problem - the distinction between theory and practice is firmly embedded in public understanding. The result is that the loudest critics of the role of research in teacher in education claim to a ready audience that the research is either irrelevant or poorly communicated and that practice is what matters. However, alternative ways of positioning research and practice in order to ensure that teaching is an informed profession are being offered by the academic community (Edwards, 2001a, 2001b; Hirst, 1996; Putnam and Borko, 2000). Over the next thirty minutes I shall try to reposition research and practice, make a case for robust interaction between research and practice and point to what that interaction might mean for the organisation of teacher education.

Research and Scientific Knowledge

These terms need clarification. Bruno Latour (1979, 1987) distinguishes between science as the established canon and research as a dynamic and interactive process. His distinction resonates to an extent with the way I'll use the term today.

Scientific knowledge is a complex concept. Charles Taylor, talking about psychology, makes a useful distinction between two models of science. '.....one of brute data versus one that admits of interpretation.' (Taylor, 1985, p. 124). These versions do not speak easily to each other. Indeed Taylor calls their interaction a 'dialogue of the deaf' (p. 124). This lack of connection is unfortunate, as the polarisation of both versions of science is unhelpful. This lack of dialogue in educational research, which by necessity is close to both practice and policy, is particularly worrying. The interpreters may, like the brute data scientists, produce evidence that can be correlated and commodified. But the special contribution of the interpreters is that they may also find evidence that disrupts the very assumptions about society upon which the brute data scientists are basing their hypotheses. Both models of science therefore deserve attention.

Brute data science, or the outputs of the 'correlators' as Taylor also describes them, certainly has a place. For example a current UK study of shy nine year old children using an experimental design has identified that shyness interacts in varying ways with different forms of assessment (Crozier, 2001a and b). That study can be extended within the brute data version of science to search for developmental differences, or forms of assessment that don't differentiate between shy and non-shy learners. However, a researcher who admits of interpretation and is aware of the complexities of teaching, would also want to pursue questions about the extent to which everyday classroom practices inhibit the participation of shy children. Perhaps the poor performance of shy children is also related to how they

experience being learners within the opportunities for participation offered in current classrooms.

In the UK a considerable amount of effort is going into systematic reviews of the both the processes and outcomes of educational research in order to codify the canon. Currently the codifying criteria emphasise the research outputs of the correlators and cannot deal easily with those of the interpreters. The criteria focus on the canon and not on the disruptions to the assumptions on which the canon is constructed.

Research as a dynamic process, in the context of teacher education, illuminates practice and by extension, policy. Here, because of the aims of the seminar, I want to focus mainly on research done by teachers, often in partnership with academics. Research or researcherly enquiry by teachers helps them to see their workplaces and the possibilities for action within them in fresh ways. Illumination can occur when teachers simply use research, i.e. bring to bear the findings of published research to assist their interpretations of events. It can also happen when teachers themselves undertake research and in doing so use the lenses offered by published research to systematically examine and develop their own practices and the contexts in which they are working. In both cases teachers are theorising their practices and exploring the potential available for their well-thought-out i.e. deliberative actions.

There are many examples of how valuable the science of the correlators is, but also how limited its usefulness is unless taken up by well-educated theorising teachers who use it wisely. Piaget's stage theory of development is probably the most obvious example of why we need theorising teachers. Piaget's stage theory identifies developmental changes in the ways that young children deal with information and remains a scientifically valid framework for understanding how western children learn to use the logic of their culture. But inserted into a strategy for the education of young children, without providing teachers with the wherewithal for them to use it as a framework for their own thinking, it became formulaic and dangerous.

One major theme in this paper is therefore - that to deny teachers the training that allows them to become theorising teachers is also to deny them access, as professional decision makers, to both versions of scientific knowledge.

The Current Context of Teacher Education

Teacher education is in crisis in several European countries. The problem in England as it is in, for example, Holland a problem of recruitment and retention. But even if teaching were a popular career choice we would still be facing a crisis

of purpose in teacher education. Indeed retention problems mask the real crisis and are perhaps actually caused by it.

Teaching is becoming a technical practice and teachers are being de-skilled and positioned as technicians who deliver curricula. If there is research underpinning their teaching strategies, at least in the UK and US, it is the research of the correlators, which teachers are expected to apply directly to their own workplace settings. Teachers as technicians are unable to operate as theorising practitioners able to deal with current complexities of teaching. Indeed, until very recently there were considerable parallels in England between teachers and the photocopy engineers studied by Orr (Orr, 1990). The resources available to the engineers when they hit problems with machines were instruction manuals (which they usually ignored) and the 'war stories' they exchanged about how they have previously solved similar problems. Teaching as a responsive and responsible profession does need to be underpinned by more than either instruction manuals or war stories.

The results of teaching as a technical practice are worrying.

- It is not producing the creative and collaborative learners needed for the knowledge economy of the twenty first century.
- It is not addressing the massive and complex problem of social inclusion and developing dispositions for lifelong learning.
- It is not geared towards developing a sense of collaborative and responsible citizenship.

In England teachers are leaving the profession at a faster rate than recruitment can replace. One reason why retention is such a huge problem is because teachers are being de-professionalised. They are obliged to focus on curriculum delivery and children's performance of national tests, rather than on developing pupils as learners and problem solvers. Even teachers of high performing pupils complain of how limited and unimaginative their pupils are. The overarching question for those responsible for teacher education policy has to be 'what kinds of teachers do we need for what kinds of learners?'

The answer to that question is likely to demand a rethink of teacher education. Put simply, we are going to need learners who can solve problems, eagerly approach new fields of enquiry, work collaboratively and are mindful of the societal implications of their work. We need learners who are not simply users of existing knowledge, but also responsible producers of new knowledge. If that premise is accepted we need to encourage teaching strategies which position pupils as producers as well as users of knowledge. These strategies are demanding and require teachers who can

interpret learners, classroom activities and curricula and orchestrate these three elements so that learners acquire relevant knowledge and skills and a disposition to use the knowledge and skills in other activities. For problem-solving learners we need problem-solving teachers.

This view of learning in schools is lying behind the work of Carl Bereiter and Marlene Scardamalia (2001) in Canada and the late Ann Brown with Joe Campione in the US (Brown and Campione, 1996). There they have been working with the idea of classrooms as knowledge building communities and demonstrating the benefits of expecting pupils to be collaborative problem solvers. In these classrooms teachers are positioned as resources who assist pupils' attempts at sense-making. Teachers' knowledge is evident in the resourcing of the setting, the guidance they give pupils on identifying the problem, and the contingent help they offer when it is sought by pupils. Pupils learn to use classrooms as environments which can support their sense-making. Learning is demonstrated in pupils' capacities to make use of the resources available to produce justifiable responses to the problems set. Teachers may teach formal transmission lessons at times, but they also design opportunities for children to develop dispositions to engage with new (to them) problems and to see themselves as producers, as well as users, of knowledge.

In England, our initial teacher training is preparing teachers who avoid such risky interactions and pay insufficient attention to designing learning environments. Instead student teachers are trained to write their lesson plans, or use provided plans (e.g. from government web sites), as scripts which they then deliver. The provided plans are increasingly based on brute data science and student teachers focus on their polished 'competent' performance as deliverers of their scripts. Front stage performance is all and the responsive pedagogic improvisation that connects learners and curriculum (Tochon, 2000; Tochon and Munby, 1993) is ruled out. I've found in my own research on students, while they are learning to teach in classrooms, that they ignore unexpected responses from pupils because to engage with them would put at risk their polished performance (Edwards, 2001b). However much the correlators' science informs teachers' planning, it will only be useful as teachers make it in their interactions with pupils as learners. In England we have been training technicians and not educators. This is the crisis for teacher education (I suspect that England is only an extreme case of a wider trend).

If we conclude that we want educators who are able to deal responsively and in informed ways with pupils as life-long learners we need to think of creating teachers who are capable of deliberative action in classrooms. A capacity for deliberative action prepares them for supporting the diverse learning needs of pupils who are engaging with knowledge as both users and producers. To develop teachers' capacities for deliberative action we need a professional education which

acknowledges the complexity of teaching and allows teachers to engage with the research of both the correlators and the interpreters.

Using Research: Mind in Action

My case for how learners and teachers are positioned in relation to knowledge is based on an assumption that we cannot think of knowledge as something called up from a well-organised mind and then applied to practice in a uniform way. Instead we need to think of the minds of expert teachers as outward looking, at grips with their worlds, constantly interpreting, judging, making meaning and selecting appropriate responses. I'll take two minutes to explain the model of mind that destabilises the idea that scientific knowledge of the brute data variety can at a stroke improve teaching.

I'll start with the model that supports the idea that science can be applied uniformly. The information processing model of mind uses a powerful metaphor (the computer) and plays into public understanding of what Zanussi, that well-known researcher into washing machines, used to call the 'appliance of science'. Briefly it has seen mind as a storehouse and studies have focused on how knowledge is organised and recalled. That version of mind has, implicitly at least, provided the rationale for front-loaded teacher education programmes where the emphasis is on storing knowledge in the minds of student teachers before they visit schools in the expectation that they will be able to call up the knowledge they need when teaching. All teacher educators now at least have reservations about that version of professional preparation.

More recent studies of mind emanating from connectionist psychology and from robotics have offered us a more useful model of mind. It is helping us to see the extent to which mind is outward looking and seeks meanings which help us participate in activities in the world. Andy Clark explains the difference between the two architectures of mind.

In place of the intellectual engine cogitating in a realm of detailed inner models, we confront the embodied, embedded agent acting as an equal partner in adaptive responses which draw on the resources of mind body and world.
(Clark, 1997, p. 47)

Clark's outward looking model of mind suggests that we do not simply encode what we notice in a complex conceptual system in our minds. We also use our concept systems as decoding, pattern-seeking tools. These tools help us make sense of new settings, to see the possibilities for action in them and to assist our action in them. They are geared to identifying those elements in an environment that will assist our performance. The more skilled that teachers become at reading

the environmental support for their actions the more expert their practice becomes. (We can also go from there to examine how environments differ in the opportunities for action they offer teachers – but we shall return to that later.) The statement about expertise, as informed reading of the environment, returns us to how research illuminates practice helping us to make more sense of practice and its goals.

An example of how that happens comes from my own research on professional learning. We recently worked for eighteen months with thirty early years practitioners in the North of England to help them prepare for the educational implications of the new pre-school curriculum (Anning and Edwards, 1999). We first introduced them to research as users of research. They then undertook case studies in their own settings and finally carried out a piece of action research, based on the research they had read and their interpretations of their own observations, and in which they monitored an intervention in their practice. All the financial investment was in their professional learning as informed enquirers and not in the physical resources in their pre-schools. At the end of the eighteen months, we found that not only were they more confident and more informed, and demonstrated improved practice, but they were also more satisfied with the material resources they were using. They were now recognising and using the educational potential in their environments.

Clark's explanation of the mind at grips with its world, ever-seeking meaning connects to work on expertise. We know that teachers' learning tends to be episodic. That is it is based on analyses of events in practice (Putman and Borko, 2000; Yinger and Hendricks-Lee, 1993). But the first step is to recognise these events as warranting analysis. Teachers need the lenses that research can give them for both recognition and analysis. We also know that experts in all activities differ from novices in how they rapidly they scan fields, can identify what is salient and respond to quite complex interpretations at a level which is sometimes described as intuitive. Novices, on the other hand, tend to work cautiously, recognise less in their scanning and find it difficult to distinguish the salient from the mundane (Eraut, 1994; Sternberg and Horvath, 1995). If we are to educate teachers to become experts we need to be focusing on how we inform the lenses they use when scanning, interpreting and responding to learners and learning contexts. Brute data science is certainly part of the fund of knowledge which teachers can draw upon when interpreting and responding deliberately. But it is the research of the interpreters that is most thoroughly in touch with teachers' worlds.

Also, once we recognise that, as Merleau Ponty put it, our mind is at grips with the visible world we need to recognise that the world too plays into the interaction with mind. We also need to look at the contexts in which teachers develop expertise and consider how opportunities for learning can be enhanced.

Using and Producing Research in Schools

David Hargreaves, at last year's ENTEP meeting, concluded his list of tips on how to design and implement a revolution in teacher education and training with the advice that schools should be transformed into learning communities (Hargreaves, 2000). He argued that the more the education of teachers and educational research are distanced from the routine activities of schools the more schools will have to change in order to meet the educational demands of the learning economy. Of course he is right. But his image of schools is a rather passive one, which is not necessarily seeing schools as places where knowledge about education is produced. I would like to suggest that schools, as learning communities, can also contribute to understandings of how those educational demands might be shaped. So let's consider what can be meant by schools as learning communities and how scientific knowledge and research can enhance the contribution that schools can make to educational knowledge. This is a very different question from one that asks how schools can learn simply to apply the canon.

The sociocultural line is that minds are socially formed. We learn to think in ways that are considered suitable within our cultures. School cultures are usually strongly framing cultures. We see their strength in, for example, differences between schools in the ways that teachers talk about and interact with learners. Different school cultures permit different ways being as learners and teachers (Bernstein, 2000).

The idea of the social formation of mind may seem an esoteric point. But actually it is central to our understanding how teachers use research to enrich their practices. At its simplest we can find school cultures where brute data research is particularly valued and incorporated into performance targets for staff. In other schools brute data research is discussed and interpreted in terms of the values and aims of the school and if its proposals are introduced into the schools' practices they are evaluated. Other schools remain resistant to research.

A sociocultural take on the relationship between scientific knowledge, research and teacher education operates with an ideal model of schools as communities of practice which expect teachers and student teachers to engage with and in research as professionals who learn. These expectations shape the discourse of the schools, the identities of teachers and the way that research impacts on practice. It also suggests that teachers can produce knowledge that might, for example, disrupt assumptions and ultimately inform the canon.

The implication of this analysis is that if we are to encourage teachers to engage in researcherly enquiry which is informed by scientific knowledge we need to make our interventions at the level of schools as communities so that enquiring teachers are supported and not inhibited. We need to create and support schools as

communities where teachers can engage in informed ways with research. Schools may need help with this. Consequently at the centre of my argument for a way forward are strong relationships between universities and schools and between researchers and teachers.

I've argued consistently over the last few years for ways of contriving the overlap of schools, universities and, in the UK, local authorities as specialist communities of practice united in the common goal of improving children's life chances (Edwards, 1997; Edwards and Collison, 1996). These overlaps do not mean that schools, universities and local authorities lose their core identities, but that each community of practice is enriched by purposeful interaction with the others.

This suggestion is not simply a question of improving the way that researchers communicate their science to practitioners. Rather it is a matter of setting up conversational spaces in which knowledge is shared. The Commonwealth Department of Education, Training and Youth Affairs in Australia has recently published the findings of five studies of the impact of educational research (DETYA, 2001). Its conclusion is very much in this vein.

There is a subtle, complex and productive relationship between researcher and educator developed through a wide range of education processes, both formal and informal. This fragile relationship depends on policies and structures that provide incentives and strengthen the capacity for communication. Governments, universities and schools have roles in that regard.

That statement deserves more attention than I'm giving it. For example, these subtle relationships are discussed in the Report as a 'connecting web' the nodes of which are both formal and informal. The authors note that if teachers are to enter the web, they must need to want to seek a solution for a professional problem. In sociocultural terms they must at least have recognised that a change in practice is required. But at this point I'll focus primarily on the suggestion that policies and structures should provide incentives and strengthen the capacity for communication.

In England, in response to the teacher retention problem, the Teacher Training Agency, which has responsibility for teacher supply, is at last encouraging regional partnerships between Local Authorities, schools and universities which aim at making teaching a more professionally rewarding profession through support for continuing professional development. The Department for Education and Employment is offering, again this year, bursaries for teachers to enable them to research practice in partnership with university researchers. In addition, the new General Teaching Council for England has succeeded in gaining government support for a limited number of teacher sabbatical scholarships for professional development.

The pendulum is beginning to swing away from the overly instrumental notion of professional development which dominated post-qualification teacher education during the Thatcher-Major years to one where teachers are encouraged to engage with research evidence in order to develop their practice. But the pendulum still has some way to travel. As ever in England, our policy focus is at the level of individual teachers and not at the collective level of the school. For a socioculturalist this is a significant error.

Instead we should direct energy at collective levels. This will include a focus on schools as well as on the macro policy level. We should begin to see schools, in Engeström's terms, as 'activity systems' (Engeström, 1999, 2001) (see Appendix A, p.30). The form of analysis offered by this model would allow schools to examine the extent to which their histories and expectations constrain teaching and learning, to learn and to move on. The role of governments would be to agree goals that, for example, focused on developing learners for the new knowledge age. Schools would, in turn, respond to those goals by structuring the relationship of both teachers and pupils with knowledge so that both become both users and producers of knowledge and are able to contribute to the knowledge economy and societal well being. Also, attention to schools as activity systems would not separate issues of practice from wider matters of schooling, professionalism etc.

In Figure A, (see p.30) I have offered a picture of a school as an activity system where research about learning is mediating a focus on pupils as learners. It is based on what was happening in the second year of a study in which I supported teachers in six schools as researchers (Edwards, 1999). Initially two teachers in each school were involved and the numbers in each of the schools increased over each year of the three year initiative. Figure A represents a shift from a focus on getting through the curriculum to one where attention and discussion centres on how best to assist pupils as learners. Through engaging in and with research the teachers were acquiring new ways of seeing learners, interpreting them and responding to them. Importantly they were licensed in this because discussions about published research and the outcomes of their own enquiries were legitimate activities in their schools. They were still meeting external goals for pupil performance on national tests. Indeed their pupils were performing better on the tests than they were prior to the project.

In brief the existing activity system had been disrupted, questioned and redesigned to incorporate research as both product and process. The schools' relationships with the University and Local Authority were crucial here. The analytic model could also be used to demonstrate how these schools were supporting student teachers as learners by replacing pupil as learner with student teacher as learner and a focus of the student teacher's learning outcomes. I outlined earlier how important

it is for classrooms to be designed as learning environments. We also know from work on computer-based learning systems how much the system impacts on the practices of those who engage with it (Agre, 1997). It is not a huge leap of faith to test that premise in schools as sites of teachers' learning if we want teachers to use and generate knowledge about teaching.

Seth Chaiklin, also focuses on the collective level when he examines how we come to understand how practices are established. He returns us to educational research and scientific knowledge and argues that we should think of theory /practice as a dialectic and seek a social science 'that aims to develop a theoretical account of societally significant practices' (Chaiklin, 1993, p. 394). That account should prove to be useful whether merely describing practices or identifying where and how practices might be changed. For Chaiklin, as for me, a sociocultural account of how learning is supported is capable of transforming both individuals and systems.

In that way sociocultural accounts of the practices of teaching and learning and their contexts offer examples of engaged social science (Edwards, 2001b). Education as an engaged social science is a version of Taylor's interpretative science, which is close to practice and close to practitioners. It aims at increasing opportunities for learning by attempting to understand schools and schooling in increasingly informed ways. It is anchored in theory but seeks to develop that theory through exploring practice.

Educational researchers as engaged social scientists, are particularly well placed to support teachers in their attempts to develop both theory and practice. Education as an engaged social science can develop a theoretically anchored, yet grounded, educational knowledge base through a process of both accumulation and disruption. Teachers' engagement with that knowledge base will ensure that teaching is a responsible profession and not simply a set of tasks carried out by technicians who have only their manuals and war stories to support their actions.

But these developments cannot occur only at the individual level. As the recent Australian Report indicated, we need policies, structures and incentives to enable them. We therefore require action at a macro policy level to ensure that we get the kinds of teachers we need for the kinds of learners we want.

Appendix A: The Structure of Human Activity

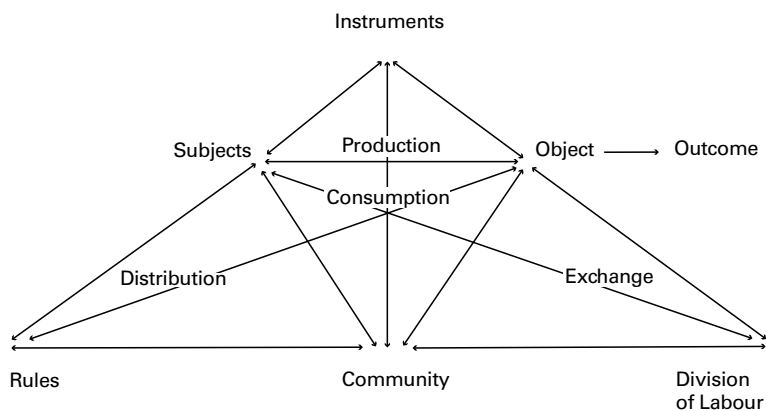
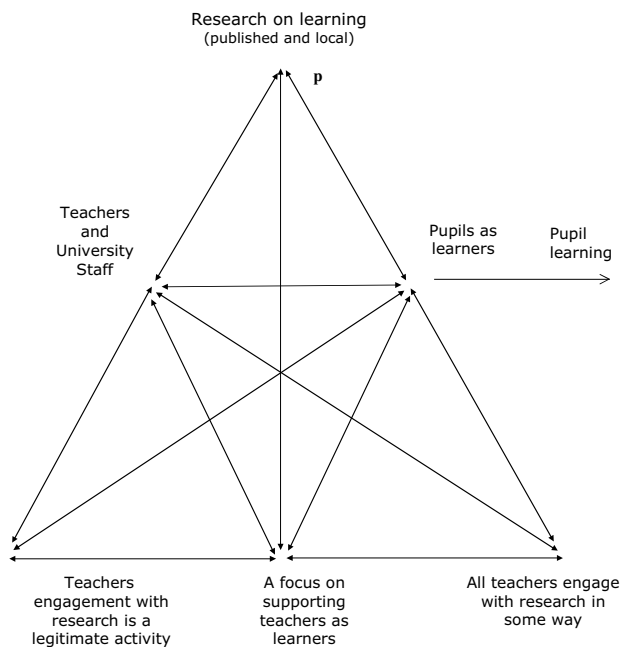


Figure A: Using Research to Support Learning



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Changing Strategies in Teachers Training and Reform Policies in Spain, 1970-2000

Benjamin Zufiaurre

Challenges and development in Higher Education.

University education in Spain has developed during the last thirty years from an elitist and closed system to a mass, overcrowded institution exposed, in certain respects, to social and economic influences. There are 68 Universities (18 private, 8/9% of the whole) in Spain, and about 1 600 000 university students (842.052 women (53,3%) and 738.106 (46,7%) men). The previous bureaucratic and centralised organisation, was changed with the 1983 University Reform Law which projected a model of collegial autonomy in which all sectors were to participate. The new model of participation in the organisation of Universities was complemented with new inner mechanisms of management and stronger external connection with society.

These changes have driven Universities towards fulfilling many demands and functions. These include

- confirming a right to Higher Education.
- Monitoring social consciousness in order to create, preserve and develop knowledge critique and knowledge transmission.
- Attending social demands from students, the labour market, public administration, and the scientific community.

Inner democracy and autonomy in the Universities is based on community participation. At the same time, the idea of quality of the service and efficiency in making use of resources has been edged out, perhaps as a consequence of massification. Meanwhile, vocational/professional education is devalued and ineffectively organised. The challenge now is to build an University strategy, which includes the overall planning of teaching and research in Higher Education. This has to be tied to strategies of assessment, equity and accountability. These strategies will establish principles of social, personal and regional equity, while also rendering universities accountable to society. Market Laws in Higher Education cannot be considered efficient in the distribution of economic and human resources. They cannot be reconciled with the idea that education is a service which guarantees economic development and social inclusion.

A new University Law is in preparation. In about a year, there will be a definite proposition which, it is said, will confront current deficiencies in Higher Education. The changes already announced move away from the 1983 idea of collegiate autonomy towards more centralised models of organisation. There are no plans to finance such changes. Meanwhile, University institutions continue to be overcrowded, and budgets and investment is low.

Investment in Higher Education in Spain was, in 2000, only 1,1% of GNP (OECD average 1,6%); public and private expenditure on research is 0,55%, and 0,35%, respectively (OECD, 0,9% and 1,3%). In this situation, tuition fees take up 22,5% of student costs, compared with an average in the EC countries of 7,5%. In the same sense, academic grants represent 0,06% of the GNP when they approach to 0,24% in average EC countries (VV.AA. - CC.OO., 2001, - Informe 35).

In a similar sense the R. & D. Budget is also threatened. It represent only 2,47 increase in 2001 in relation to 2000, while inflation is expected to approach 3,8%. Likewise, the Programme of Promotion of General Knowledge (PGK), based on national funding, represents 190,52 mn euros for 2001 (185,97 in 2000). And basic scientific research has received 52,03 mn euros in 2001, compared with 54,77 in 2001, a drop of 5%. FEDER Research Projects, which come from European Social Funds represent about 72 to 90 mn euros (VV.AA., El País, 2001).

Overall, the current research infrastructure is fragile. Researchers have problems with their grants, scholarships, and wages. And universities promote very little research, despite the fact that University teachers are expected to be professional researchers as well as teachers.

Teachers Training Context and Problematic

Teacher training suffers from the same problems. Everybody speaks about educational reform; but nobody bothers about it - a common state of affairs in times of social, politic, and economic change. This neglect existed between 1970 and 2000. Education has not been considered a priority. It is only valued in the accreditation of social and economic status. It is not valued in a social, citizenship sense; and it is not valued as a contribution to social progress. At a time when the most value is placed upon engineering, business, administration and financial services, teaching as a service to society has become a feminine profession whose social value is minimal.

To change this situation, or to promote changes in a progressive way, difficulties are encountered because there are three different routes of Teachers Training:

1. University Schools of Education

These are separate institutions or are linked to other University Departments. These offer -three years training after secondary education. They offer courses at Infant (0 to 6 years) and Primary (6 to12 years) level. Options are available within this framework. This variety creates 400 options across the 68 Spanish universities) and the annual preparation of 15-20.000 new Maestros in:

Infant Education (75 Universities)

Primary Education (74)

Special Education (41)

Speech Disorders (22)

Music Education (57)

Modern Languages (71)

Physic Education (60)

2. Pedagogic or higher Educational Studies (*5 years training*).

These are more theoretical courses. They are offered in many universities. They have a different course profile, tied to special needs, therapeutics, counselling and vocational guidance.

3. Pedagogic Training Certificate (*CCP, former CAP*)

These certificates relate to compulsory, postcompulsory and professional/vocational education. They are offered by most Universities. A one-year certificate is organised around educational psychology, subject didactics and school practice. It ranges from about 40 10- hour teaching credits to 70 teaching credits, depending on the university offering the qualification.

Teacher training, research, and school based research are limited in this divided context. Funding is poor, and investment in special projects is scarce. Further, the distribution of professors does not favour research. (UNIVERSIA - Consejo de Universidades, 2000):

| Area of Knowledge | Professors |
|---|------------|
| Didactics and School Organisation | 41 |
| Theory and History of Education | 56 |
| Research methods and Diagnosis in Education | 28 |

Meanwhile, the proportion is much lower in Subject Didactics, which mainly developed between 1980 and 1996 (but is losing influence today). Consequently, the impact of subject didactics on school-based research into practice has also diminished.

| Area of Knowledge | Professors |
|--|------------|
| Didactic of Social Sciences | 5 |
| Didactic of Experimental Sciences | 10 |
| Didactic of Language and Literature | 7 |
| Didactic of Mathematics | 3 |
| Didactic of Aesthetic Education | 5 |
| Didactic of Music Education | 1 |
| Didactic of Physical Education | 20 |
| Didactic of Music, Aesthetic and Physical Expression | 0 |

Changing Politics and Policies in Higher Education in Europe

Differentiation among Universities in Spain is being introduced. This has arisen from the lack of clear aims, changing politics and policies, the move away from participation and collegiate autonomy, massification as a consequence of equal opportunities policies and the poor organisation of vocational/professional education. Universities are moving towards efficient and controlled models of organisation. In a situation of scarce funding, an absence of plans to overcome budget shortages, and a general shortage of University supplies, the net result is that great difficulties are encountered in the organisation of teaching and research.

To build up a common provision of teachers training in Higher Education is not an easy task. The proposal made in Bologna in 1999 offers a way forward, as was its affirmation in Prague (May, 2001). But if a European agreement on Higher Education and Teachers Training is to be achieved, it must be based on common agreement about competition in higher education, and upon the notion that such a training system is a social service that supports European Commission goals for progress and development.

The liberalisation of the provision of Higher Education, under the influence of the U.S.A., is strongly felt in Europe. Teacher educators should not be afraid of diversity or free trade in Higher Education. Culture has always had a meaning and a value in Europe, and a pluralist, knowledge society is a good aim for Europeans.

Worthwhile aims include provision for exchange and interchange, comparability of qualifications, and canons of equivalence and performance.

To achieve this, we have to build up adequate systems of certification in respect of quality standards, appropriate levels of accreditation, and clear indicators. The first task, certification, is feasible through the agencies currently working with exchange and collaboration. Accreditation and clear indicators are also more difficult. Their accomplishment involves legal problems, agreement about standards, institutional collaboration and understandings about what constitutes a programme of study. This is a complex multi-national task that cut across deep-rooted assumptions, traditions and regulations.

Teacher Training Strategies

The way to link Higher Education institutions will be on the basis of sharing aims and indicators, and on the basis of further exchange, greater collaboration, more information exchange, more collaboration projects, and accepted guarantees and safeguards. Overall, there are five important issues to be considered in the field of European teacher training:

1. The integration of Subject Didactics into Teachers Training academic discourses and practices. This will build up a discourse in education around, for instance, Faculties of Education which will include similar but distinctive Graduate options for Infant, Primary, Secondary education. To improve education, progress and development in Europe, common strategies must be identified and accepted. Scientific and technological progress requires changes towards more active procedures in teaching and learning (e.g. reasoning, systematising, analysing, concluding). This would replace past practices where students were disciplined, passive receivers and memorizers of knowledge. Such innovation should lead us beyond the idea of subject disciplines and their didactics which follow a diachronic logic, towards an integrated didactic of disciplines closer to how students experience knowledge. This would take education towards learning strategies, didactic transposition, how knowledge is experienced by learners, and the logic of thinking, applying and knowing. In Spain a new type of a teaching image was proposed during 1983-1988: Teacher of Area of Knowledge. The place for school based options of doing and experimenting, in order to improve school organisation, activities, and school life, has to be created and funded as a worthwhile research and development task, together with the provision of further finance.

2. Reconstruction of the teaching profession as a socially valid profession. This means re-constructing the relevance of human capital theory in the light of the demands of the technological, information society and, in the process, defining

a new service sense of education and schooling, together with their contribution to cultural, social, and productive development. As a consequence of progress and the development of industrial societies, access to Higher Education is opened up to both men and women. The labour market cannot absorb all graduates. University Degrees are not so highly valued. High level students are over-prepared. And society is not ready to give satisfaction to the students' professional demands and values. Educational certifications have no longer exchange value in the labour market. And, merely as credentials, they also have limited value in the productive world. But education has also a social value and, what is most important, a value by itself. In this sense, it is important to be well educated and well prepared, to be useful for society in order to progress. High standards in education mean high standards in quality of life, social progress and a good social atmosphere. And these values and strategies are closely linked, in the sense that the teaching profession and teacher training have to take responsibility for transferring values, attitudes, team work strategies, training skills, rather than for transferring ephemeral knowledge.

3. Confront the fact that education is a gendered service profession – like medicine, social services and commerce. It is increasingly dependant on women, because society is redefining new spaces where women can combine professional and domestic tasks, and also be more active consumers. The Spanish teaching profession is mostly in the hands of women: 90-95% in infant schooling services, 60-70% in primary schooling, 50-60% in secondary and professional education and around 50% in Higher education. Yet senior positions, responsibilities and salaries are mostly in the hands of men. There is a patriarchal distribution of responsibilities, salaries, work functions, tasks, and duties. Teaching is mostly in the hands of women and, as in most social services in society, it is devaluated as a profession. The paradox is however, that while social services labour improves the quality of life for many women, their professional work is under-valued and associated with poor conditions and salaries. This is something which has to be re-examined in Europe. Education and schooling are important to reconstructing an European dimension. The principle of “equal rights and opportunities” should be realised throughout Europe.

4. Organise a multicultural, multidimensional and multilateral educational system to help Europeans understand each other, while sharing in a common progress and development. Europe has always been a land of refuge, where anybody can feel comfortable and welcome. The European Community has developed agreements between countries, and has always taken into account their own demands for development. Building the foundation of a common Europe, and maintaining its labour force, has led to increased pressure for economic immigration and cultural integration. Europe has to play an educational role. Immigrants need assistance to

integrate, economically, culturally and socially, into Europe. Education, Teachers, and Teachers Training programmes, have a role to play in order to contribute to mutual understanding and collaboration, common participation, and value-sharing. Multicultural education and intercultural programmes should create such opportunities, as a guarantee of progress and development.

5. Integrate citizenship values, as educational aims and in teachers training. These include comprehending each other, sharing common values, considering and accepting different points of view. This strategy has two aspects. The first one relates to teachers and to their stressful professional situation. They are in charge of school life in all senses: they have to teach, to discipline, to keep watch and care, to educate, to socialize, to defend, to protect. They feel stressed since they are responsible, in the eyes of society, to families, students, institutions, for their students. The second one relates to how students live their school experiences and school time. When they confront an institution, which is still based on industrial production and reproduction values, students can either accept it or reject it. But schooling may not supply answers to their questions, or what they demand from the new world order of the informational society. The traditional model of schooling and the new demands of social change are not compatible. Students may react violently, using their multiple sources of information. They have learnt that authoritarianism does not meet current social expectations. They know their rights, but perhaps not their duties. School is not the place to acquire knowledge, but a space where citizenship and personality are built. Traditional teaching, with a class that meets under the protection of an external authority, does not provide these opportunities. Meanwhile, a sense of educating in democratic values, being respectful of equal rights, does not match the way schooling is organised. In this context, “laissez faire options” take the place of democratic regulation, and students find it difficult to understand and participate in a life where schools, families, and society do not share consensus over values, collaborating, winning respect and consideration. Auto-discipline is a necessary feature of democracy, but it has to be built on a civic atmosphere with civic compromises and rules. Schooling has not taken the path from the disciplined authoritarian model. This has to be changed.

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Appendix

Graduate Studies and Research in Teacher Training in Spain 1970 – 2000

There have been two big changes in Teacher Education Programmes in Spain:

The General Education Law (1970) With this Law, education became compulsory from 6 to 14 years while Basic General Education (EGB) was organised in three stages: Initial (6 to 8), Middle (8 to 11) and Advanced (11 to 14). Teacher training for Basic General Education became based on a University degree developed in University Schools of teacher training for Basic General Education. The entry qualification was three years of study after secondary education and a state exam for 18-year olds.

University Schools for teachers training in Basic General Education controlled these graduate studies for initial teachers training. Three types of Diplomas were offered, respectively, to specialist graduate in Sciences, Filologies, and the Human Sciences. A few years later, and as a consequence of a policy for pre-school (4 to 6 years at the beginning, and 3 to 6 in last 1980's) and to meet the demand for special needs education, Graduate options in Pre-school and in Special Education were developed during 1977-1978. Altogether, five different Graduate Diplomas were created to prepare teachers for Pre-school and Primary education.

Teachers for Secondary Education took an additional one- year pre-university course (17 to 18) as a preliminary to taking the university entrance examination. Thereafter, they followed 5 years of university study organised around different options across the Sciences, Linguistics and other professional lines of study. Once they finished this five years specialized Graduate programmes they took another year of courses before receiving their Pedagogic Aptitude Certificate (CAP) in professional educational subjects (probably with not much coherence among them). With this accreditation they were qualified to be secondary teachers.

In addition Pedagogic Studies (previously Science Educational Studies) were organised around a five years university Bachelor course (after secondary education and the State exam at 18). This line of study offered different options: Therapeutic Pedagogics, School Guidance, Systematic Education, Special Education, and others. And together with these, there also were options in Educational Psychology

(a five years course at the University at the Faculty of Psychology).

Research programmes were closer to the Faculties of Pedagogics, or Educational Sciences, than to the University Schools of Teachers Training. These Pedagogic Faculties were also in charge of Doctoral Studies. But there was not much connection between scientific research and school based research around the priorities of teacher training. Much of this educational research was theoretical and beyond practical needs.

Educational System Organic General Law (LOGSE)

Another period of school reform in Spain began in In 1982/83 and culminated in another educational Law in 1990. What had already become clear was that the three years Graduate Studies (Teachers for Basic General Education) was inefficient. This type of Initial Training was questioned because of its limited scientific and cultural content. At the same time, Secondary Teachers training was accused of being too specialised, academically focused and, as a consequence, unable to promote professional abilities. By that time, too, all forms of teacher training were considered inefficient, accused of having no proper methodologies, incorrect practices, little research, and no connection with school based programmes and activities.

The need for far-reaching changes in Teachers Training degrees was clear. The new demands were for an extension of compulsory education till 16 years (what was achieved with 1990's Educational Law), to integrate pupils of all abilities, to dignify technical and professional vocational studies and to reduce school failure. This raised the need for a new type of teachers and for a redefinition of teacher training. The solution was the creation of faculties of education, professionally organised and following programmes of four or five years of study.

After 1983, University Reform Law (LRU) offered the option of integrating University teachers into reorganised Faculties of Education. The intention was to integrate and coordinate training programmes and maintain a balance between cultural and pedagogic content, academic and professional abilities, and development.

But the task was not easy. There were too many Schools of Education (88 all together), and about 15000 new teachers prepared each year (García, E., Zufiaurre, B. 1989: 227). An OECD report on the situation in January 1985, which was published in April 1986, insisted on the need to readjust teacher training around graduates studies (4 - 5 years) for infant, primary or secondary education. The OECD also insisted on the relevance of increasing post-graduate options, on

keeping a closer connections between theory and practice, social and productive contexts. In the process, a new continuum of initial, post-graduate, and continuous training would be developed, under a common idea of professional development.

In February 1988, the so-called Group XV, experts in charge of preparing a proposal for the reorganisation of Teachers Initial Training programmes, presented their proposal to the Spanish Ministry of Education. The proposal was for Faculties of Education which would include Infant, Primary and Secondary Degrees in parallel 4/5 years of study. All these options were to reorientate their academic and professional qualifications around social demands.

This time of change and reform in Spain (Zufiaurre, B., 1994/1999), also led to major changes in post-graduate studies. Post-graduate courses were built around proposals from the different Universities, and sometimes were organised with State or Regional Institutions. The aim of these post-graduate options was to foster closer connections between social, organisational, professional aspirations.

This development included Post-Graduate courses in Music Education, Language Disorders, Special Education, Foreign Languages, Physic Education, Infant Education, Aesthetic Education, Adult Education; and new specialised courses on School Guidance and Management, Social Education, New Technologies, School Supervision, Health, Consumerism, Environmental Education, as well as special initiatives in Drug Addiction, Media applications, School Advisors, new Didactic Approaches and Didactic Updating.

Unfortunately, this global strategy changed. Reform in initial and continued teacher training, which had a parallel in school based reform programmes and school based training actions , teacher centres, resources centers, courses, seminars, and work teams, changed after the 1990 Educational Law, and after the reorganisation of University sectors as University Departments.

Meanwhile, school reform was being driven towards implementing strategies of change. School based approaches and Subject Didactic approaches to teaching and learning, which were developed during 1980's, were to be controlled by the academic and scientific theoretical traditions during the following decade. In the context of Social Sciences, Aesthetic Education, and in a certain extent, Experimental Sciences, the search for new connections between theory and practice, teaching and learning were, to some degree, organised.

Mathematical and Linguistic approaches to the reorientation of teaching, learning, and pupil development were neglected. Subject content took priority. But even

taking account of these advances, impetus was lost in a welter of other changes. Little coherence and continuity was achieved – in the sense of pushing forward new active experiences at schooling.

Post-Graduate options which emerged to qualify specialised teachers, and to expand training were considered during late 1980s as suitable ways to restructure initial training programmes. But these approaches also lost support as new general regulations for graduate teacher training courses began to be established as part of a general reorganisation of University Degrees after the 1990's.

The aims of previous Post-graduate courses also seemed to lose their way. They had hoped to overcome the deficiencies of initial training, and give form to social demands arising, for instance, from continuous training, didactic updating, and the introduction of teachers to new languages, technologies and strategies. The courses were to be replaced by the new University Degrees organisation. The option again was for standardized Degrees instead of building up more flexible Post-Graduate courses. The standardisation also introduced new ways of financial support for the Universities, through agreements among different institutions.

A few specific Post-Graduate courses in “School guidance and management”, and special programmes around “New Technologies”, “Adult education”, Vocational school guidance”, “Citizenship education”, came into existence. But the strongest demands were for new Graduate programmes.

After 1994, Graduate studies related to Teachers Training become organised around three years courses of study: Maestro courses for Infant (0 to 6 years) and Primary education (6 to 12 years), what meant a clear break with the 1980 proposals. The options were and still are: Infant Education, Primary Education, Speech and Language disorders, Special Needs education, Music education, Physical education, Modern languages. In this context, Pedagogic Studies belong again to a five year Bachelor degree, with only two different options of specialization now: School Education and Psychopedagogics, this last one directed towards school guidance, supervision, and counselling.

The Pedagogic Aptitude Certificate or Pedagogic Qualification Certificate (CAP or CCP), is now organised in a more complex way. All professionals, once they finish a four- five year specialised Degree, will have to continue with another year course to get a pedagogic qualification before they become a secondary teacher (either for the 12 to 16 stage, 16 to 18 stage, or 16 to 18 or 19 in professional, vocational studies). Unfortunately, this programme has been postponed until 2002 while, at the same time, it is already being followed by active universities.

Doctoral studies have also changed during the 1990s. PhD. programmes which during the 1970's and 1980's were followed after an University five years Degree, and which were organised around a few courses, or subjects of study, followed by a Doctoral thesis, has now changed and comprises two different formative stages. To be a Doctor, each Post-Graduate or Bachelor follows a minimum of two years study organised around 20 or 26 credits (10 hours units) of different teaching subjects, together with 12 or 6 research credits organised around one or various projects.

Unfortunately, and as happened before, chosen research options still focus on theoretical aspects of education. Thus, there is little connection between scientific research, school based research, or teacher training. Research has always been a path away from school life and its practical needs. And together with this, regulations about research funding, or research organisation in the Universities, has always been limited. Although University teachers are considered as teachers and researchers, hardly anyone bothers with research and, to a lesser extend, the broader educational sphere.

Education is not a priority in the world of research in Spain, and has not much importance in Universities' priorities either. Research and research funding focuses on R&D projects, centered mainly on technological, productive, or basic scientific work. It is clear that researchers have little space in Spain and in Spanish University life. Researchers are forced to travel abroad if they are interested in research fields. There has been extensive debate around this in Spain during the last two years, because of scarce and ill-directed research funding.

In the world of education and educational priorities, the situation is still worst. Some big Universities, and some well organised professionals, control most of the educational production by the mean of controlling publishers, committees, associations, and others. And the scarce research funding, either centralised in Central State Ministries or regional Autonomous Communities, is mostly regulated and controlled by political priorities or interests. Private funding for research, and specially educational research, is secondary.

Postgraduate Studies and Research in Teacher Education within the European Union

Per-Olof Erixon, Gun-Marie Frånberg & Daniel Kallós

I. Introduction

In this paper¹ we briefly analyse and discuss recent developments concerning postgraduate studies and research in relation to the field of teacher education.

A starting point for our presentation is that teacher education within the European Union is undergoing rapid changes (cf. Sander et al, 1996; Sander, 1999; Buchberger et al, 2000; ENTEP, 2000). One tendency is a move towards 'universitification' of teacher education. This tendency is often coupled with discussions of the need to regard teachers as professionals and teacher education as a professional education.² There are marked differences between and within Member States. For example, in Sweden and Finland all teacher education programmes (pre-school, primary school, upper secondary school) are integrated and university-based while in Denmark, no teacher education programme is fully university based. An analysis of research issues in relation to teacher education must take such differences into account.

Cochran-Smith & Fries (2001, p. 3) discuss the discourses of reform in teacher education and note the attempts to professionalise teaching and teacher education as opposed to "the well-publicized movement to regulate teacher preparation by dismantling teacher education institutions and breaking up the monopoly that the profession has 'too long' enjoyed." Both discourses are visible among Member States and as a consequence the debate on how to reform and/or develop teacher education and research has become highly politicised.

The paper takes up two separate but related issues. The first issue concerns the relation between research and teacher education. The second concerns the relationship between initial teacher education programmes and post-graduate (doctoral) studies).

With regard to the first issue a number of questions are asked (and partially) answered:

To what extent and how are attempts made to relate research to pre-service programmes? Is research evidence used as a basis in planning teacher education programmes? Do pre-service (initial) teacher education programmes prepare students to conduct research and/or are research texts used (and how?) in teacher education programmes? Does the model of “teacher as a professional” also include (a) knowledge of the scientific basis of teaching, (b) ability to conduct research, and the acceptance of (c) a critical and self-critical attitude towards teaching and teacher work?

With regard to the relationship between initial teacher education programmes and post-graduate (doctoral) studies, a number of questions again have to be asked:

Are post-graduate or doctoral programmes open for teachers? Are there positions within the education sector that require post-graduate studies as a qualification? To what extent are teacher educators educated to post-graduate level? What measures are taken to stimulate and finance research related to teacher education and teacher work?

The examples from the Member States used in this paper have been culled from texts provided by the Ministries of Education and included in this volume.³

II. Initial Remarks

It is clear that research related to teacher education programmes is a neglected area.⁴ Teacher education programmes are commonly, although somewhat superficially, described as having four inter-related components: subject studies, pedagogy, methods and practice. Research related to the practice component is probably the most underrepresented area. The departments (institutions) responsible for subject studies in teacher education generally do not have a research base. This is evident obvious in the case of upper secondary teacher education programmes or gymnasium. The departments of Mathematics, Chemistry or History responsible for subject studies do not generally accept theses or research concerning teaching and learning. Such issues are to be handled by the departments (institutions) responsible for methods courses. In many cases those departments are not involved in doctoral programmes nor do they carry out research.⁵

If research related to teacher education is viewed from a disciplinary point of view, it is quite clear that the main bulk of research is carried out by university departments (institutions) of Education (Pedagogy). In some countries Education (Pedagogy) is dominant.

In analysing the present situation it thus seems reasonable to take the institutional (organizational) structure into account. What departments (institutions) are involved in research related to teacher education and teacher work? How is research socially constructed and organised? How is it related to the structure and content of undergraduate programmes in teacher education?

We suggest that research related to teacher education and teacher's work has increased during recent decades. There is no simple answer to why this is the case. It has also been noted that the nature of research related to teacher education and teacher's work has changed drastically.

Historically, getting teachers to read and follow research findings was a major priority of many teacher education programs. Today, assessing research, as well as becoming researchers by participating in some form of action research, is fast becoming a central aspect of many programs. (Gitlin et al, 1999, p. 754)

This tendency is also coupled to notions of "the teacher as a researcher"⁶ or "the teacher as a reflective practitioner" and/or to ideas about "inquiry oriented teacher education".⁷ These conceptualisations all embrace the idea of the teacher as a professional, which again points to the importance of research issues.

Since we also regard teacher education research from the perspective of education policy making, it is important to take into account that teacher education in the past was, as Calderhead (1988, p. 1) points out

!...! based largely on tradition, modified and adapted by the craft wisdom of the teacher educator, it has currently become much more influenced by national policies !...!

Further he noted that

!...! there is little hard evidence or sound theoretical understanding, from which policy can be derived, and therefore it is often influenced by the prevailing views on good practice and the common-sense reasoning of policy makers.

There is, however, hard evidence today and a deepening theoretical understanding, but it seems clear that the question still must be asked: if and how policy making in matters pertain along to teacher education is derived from or directly related to research. Should research on teacher education and teacher work have as a main objective to produce results from which policy makers can derive policies?

On the one hand a key distinction has to be made between research about teacher education and teacher work and research for teacher education and teacher work. On the other hand it should also be noted that the relation between educational theory and research and educational practice is by no means linear, straightforward or unproblematic.

Since graduate and doctoral studies are also important aspects of teacher education we must ask where such education and what doctoral programmes are needed. Here it should also be noted that teacher education and teaching as a profession is dominated by women. Today this fact has been used to explain why the research component in teacher education is weak and why the number of doctoral students is low.

III. Research and Initial (undergraduate) Teacher Education Programmes

The “universitification” of teacher education strongly implies that all components of initial teacher education should be based in the university and on research. This is also the case especially in countries where the universitification process has made substantial progress (e.g. Finland, Portugal and Sweden). It is equally evident that in other countries the relation between initial teacher education and research is weak, particularly in programmes preparing for levels below the upper secondary school (e.g. Belgium and the Netherlands).

It is expected that teacher educators base their teaching on current research findings. It is equally clear that students are expected to study research-based literature. These two occurrences are seemingly self-evident.⁸ They are, however, in most cases not even mentioned in the national reports on which this paper is based.

Some teacher education programmes have research components that are more easily identifiable. Courses in research methodology may for instance be coupled with smaller field- or practice-based projects as part of the curriculum. In other cases such approaches may be regarded as part of an inquiry-based curriculum and/or may be regarded as examples of an emphasis on teaching as a reflective practice as a basis for teacher education (see Tabachnick & Zeichner, 1991 and Valli, 1992).

In yet other countries ambitions are higher. Teacher students are expected to carry out and report of larger projects. In these latter cases emphasis on research is often an expression that initial programmes are also a preparation for post-graduate programmes (e.g. Finland, Portugal and Sweden).

Another aspect of the relation between research and initial teacher education concerns the qualifications of teacher educators. It is still relatively rare for teacher educators to be research trained and/or have carried out post-graduate studies.⁹ In particular this is the case among teacher educators responsible for methods and practice courses. It is also true for teacher educators working with pre-school and primary school teacher education. In its turn, this reflects the fact that such teacher education in many countries remains non-university based, and without research base and with no direct contact to post-graduate studies (e.g. Austria, Belgium, Denmark, Greece, the Netherlands). Even here it is presumed that teacher educators who themselves have no research experience, should base their teaching only both practical experience and on research, and be consumers of research literature.¹⁰ There is, however, a tendency today also to stimulate research activities in teacher education environments. This is mentioned in almost all national reports.

Subject studies for upper secondary student-teachers are in generally university based, taught by university disciplines (e. g. History, Biology).¹¹ It is rare that such studies are directly adjusted to school subjects.¹² The departments (institutions) that are responsible for these subject courses carry out research and post-graduate studies. But research related to teacher education and teacher work is rarely on the agenda. In some countries the division of labour in this respect is very marked. Departments of e.g. Mathematics exist as well as departments of the Didactics of Mathematics. Thus, even when teacher education courses are based in research intensive environments it is by no means certain that the research carried out in those environments is linked to teacher education or teacher work.

Education (or pedagogy) courses in teacher education programmes are expected to supply a general scientific foundation for teaching and teacher work. Education (or pedagogy) courses have often been labelled 'theoretical' and methods courses and the practice component within teacher education programmes are accordingly regarded as "practical". Research may then perhaps be discarded as just "theoretical" while at the same time tested experience is celebrated as practical and useful.

It should be emphasised that the relationship between undergraduate studies and research in teacher education is by no means simple and straightforward. It is problematic, for example, to identify a research base of teacher education. Even if providers of initial teacher education are "encouraged to take greater account of current research evidence on best practice in teaching techniques" (as in England) research findings of this kind are hard to come by.

IV. Postgraduate (doctoral) Programmes in the Field of Teacher Education

As already mentioned in section III undergraduate and post-graduate studies are only rarely directly linked to each other. In fact most initial teacher education programmes do not qualify students for university based post-graduate (doctoral) studies. As mentioned, however, Finland, Portugal and Sweden are exceptions to the rule, but there is evidence that other countries are beginning to follow their example.

Denmark has, for instance, recently taken decisions that imply a move from vocational training towards professional education for comprehensive school. Greater emphasis is now placed on research components and a strengthening of the research. At the same time a new centre of higher teacher education has been founded ("*Danmarks Paedagogiske Universitet*" - the Pedagogical University of Denmark) that also introduces the possibility for teacher educators to carry out doctoral studies.

In Ireland a system of bursaries for post-graduate studies for primary school teacher has recently been introduced. In England funding has been targeted towards enabling serving teachers to participate in doctoral programmes and post-graduate research. Teachers in England are also able to work towards doctorates in education (EdDs) that supposedly are more closely related to classroom practice than conventional PhD-programmes.

In Finland, as mentioned before, a system of post-graduate studies related to teacher education has been developed. Most dissertations related to teacher education are located in Pedagogy.¹³ Graduate Schools established in 1995 have increased opportunities for full time post-graduate studies in teacher education. The largest Graduate schools in teacher education are those in Mathematics, Physics and Chemistry, Language Learning and Teaching and Education, Knowledge and Culture, The Finnish National Graduate School in Education, the Doctoral Programme for Learning, Development and Education, and finally the Graduate School for Multicultural Arts Education.

A similar development has taken place in Sweden. Two new National Graduate Schools related to teacher education were established in 2001. One focusing on Educational Work and the other on Didactics in Natural Sciences and Technology. As in Finland, Graduate Schools supplement the disciplinary doctoral programmes. Doctoral programmes related to teacher education should, we suggest be developed by all university institutions (departments) offering undergraduate courses to student-teacher.

The relationship between undergraduate and post-graduate studies within the university is perhaps most clearly expressed in the Finnish and Portuguese systems. Initial teacher education programmes in Finland award a Master's degree and in Portugal similarly has the "*licenciatura*". Both degrees are qualifications for entry into post-graduate research.

A distinction needs to be made, however, between formal right to participate in post-graduate programmes and actual possibilities to study. The Graduate Schools mentioned above have a "*numerus clausus*", which means that the number of places is restricted, and thus competition for existing places may be very tough.

In general, access to teacher education doctoral programmes is limited and various selection procedures are applied among formally qualified applicants. The demand seems high. In Greece recently 5.000 teachers applied for 300 available placements in MA-programmes, which are a pre-requisite for later PhD studies. Since, as we have mentioned above, the vast majority of teacher education programmes within EU do not qualify for doctoral studies, the main obstacle still seems to be that undergraduate teacher programmes lack a direct relation to doctoral programmes. Teacher education programmes that are non-university based (most frequently in the case of pre-school teachers and primary school teachers) are accordingly distanced from post-graduate studies and research.

Interestingly we can find little national statistics available on students participating in doctoral programmes related to teacher education.¹⁴

The "universitification" of teacher education and the development of professionally oriented programmes for teachers is an expression of a policy response to the fact that teaching has become more complex and that teachers are being increasingly regarded as professionals and experts. For the same reasons post-graduate studies have become more important. Undergraduate and post-graduate professional education of teachers is still in its infancy, if compared to e.g. medical education.¹⁵ This is particularly obvious in regard to research and post-graduate programmes.

It has often been pointed out that the qualifications of teacher educators need to be improved. At present doctoral programmes are important in order to meet such demands. But if the field of research related to teacher education and teacher's work is to expand it is also necessary that there are more positions in the education sector requiring doctoral qualification. The development of the teacher as a professional strengthens the demands for an increasing research and development activities within the education sector. Such tendencies are clearly observable within and across the Member States.

V. Research on Teacher Education and Teacher Work

In the second section of this paper we commented that research related to teacher education and teacher work is a neglected area. This is also the case across Member States.¹⁶ It is evident that teacher education research is strongly associated with the “universitification” process. As we have mentioned earlier the connection between research and undergraduate studies is weakest where programmes are carried out in non-university settings.

It is clear that attempts have now been made to stimulate and increase research efforts. These include the following. In England has been provided to enable serving teachers to do research within doctoral programmes and £12 million was invested between 2001-2004 in Best Practice Research Scholarships and the Teachers’ International Professional Development Programme. Successful applicants may receive grants of up to £ 2,500 to undertake sharply focused research on key areas of classroom practice. A School Based Research Consortia has funded peer reviewed research activities in schools. In Sweden a special Committee has been appointed within the Swedish Research Council to support research in teacher education and teacher’s work with a budget of more than SEK 200 million (approx 22 million Euro) between 2001-2004. In French-speaking Belgium there is a strong focus on increasing information about educational research to teacher educators, trainees and school teachers through national and regional conferences and through a special journal with teachers and teacher educators as target groups.

Simultaneously, the number of university institutions (departments) involved in research has increased. In e.g. Portugal research is carried out by teacher education staff (within the institutions of teacher education) jointly with 10 specific Research Centres located at 6 universities. Each Centre has a specific research focus, e.g. Didactics and Technology in the Education of Teacher Educators, Psychopedagogy, Child Studies and Educational Research and Intervention. In Finland research is mainly concentrated at 8 universities and their Faculties of Education and departments of Teacher Education. As mentioned, there has been a conscious attempt in Denmark to use the new Pedagogical University of Denmark as a national centre for research related to teacher education and teacher’s work. Judging from the national reports, it has been difficult to separate research distinctly related to teacher education and teacher work from general educational research. As already noted research in Education (Pedagogy) dominates, but new agendas for research appears to be emerging.¹⁷

The new agenda involve firstly, increasing efforts to engage teachers and teacher educators in research related to their work. Secondly it is acknowledged that there is a need for increased research into subject, e.g. through Graduate Schools as in

Finland and Sweden or via the Portuguese Research Centres.¹⁸ A third tendency is an increased emphasis on the teacher as a researcher and/or at research focusing on teacher's work and practice. One example here is the development of a new field of research – Educational Work – in several Swedish universities. This new field takes “practice” and “methods courses” as the points of departure, to supplement research in Pedagogy (Education) and in university subject disciplines. The emerging new field might be regarded as a “clinical discipline” in teacher education, using medical education as the metaphor. A fourth tendency is the promotion of research (and post-graduate studies) as a mean of partnership between universities and schools and/or municipalities. The Swedish National Agency for Education for example has example recently adopted a strategy research where such co-operation is a key element.

It is worth noting, however, that the research bases for initial (undergraduate) teacher education remains weak.. In the Portuguese report to this seminar it is stated that there are no studies “*which analyse if teacher education is research based or, analyse its impact on teaching processes and the organisation of schools*”! We tend to agree with Marilyn Cochran-Smith (2000, p. 14) when she states:

It is inescapably clear at the turn of the century that there is no consensus about what teachers need to know, who should provide education for teachers, how teachers should be certified and licensed, and what role (if any) university-based teacher preparation should play in school improvement. Teacher education is at a critical juncture, and we are faced with confusing alternative realities.

But as Linda Darling-Hammond (2000, p. 166) also notes

... there is a growing body of empirical evidence about the outcomes of different approaches to teacher education and recruitment. This research suggests that the extent and quality of teacher education matter for teachers' effectiveness, perhaps now even more than before.

Judging from the national reports prepared for this conference and included in this volume¹⁹, funds available for research are regarded as inadequate²⁰, but in several Member States, efforts have been made to remedy this situation as already indicated above. As an overall estimate approximately 70-80% of available resources are directly allocated from the State to Universities and other institutions and organisations carrying out research related to teacher education and teacher work. 20-30% is allocated through various research councils via contracts or as projects. During the last decade research in the field of teacher education has been

regarded as a specific research area with its own funding. This is still not the case in many Member States but may be regarded as a strong trend. This also implies that defining target areas for research needs to be higher up on the agenda. In e.g. England such targeted funding is discussed in terms of attempts to define priority areas like pedagogy, child development, behaviour management, special educational needs and boys' attainment compared to girls.

VI. Some Final Remarks

In the national report from Portugal included in this volume (Erixon et al, 2001) it is openly stated that “*recent teacher education policy measures*” have not been directly focused on “*post-graduate studies and research*”. The relations are accordingly indirect. This has led to decisions in Portugal to upgrade pre-school and primary school teacher education programmes to a “*licenciatura*” degree increase their length and strengthen “*a research based teacher education*”. The establishment of a system of accreditation of initial teacher education programmes in 1999 in Portugal included definitions of standards of such programmes as well as detailed definitions of a general teaching profile all emphasising research. The teacher is defined “*as a professional whose specific knowledge of the profession is research based*” and who furthermore e.g. “*participates in research projects*” just to mention some examples. A similar conclusion could perhaps be made regarding other Member States.

Teacher education as such is frequently debated and often “bashed”, evaluated and changed. The changes, however, are rarely based on research evidence. In the report from French-speaking Belgium, it is noted that researchers are seldom used as experts by reformers of teacher education programmes. This is hopefully not the case everywhere.

The reform of teacher education is clearly high on the agenda of several countries. The policies and adopted strategies differ in relation to judgments of the importance of research for teacher educators, teachers and for the various teacher education programmes.

At a European level, funding that supports research in the area of teachers' education and teacher work is not a high priority area. Some EU funded attempts to pave the way for a European Doctorate in Learning are currently being developed.²¹

However, teacher education as a professional programme at the university level remains a contested concept. Finland, Portugal and Sweden have made much

progress in this respect and the future seems promising. At the same time heavy criticism is often levelled at teacher education, much of which has a long history and is quite familiar.²² To what extent can research be used to refute or substantiate this criticism? To what extent are student-teachers able to deal with the criticism levelled at teacher education and teaching? Are they, for example, encouraged to engage in discussions of how teacher education and teaching works? To what extent are teachers and teacher educators using research evidence to support their case?

We have noted earlier in this paper that concepts such as the “teacher as a researcher” and the “teacher as a reflective practitioner” are prominent in the literature and in the debate. But the national reports summarized here do not indicate that the teachers of Europe have acquired the necessary competencies to carry out research. It remains rare for teachers to be engaged in research. This is also true for teacher educators. What policy arguments support the present situation?

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Footnotes

- ¹ This is a revised version of the paper presented at the conference.
- ² We note, that "teacher training" implies "a narrow kind of behaviour shaping or compliance with pre-established rules for demonstrating rote learning rather than more expansive educational process that focuses on growth and development in the profession. Eschewing this narrow conception most of those inside the profession now use the language of 'teacher education', 'professional development', 'becoming lifelong learners', and 'participating in learning communities'." (Cochran-Smith, 2000, p. 16). We thus consciously use the term, "teacher education" and not "teacher training". The term "teacher education" reflects the tendency towards the recognition of a profession of teaching and also denotes a move away from instrumentalism as a model. We are well aware of current discussions concerning the different meanings of terms like professionalism and "professionalization" (cf. e.g. McCulloch et al, 2000, pp. 14ff) although we do not go into these distinctions in this paper.
- ³ Erixon et al (2001).
- ⁴ Although two editions of a 1000+ pages "Handbook of Research in Teacher Education" have been published in the U.S.A. (Houston, 1990; Sikula et al, 1996) it is still evident that teacher education and teacher work are neglected areas of research (see also Darling-Hammond & Sykes, 1999). We agree with Linda Darling-Hammond (2000) when she states that there exists strong evidence to support the thesis that teacher education matters and that criticism levelled at teacher education in most cases is not supported by research based evidence (see also Berliner, 2000). It is, however, equally clear that a wealth of teacher education practices seem to build more on myths and folklore than on hard evidence (cf. Cornbleth, 1987).
- ⁵ The relations between school subjects and university disciplines are complex although it seems that mostly this is viewed as a straightforward and direct one. Research in relation to school subjects and how teachers are prepared to teach subjects is one crucial area of research for teacher education (see e.g. Hudson et al, 1999).
- ⁶ For a number of years such tendencies have been coupled to a celebration of action research as the model of research in teaching and teacher education (see Noffke & Stevenson, 1995 and more recent examples provided by e.g. Price, 2001 and Winch & Foreman-Peck, 2000).
- ⁷ A recent summary of the "Teacher Research Movement", as it has been labelled in the United States, is provided by Cochran-Smith & Lytle (1999).
- ⁸ Such expectations and demands are, of course, more pronounced in countries where teacher education programmes are university based.
- ⁹ No reliable statistics seem to be available.
- ¹⁰ Such teacher educators (and their students) often note that the research literature is irrelevant, too theoretical and written in a language that no one can understand.
- ¹¹ It should be noted that teacher education programmes for the upper secondary school do not always include subject studies. In Denmark subject studies are carried out in the universities but are not specifically altered to the teaching profession. If the student wants to become a teacher (s)he has to take a particular course (pedagogy, methods and practice) at a teacher training college. It is not always considered necessary to adjust subject studies to the specific needs of teacher education. Such needs may not even be acknowledged.
- ¹² University disciplines and school subjects have a complex relation. University subjects primarily mirror the scientific development within a discipline in question and are also keepers of the history of the scientific discipline. School subjects are social constructions mirroring ideology and perceived social requirements of knowledge. The question to be asked is what contributions can the scientific disciplines can offer to teachers of school subjects.

- ¹³ In many countries Pedagogy (or Education) as a discipline has been (and in some countries still is) responsible for all research related to teacher education and teaching. This pattern is now changing.
- ¹⁴ The report from Portugal, however, provides some data in this respect.
- ¹⁵ One is reminded of a text by John Dewey on teachers as professionals written in 1922. Dewey states: *“A friend has been accustomed for many years to urge that there exists only one sure measure for the real progress of education. The test, he has said, is the possibility of bringing suit at law to compel payment of damages by educators to educatees for malpractice. There being no such possibility at present, there is no science or profession in existence.”* (Dewey, 1922, p. 144.)
- ¹⁶ Few reviews of teacher education research in Europe have been published so far. See Tisher & Wideen (1990), Kallós & Nilsson (1996) and West et al (1996).
- ¹⁷ In the report from Finland such issues are discussed at length noting e.g. that the *“role of the teacher is in flux”* and that *“teachers are no longer confined merely to the classroom”* and that new questions for research accordingly is needed. It is for instance noted that research *“... on how teachers in the field plan, implement and evaluate their work is insufficient. We need more information about the everyday routines of teachers in the field.”*
- ¹⁸ The report by Hudson et al (1999) provides several examples of such research in Europe.
- ¹⁹ Erixon et al (2001)
- ²⁰ Again it is not easy to assess the total funds available for research related to teacher education and teacher work. Statistics are not available and/or it is very difficult to identify resources for teacher education, as they are not monitored separately.
- ²¹ E.g. the ERASMUS sponsored EDIL-project where universities in Austria, the Czech Republic, England, Finland, Germany, Latvia, Slovenia and Sweden co-operate, to develop courses for a doctoral programme in teacher education.
- ²² Berliner (2000, pp 358-359) lists and discusses 12 such criticisms e.g. arguments like *“All you need is subject matter knowledge, the rest is a waste of time”*; *“The methods courses are now and have always been Mickey Mouse courses, requiring no great mental powers to complete”*; *“Teacher education has no accountability. Colleges of education never measure what their students know and can do after they leave the program.”*

The Role of Graduate and Postgraduate Studies and Research in Teacher Education Reform Policies – a survey

The national reports here presented are based, as was the case of the first ENTEP-conference in Loulé (Portugal), on a questionnaire sent to the Ministry of Education in each country.

Each contributor was asked to describe and comment on the following five areas related to research and graduate/postgraduate studies in teacher education in his/her country:

- Teacher education programmes and their connection to research in general, and to doctoral studies
- Postgraduate teacher education programmes, the possibilities available for participating in doctoral programmes, and their organization.
- Demands for PhDs, within teacher education and the education sector as a whole
- Research in relation to teacher education; in particular, funding, and impact on initial teacher education and the schools system
- Specific issues related to current policy debates and European cooperation on the role of graduate and postgraduate studies and research in teacher education.

In commenting on the areas above, contributors were also asked to consider the following issues wherever relevant:

- Differences between teacher education programmes, e.g. pre-school, primary, lower and upper secondary levels.
- Relationship between pre-service and in-service teacher education
- Differences between university college studies (with no access to research and post graduate studies) and university-based studies (with access to research and post graduate education).
- National, regional and other variations.
- Anticipated national changes/reforms.

Graduate and Postgraduate Studies and Research in Austrian Teacher Education

Otmar Gassner & Michael Schratz

Introduction

The two main providers of pre-service teacher education are colleges of teacher education and universities. Both institutions are rooted in different traditions. Colleges of teacher education follow the “seminaristic tradition” focusing the curriculum equally on educational issues and necessities as on subject demands. The programme delivered is less academic than that at university level and strongly practice-oriented. This tradition is in contrast to that of universities, which is rooted in an “academic tradition”. For a long time, initial teacher education at universities used to focus mainly on subject-specific education. Students were supposed to gain primarily academic knowledge to become specialists in the scientific disciplines. Consequently, the curricula did not concentrate on the complex professional skills required for the teaching profession.

Meanwhile, the process of educational reform resulted in improvements, both in quantitative terms (e.g. the opening of technical, economic and vocational schools) as well as in qualitative terms (e.g. developing an integrative teacher education or training in new information and communication technologies). In recent years, there have been controversial discussions among all stakeholders (policy makers, educationalists, teachers associations, trade unions, etc.) about the administrative, economic restructuring of the education system. The reform discussions can be put down to changing attitudes as to which role the state and the public sector ought to play in education and on budgetary constraints the government is confronted with (cf. Buchberger & Seel 1999, p. 5).

In this context, new expectations are put on schools and the teaching profession in Austria, just as in other countries. In order to maintain an efficient education system that keeps up with new challenges and demands, reform initiatives in teacher education are under way. In Austria, the current situation can be described as a “phase of transition where established practices and regulations are being critically assessed and challenged, thereby losing their unquestioned and mandatory status” (Gassner & Schratz 2000, p. 127). Part one of this paper deals with the Austrian colleges of teacher education, part two with the universities.

1. Discovering Research: a New Role for Research in Teacher Education Policies at Austrian Colleges of Teacher Education

Whereas research has always been associated with universities, it was not an indispensable element of the teacher trainer profile at colleges of teacher education until very recently. A research background could only be taken for granted with university graduates. But not all teachers in Austria are educated at universities. In actual fact, only the trainees for secondary schools of the grammar school type and those for upper secondary schools with A levels are educated at universities, whereas the majority of teachers are educated at colleges of teacher education, which, however, are on their way to becoming fully recognised tertiary institutions. Thus the selection of either one educational institution is not by choice, but is predetermined by the type of school and the age group of the pupils that will be taught. It should be added that pre-school teachers are not educated in the tertiary sector at all, but in the upper secondary sector. The system of teacher education has been presented elsewhere in some detail (Gassner/Schratz 2000), but needs to be clear to the reader.

1.1 Past practice and new developments

In the past the main issue in the colleges of teacher education has been “teaching how to teach”. The main emphasis was on the transmission of knowledge in two chosen subjects for secondary school teachers and on a number of subjects with a strong didactic focus for primary school teachers including theoretical background knowledge as well as general and special skills in teaching.

Since 1999 the new Academy Study Law has been in operation, which has brought considerable changes. In colleges of teacher education, the study programmes in initial teacher education are designed to take three years and they should, in the near future, lead to a first academic degree comparable to a BA or BEd. Within the context of this reform, the study programmes will be upgraded and special emphasis will be laid on a research component.

1.2 Research and staff

As research, however, has been more of a freelance activity than a substantial part of the work load of teacher trainers at colleges of teacher education, rigorous staff development plans have to be drawn up and put into operation first. Within the last years several surveys have made it clear that a certain number of the teaching staff show a strong research commitment and have an accepted position within the scientific community, whereas the majority is only occasionally involved in research and some not at all (cf. Mayr 1997).

This, first of all, has to do with the job description and profile of teachers at Austrian colleges of teacher education. To apply for a post the minimum requirement is three publications, which is a bare minimum showing only that research is not a totally strange territory. The value attached to research is reflected in the fact that the work load is still defined exclusively by the number of contact hours in teaching.

Moreover, it has to be pointed out that recruitment areas for jobs at colleges of teacher education have been regional grammar schools where teachers with a good teaching record and some research commitment have chosen this as their career option. So far recruitment for permanent positions has been only marginally linked to universities.

1.3 Teacher education programmes and research

Teacher education programmes at colleges of teacher education are only very loosely connected with research and, for the time being, have nothing to do with MA or PhD programmes. Naturally, the trainees are introduced to basic research skills and methods. But they are not generally involved in larger research projects on their own or in cooperation with professors. The “diploma paper”, which is a research paper to be submitted in the fifth semester, is more the discussion of research results in a given area with either a small research part conducted by the student and/or an extension into the field of “applied teaching”. Autonomous research is still the rare case in this context.

With the new Academy Study Law there are new options. As the profile of the teaching staff is being redesigned with a stronger emphasis on research and the clear call for an integration of research and teaching, these demands will eventually show in the way courses are taught. Parts of the teaching will be connected with research in the respective professional fields. All these efforts should lead to an upgrading of the “diploma papers” and prepare the students for postgraduate courses with a stronger focus on research.

1.4 Funding

Funding of research is an intricate affair and not as transparent as it would need to be. Of course, there is government funding for studies that are in the public interest, but this source can only in rare cases be tapped by researchers from colleges of teacher education. Smaller scale projects are mostly funded from a budget slot that is, on application, open to all researchers at colleges of teacher education. The applications are discussed and refereed by an autonomous research committee of peers. However, this committee cannot award money, but semester hours that reduce the teaching load and, thereby, buy time for research.

Moreover, small research and development projects can be funded from the autonomous budgets at the individual colleges of teacher education. Again, this type of funding is basically a reduction of the teaching load, not money.

1.5 The research committee

In the first phase, that is before 1990, applications for research projects were “refereed”, evaluated and funded by civil servants in the Ministry of Education; in the nineties this function was carried out by a group of seven professors from different Austrian colleges of teacher education. These representatives were nominated by their colleges and presided over by a civil servant from the ministry, who was in charge of proceedings and administering the funding.

When the Academy Study Law had opened a number of previously unlocked doors, this committee was also restructured and invested with more competencies. First, ten members were elected from a list of eligible applicants with a respectable research background by the council of presidents and vice-presidents of the colleges themselves. The members of this new research committee drew up new guidelines for applications and transparent procedures for evaluation and funding. It is one of the main functions of this body to give constructive feedback to prospective researchers and make suggestions for improvement of weak points in a given application. It is hoped that this procedure of professional dialogue will involve a larger number of teachers in research projects and also, in the long run, enhance their research competence. It can generally be said that the standard of research has been raised considerably through these measures.

1.6 Forschungsbeirat (*Research council education*)

Based on the Academy Study Law 1999 (§ 24), the Ministry of Education installed an eighteen-member research council in 1999. It is decreed that half of the members must be university professors with a research background, the rest represent the various sectors of teacher education and the ministry itself. The law also defines the function and tasks of this council. It is to

- make suggestions for prospective fields of research in cooperation with other educational institutions (nationally and internationally),
- advise the individual colleges of teacher education in the choice of a research focus and in questions of evaluation, and
- complete and publish a yearly report about its activities with special reference to research work carried out, important publications and results of cooperation with other educational institutions in research areas.

This measure is another sign pointing towards the seriousness of the changes to be carried out. Research has moved up on the agenda of colleges of teacher education, and this newly established council should also guarantee a shift, if not a quantum leap, in quality standards of research at colleges.

1.7 Who are the researchers?

Research is mainly conducted by permanent staff and members of staff qualifying for permanent positions. It needs to be pointed out, however, that some members of permanent staff are not involved in research at all. Great efforts have to be made to motivate these colleagues to take up research or at least cooperate in other research projects because research clearly informs the teaching and adds a vital dimension to it.

1.8 The impact of research on teacher education

Statements on the impact of research on teacher education and the school system at large will be to a large extent speculative. Nevertheless, it can be said that there has been a tradition in Austria of carrying out “school experiments” with accompanying research projects before introducing changes in the school system. This was the case, for instance, with inclusive education, with forms of open learning, or with streaming in secondary modern schools (Specht 1997, Grogger 1996). Concrete research projects have frequently been used in evaluation procedures to improve courses and study programmes (Svecnik 1998). On the other hand, studies that yield unwanted and uncomfortable results are difficult to publish and tend to disappear in the ministry (cf. Gassner/Tomaselli 2000). Whereas a strong link between research and policy decisions in education is observable, it is more difficult to establish this link between research and teacher education.

Mayr argues that research has had a considerable effect on staff involved as project leaders, but also on those cooperating in projects as well as in a number of cases on students involved in the process. On the other hand, external impact is considered fairly small because many research projects dealt with local or regional issues and were, therefore, also published in regional or national journals only. (Mayr 1997, p. 1143) Here again, impact is directed towards individuals in teacher education, and not so much towards teacher education on a policy level.

Edwards puts the case for a strong link between theory and practice. She argues for a systemic integration of these areas of knowledge and defines the place of research in teacher education in a challenging way:

Research or researcherly enquiry by teachers helps them to see their workplaces and the possibilities for action within them in fresh ways. Illumination can occur when

teachers simply use research, i.e. bring to bear the findings of published research to assist their interpretations of events. It can also happen when teachers themselves undertake research and in doing so use the lenses offered by published research to systematically examine and develop their own practices and the contexts in which they are working. In both cases teachers are theorising their practices and exploring the potential available for their well-thought-out i.e. deliberative actions. (Edwards 2001, p. 4)

This concept of interlocking the two areas has consequences for teacher education policy. Edwards' approach justifies the place of research in teacher education and claims a strong relevance for the quality of the training. If research provides new lenses for teachers to look at their practice, then research must be established as an essential part of teacher education programmes.

1.9 Planned national changes

Teacher education in Austria is in the middle of a big reshuffle. Based on new laws, new study programmes are being designed and put into operation. One of the main changes is that of placing colleges of teacher education firmly in the tertiary sector. As this process is well under way and in line with the Bologna Declaration of 1999, this will mean that teachers no longer leave the institution with a diploma, but with an academic degree. This in turn entails a new status for research, which will show in first-degree courses, but will be even more prominent in postgraduate studies.

It is clear that within the BA or BEd programmes a small-scale research paper will be a requirement. The research part in MA programmes will be increased and result in a major research paper.

1. 10 Current policy debates

The debate about teacher education has been going on for over thirty years in Austria and since the seventies one of the key questions has been whether primary and secondary teachers should be educated at the university or at colleges of teacher education. Only recently, Vierlinger made a passionate plea for a move into the universities (Vierlinger 1999). In the same year, however, the Academy Study Law was put into operation, which seems to prolong the split in teacher education with the establishment of the colleges of teacher education as "Hochschulen für pädagogische Berufe" before 2007 alongside with teacher education at the universities. We find ourselves in the middle of an ongoing debate the end of which is still open.

1.11 European cooperation

According to statistics, colleges of teacher education are more inclined to cooperate in European programmes and with European educational institutions than universities. That means among other things that a higher percentage of students study abroad and a higher percentage of staff participate in exchange programmes. This increased mobility has also led to cooperations in other fields. Some colleges of teacher education (e.g. Wien Bund, Baden) have linked up with European universities (e.g. Derby, Brünn) to open roads for their students to continue with a Master's Programme at their home institution, which is, however, designed and carried out by the partner university. This development is one of the promising options that the educational landscape in Europe has to offer.

1.12 Issues related to pre-service and in-service teacher education

One of the hot issues in the wake of the Academy Study Law 1999 is the relation of pre-service and in-service teacher education. The law prescribes a merge of these two areas into one institution. This is a difficult process because existing structures provide separate bodies for initial teacher education, in-service training of teachers at grammar schools and vocational schools, and in-service training of primary and secondary school teachers. Models for cooperation are under discussion (Gassner 2001), but existing persons in higher positions and existing power structures inhibit creative thinking in this area and limit the possibilities for action. What is needed is a courageous move away from the status quo into visions of cooperative work.

1.13 Conclusion

Research is beginning to be planted more firmly in the landscape of the colleges of teacher education now. There is a new law, there is a recently installed national research committee with the main function of promoting research, developing guidelines and opportunities, refereeing research projects and distributing funding, and there are attempts at every college to provide the necessary infrastructure for research. As the colleges proceed on the road into the tertiary sector, a growing contribution towards educational research can be expected.

2. The Role of Graduate and Postgraduate Studies and Research in Teacher Education at Austrian Universities

2.1 Research and initial teacher education programmes

Since teacher education at university level is based on the Humboltian idea of *Bildung durch Wissenschaft*, teacher education students have to be involved in research

issues to a certain extent. This extent varies from programme to programme but also within the universities according to the philosophy and understanding of the different research paradigms involved. Thus, the individual universities adhere to or pride themselves on certain research approaches in dealing with teacher education issues. Teacher education at the University of Graz, for example, has had a long tradition of historical research and looked at the system from a historical perspective (cf. Scheipl & Seel 1987 and 1988). For reasons of size and closeness to formerly centralized decision-making bodies teacher education research at Vienna University used to be involved both in international affairs and experimental approaches to new policy issues. Teacher education at Salzburg University prides itself on its lead in empirical research (see their regular internal journal with current research reports). Innsbruck and Klagenfurt Universities have built up their reputation in more qualitatively oriented research approaches in general and a stronger action research orientation in particular.

Whereas previously more traditional research concepts dominated academia (and also teacher education), more recently inquiry based elements have become popular in developing a professional identity. Thus, at the Department of Teacher Education and School Research at Innsbruck University first-year students are given small research tasks which enable them to experience their change from a pupil's perspective to a teacher's perspective by perceiving well known aspects of a school from a new perspective. The research agenda gives them the chance to see school through different eyes, among others through the eyes of a researcher. By finding answers to research questions like "How much homework do pupils get and how do they rate homework as a learning source?" or "How does the informal decision-making and power system of a school work?" they collect data from hitherto unknown areas and can thus develop a holistic and realistic picture of a school as a complex and contradictory work place (cf. Kroath & Pietersteiner 2001).

Through the need to become more research oriented, teacher education colleges have looked for closer contact with universities so as to gain from the latter's tradition in doing research. Thus at some universities, joint research seminars have been established, which became a kind of research laboratory for learning by doing research. To create a corresponding research culture, at least one of the research seminars is dedicated to applied educational research, which is either based on a single school (cf. Engstler & Schratz 2002, Tischler 2002, Weiser 2002) or has a focused approach dealing with a particular issue under discussion (cf. Brunner & Schratz 2002). A school or the school board or even a parent association can ask for research support. This is taken up by the university in cooperation with the teacher education college, and students, together with lecturers, conduct a corresponding research project at one or more schools. Both quantitative and

qualitative data may be used there. School(s) and teacher education institutions gain substantially from this: The first gets research support which they would usually not be able to pay for, the latter has the chance to give students the chance to learn how to apply research in the “real world” and thus get deep insights into particular issues of schooling at large.

During the course of the secondary teacher education programme, students complete three school practica. Each practical training is accompanied by theoretical and critical-reflective lectures of a preparatory nature. Already in the second semester of the teacher training programme, students spend two weeks in school. They have to carry out various teaching and action-research type of tasks while being supervised by an experienced teacher. After the practica, students present and critically reflect on their work and experience.

2.2 Postgraduate studies and teacher education programmes

2.2.1 A short history of graduate and postgraduate education in Austria

Although doctoral degrees have been conferred by Austrian universities since the late middle ages, real postgraduate education does not have a long history in Austria. For several centuries university education was ended with graduation. Up to 1848 graduation was marked by a master’s degree, which was afterwards changed to a system of graduation with doctoral degree only. Then master’s degrees were abolished except for the study of pharmacy.

Postgraduate education in Austria did not start until 1963, when the Institute of Higher Studies and Scientific Research (Institut für Höhere Studien, IHS) was founded with the support of the US government. Here, for the first time young graduates were offered research places in economics and the social sciences. The courses took place in Vienna and New York, drawing staff from both countries.

In 1966 a reform of the Austrian study laws governing the university sector was put into practice introducing the master’s degree for graduation. The doctor’s degree was shifted from graduation to the newly created doctoral studies, the ordinary courses in postgraduate education. This innovation, however, was not immediately followed by special university study laws which would have homogenised the university system. Since 1978 undergraduate and postgraduate studies have been separate areas of study at any faculty except for the curricula in medical schools¹.

At the end of the 1980s Austrian universities recognised the demand for non-doctoral postgraduate education. Several programmes of continuing studies have been founded offering more specialised and practical education to graduates and undergraduates². Admission for many of these programmes can be restricted to

graduates. In most cases, however, a comparable professional experience enables undergraduates to take part in these programmes.

2.2.2 Organisation of postgraduate studies leading to a PhD

The 12 Austrian universities and 6 colleges of art and music (with university status) offer a total of 430 study programmes and more than 600 different study options. Doctoral studies can be started in any discipline of university graduation studies. Since the faculties of the Humanities and Natural Sciences can be found most frequently at Austrian universities resulting from their role as basic components of historic universities, doctoral study programmes in these fields are offered throughout the country.

The formal prerequisite for being accepted as a doctoral student at a particular faculty is the first (diploma) degree awarded by an Austrian university or the equivalent from a university abroad which has to be accredited by a nostrification commission. Medical studies are an exception, because there is still no differentiation between diploma and doctoral studies. With the introduction of new fields of study to be covered by the “Fachhochschulen” (polytechnics), offering shorter and more practically oriented academic courses, the transfer for students who want to continue their studies with a doctorate has been made possible (art. 5 para. 3 FHStG). Their doctoral studies, however, comprise two additional semesters, as their basic training was shorter than that of ordinary MA students³.

Each faculty has special regulations on doctoral studies. These have to be in accordance with a general curricular framework set up by the Ministry of Science and Research. They are published in the *Mitteilungsblätter* (circular letters) of the universities and form the curricular requirements for doctoral studies in the respective faculty. The course requirements for doctoral studies vary from faculty to faculty (Arts: 12 SWS⁴, Law: 17 SWS, Natural Sciences: 22 SWS).

As in other countries, in order to fulfil the legal requirements, doctoral students need to hand in a doctoral thesis. The thesis has to be accepted by two professors or other senior researchers with a *venia docendi* (one of them being their supervisor), before the students can take the final doctoral exams (*Rigorosum*). The doctoral exam is usually held by the dean of the respective faculty and the two supervisors of the doctoral student.

2.2.3 Teacher education programmes

The recent move from a study programme with a strong focus on subject discipline to an integrated undergraduate teacher education programme at Austrian universities has opened up more research work in the fields of subjects didactics

and pedagogy. According to the new study laws students are required to hand in a master's thesis which is school-based in its character. Previously the final research product was oriented towards the subject disciplines such as mathematics, language and literature, music etc., since their professionalism used to be defined by the subjects they had to teach (later on). Therefore it was difficult for students moving into postgraduate work to meet the expectations of an educationally oriented doctoral work, which is usually based on a different research paradigm.

Formally there was no problem for students finishing their teaching degree to continue with postdoctoral work in education. Their status as students in teacher education entitled them to go in for further research work in a doctoral programme. Whereas the master's degree courses are structured by tight curricula, doctoral studies show a loose framework for the organisation of the respective courses. In fact, most departments of (teacher) education do not offer particular courses for doctoral studies. This results from the special situation of the doctoral student's work being focused predominantly on the doctoral thesis. PhD students usually enrol for courses offered by their supervisors so as to keep up to date with his or her latest research interests. Doctoral studies are not visible as distinct areas of study at most Austrian university departments. Only recently, research competence centres have been founded at some universities (such as Klagenfurt and Graz) which bring together doctoral students in (teacher) education in a more coherent and systematic way.

The thematic areas of dissertations in teacher education are either related to the didactics in the subject areas or particular areas in pedagogy or applied education. Since there are only few departments of didactics in subject areas in Austria (such as the Natural Sciences), graduate students wishing to write a dissertation in a didactic area of a particular subject have to find a supervisor in the area of pedagogy who himself or herself might have studied the subject area chosen. Since there are no formal restrictions for taking up graduate studies (apart from fulfilling the prerequisites mentioned), there is no *numerus clausus* or competition for places. The only problem might arise if there is no qualified supervisor available for a particular research ambition.

As the entrance qualification for becoming a teacher at a college of teacher education is very competitive, teachers from primary and general secondary education who want to apply for a job at a teacher training college tend to go in for postgraduate studies in a part-time arrangement. They are usually interested in school or classroom based topics, therefore there is quite a stock of dissertations available which have been written in the area of teacher education. In the national statistics of doctoral degrees there is no differentiation between students doing work in a teacher education related area and those writing a dissertation in general pedagogy.

Therefore it is not possible to report how many of the dissertations are closely related to classroom practice.

2.3 Research on teacher education and teacher work

New developments in the opening up of teacher education programmes for challenges of practice has led to increased research activities on certain aspects of teacher education. Examples of this development are – just to name a few:

- The crucial first phase of the beginning of a teacher education programme at various universities (Bachmann 1997, Hofmann & Thonhauser 1998, Kleiner, Peter & Wagner 1998, Kroath & Mayr 1999).
- The quality and development of school practica (Schatz 1986, Schraffl 1998, Grohmann 1998, Schneider-Sagmeister & Frontull 2002).
- The integration of practica into other courses within teacher education (Herber, Rath & Weiglhofer 1998, Mann 1998, Vielhaber 1998).
- Research in the didactics of certain subject areas (Unterbruner 1994, Krainer 1998, Scharer 1999, Ecker 2002, Hinger, Skinner & Stadler 2002).

The research underlying those publications shows that there is not a stringent research tradition of large scale projects in teacher education. The titles rather mirror the colourful and varied approaches in the attempt to investigate into the workings of teacher education at university level, where research used to be mainly based in the more traditional domains of the natural sciences or the social sciences. This array of approaches has its strengths in the multiple strands and methods used to tackle the research challenge. Its weakness lies in the relatively unsystematic research agenda in the field of teacher education at university level in Austria.

However, a more systematic approach can be found in the trend of teacher education as research in Austrian teacher education, which has been based on the English tradition of action research (cf. Altrichter & Posch 1991). Rather than separating research from action it links classroom development with teachers' professional development and school development. This movement has its origin in the professional development programme PFL (pedagogy and subject-specific methodology for teachers) in Austria, which offers two year university courses for lower and upper secondary school teachers. It aims at establishing a community of practitioners, where systematic and joint reflection on one's own and others' practice is a crucial feature of professional growth. Since 1982, four

PFL mathematics, two PFL science courses and twelve PFL courses for other (groups of) subjects, each attended by about 30 participants, have taken place (see e.g. Krainer 1998). In order to cope with the intent to keep a good balance between theory and practice, most PFL courses are led by an interdisciplinary team of five members (educationalists, subject matter specialists, experts in didactics, experienced practitioners).

Each course lasts for four semesters and consists of a variety of formats, in particular three one-week seminars, five one-and-a-half-day regional group meetings, and individual practical work. One special feature of PFL is that all teachers are expected to investigate their own teaching and to write at least one case study which documents a systematic and critical reflection on their practice (action research). The research question is the teacher's own choice and usually reflects a challenging aspect of his or her practice, for example, the introduction of a new teaching method or the stressful feeling that a mathematics teacher always has "to deal with mistakes". Until 2000, nearly 100 reflective papers by mathematics and science teachers have been published in a special PFL case study series.

The continuous evaluations of the PFL-programme showed that it was successful in promoting teachers' growth and in building up a community of practitioners. Indicators of that include data from case studies indicating more innovative and effective teaching, reports about teachers that contributed to the development of their school or careers as teacher educators, book authors, superintendents, etc. However, the evaluations also showed that, on average, few participants succeeded in having a relevant impact on the further development of the subject group at their school. In contrary, often participants' activities were regarded rather critically and caused (open or hidden) resistance or opposition.

2.4 Research funding and support

Funding for research in teacher education at Austrian universities underlies the same criteria as any other field of research. However, the Ministry of Education funds projects which stimulate the enhancement of teacher education practices for the future.

Beginning with 2001, Austrian teacher educators and researchers have started the first international journal solely based on teacher education called *Journal für LehrerInnenbildung*, which aims at enhancing research and its publication for a broader audience. Research findings in teacher education were previously restricted to be published in general education journals, which has channelled thematically oriented research to collections of articles in books. At Vienna University a more

didactically oriented journal called *Didaktik* was published more for providing students with relevant information from the sphere of teacher education and pedagogy in general. Journals in didactic areas of specific subjects have long provided a public medium of exchange among teachers.

Several collections from conferences and workshops mark the way of the struggle of teacher education at Austrian universities on their way from being hardly noticeable to an influential factor within the scientific community (cf. Altrichter et al. 1983, Mayr, Schratz & Wieser 1993, Diem-Wille & Thonhauser 1998, Brunner et al. in press). In 2000 an association of educational research in Austria was founded with a big section for teacher education. It aims at supporting researchers in educational research by means of conferences, publications and other services necessary for a community of professionals finding acceptance in academia.

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Footnotes

- 1 Bundesministerium für Wissenschaft und Forschung (Ed.): Das Österreichische Hochschulsystem. Wien: BMWF, 1992, pp 50-53, 65-68.
- 2 Bundesministerium für Wissenschaft und Forschung (Ed.): Das österreichische Bildungssystem in Veränderung. Bericht an die OECD über die geplanten Diversifikationen des Postsekundarsektors. Wien: BMWF, 1993, pp. 57-58.
- 3 Bundesministerium für Wissenschaft, Verkehr und Kunst: Hochschulbericht 1996. Bd. 1. Wien: BMWVK, 1996, pp 47-48.
- 4 SWS: Semesterwochenstunden (time units covered per term)

Le rôle des études de graduat et de postgraduat et de la recherche dans les politiques de réforme de la formation des enseignants

Danielle LIETAER

Préambule

En Communauté française de Belgique, la formation initiale des enseignants s'effectue selon deux voies distinctes :

- Les instituteurs préscolaires, les instituteurs primaires et les régents (professeurs du secondaire inférieur) sont formés dans l'enseignement supérieur non universitaire, au sein des Hautes Ecoles. Leurs études sont de trois ans.
- Les agrégés de l'enseignement secondaire supérieur sont formés à l'université, dans un programme de 300 heures, accessible aux diplômés du 2^{ème} cycle (il peut être entamé ou totalement poursuivi en parallèle avec les études de 2^{ème} cycle).

La formation initiale des quatre catégories d'enseignants a été revue récemment (décrets des 12 décembre 2000 pour la formation des instituteurs et des régents, décret du 8 février 2001 pour celle des agrégés universitaires). La mise en application de ces décrets est fixée au 1^{er} septembre 2001.

La formation en cours de carrière n'est pas académique : elle ne donne pas lieu à une certification ni à une valorisation financière. Elle s'articule à des préoccupations actualisées chaque année.

1. Les programmes de formation des enseignants sont-ils :

- reliés à la recherche en général, et si oui, comment ?
- reliés aux études de doctorat, et si oui, comment ?

La préoccupation de la recherche est présente dans la formation initiale de tous les enseignants. D'abord, elle figure dans la définition des compétences à développer avec eux. Citons par exemple les compétences suivantes :

- Concevoir des dispositifs d'enseignement, les tester, les évaluer et les réguler ;
- Entretenir un rapport critique et autonome avec le savoir scientifique passé et à venir
- Porter un regard réflexif sur sa pratique et organiser sa formation continuée.

Parmi les activités d'enseignement nécessaires pour atteindre ces objectifs de formation avec les instituteurs et les régents figure un axe de formation intitulé « l'appropriation d'une démarche scientifique et d'attitudes de recherche » qui comporte les cours suivants : une initiation à la recherche documentaire, des notions d'épistémologie des disciplines, une initiation à la recherche en éducation et la réalisation d'un travail de fin d'études.

Pour les études de l'agrégation de l'enseignement secondaire supérieur, l'axe qui correspond au développement de ces compétences est « l'appropriation des connaissances pédagogiques assorties d'une démarche scientifique et d'attitudes de recherche ». Il comporte deux parties :

1. La transposition didactique comprend l'épistémologie de la discipline, la didactique de la discipline, la recherche en didactique de la discipline, l'approche interdisciplinaire, la connaissance et l'exploitation pédagogique des médias et des technologies de l'information et de la communication.
2. La formation pédagogique intégrée aborde les domaines de l'évaluation des apprentissages, des processus d'enseignement et d'apprentissage, de l'étude critique des grands courants pédagogiques et de la recherche en éducation.

Les programmes de formation des enseignants ne sont pas reliés aux études de doctorat. De plus, il n'y a pas d'obligation de posséder un titre de docteur pour enseigner dans les Hautes Ecoles. Toutefois, les détenteurs d'un doctorat peuvent accéder à des fonctions de rang 2 (professeur, chef de travaux) qui sont mieux rémunérées que les fonctions de rang 1 (maître assistant, chargé de cours).

2. Les études de graduat et de postgraduat et les programmes de formation des enseignants :

- offrent-ils la possibilité de participer à un programme de doctorat ?
- quelle est l'organisation de tels programmes de doctorat ?

Il est possible à tous les licenciés universitaires d'entamer un doctorat. Il le font généralement dans leur discipline scientifique, mais il est rare que des licenciés,

porteurs de l'agrégation de l'enseignement secondaire supérieur, effectuent une thèse de doctorat dans le domaine de la didactique de leur discipline. Quelques cas sont mentionnés par les universités, très récemment, mais ils demeurent des exceptions.

Les enseignants diplômés des Hautes Ecoles n'ont pas accès à des études de doctorat.

Les doctorats sont des études de 3^{ème} cycle relatives à la préparation et à la soutenance d'une thèse de doctorat. Elles ne comportent pas une organisation particulière : l'étudiant mène ses travaux de recherche en grande autonomie.

3. Besoins en docteurs :

- à l'intérieur de la formation des enseignants.
- A l'intérieur du secteur de l'éducation au sens large.

Il ressort de ce qui précède que les docteurs sont peu utilisés dans la formation des enseignants en tant que formateurs. Toutefois, leurs compétences en recherche et les résultats de leurs travaux alimentent les réformes et les réflexions développées en liaison avec le système éducatif et la formation des enseignants. Ainsi, tout le travail de définition des socles de compétences et des compétences terminales correspondant à l'obligation scolaire a été réalisé en étroite collaboration avec les équipes de recherche en sciences de l'éducation, dans lesquelles travaillent de nombreux chercheurs, doctorants ou docteurs.

4. La recherche en relation avec la formation des enseignants :

- Financement ?
- conduite par qui ?
- impact sur la formation des enseignants et sur le système éducatif ?

Dans le cadre de deux décrets, définissant une nouvelle formation pour les enseignants de l'école obligatoire, des recherches ont été demandées à des équipes universitaires. Elles ont trait par exemple à l'élaboration d'un dispositif d'accompagnement du début de la carrière des jeunes enseignants, à la formation des maîtres de stage (enseignants qui accompagnent les étudiants futurs enseignants dans leurs stages pédagogiques), à la formation des professeurs qui forment les futurs enseignants à l'exploitation pédagogique de technologies de l'information et de la communication et à l'ouverture à la diversité culturelle.

Ces travaux sont financés par le Gouvernement, sur des budgets affectés à la recherche en éducation.

5. Aspects spécifiques reliés au rôle des études de graduat et de postgraduat et la recherche dans la formation des enseignants :

- Débats politiques actuels
- coopération européenne

Les questions actuellement soulevées ont trait à la manière d'informer les enseignants en activité des résultats des recherches menées dans le domaine de l'éducation et de la pédagogie. Au printemps 2000, la Ministre ayant en charge l'enseignement supérieur et la recherche scientifique a mis en place un Congrès des chercheurs en éducation. Organisé tous les deux ans, il permet de faire le point sur les récents développements de la recherche. Les instituteurs, les régents, les agrégés en fonction dans l'enseignement obligatoire, mais aussi les futurs enseignants et leurs professeurs sont invités à participer à ce Congrès, dont la deuxième édition est prévue pour mars 2002.

Une association des chercheurs en éducation a été mise sur pied, à l'initiative de la Ministre de l'enseignement supérieur et de la recherche scientifique.

Le Ministère de l'enseignement de la Communauté française publie « Le point sur la recherche en éducation », un bimestriel qui présente de synthèses de travaux de recherche. Cette brochure est envoyée dans toutes les écoles, à destination des enseignants.

The Research Aspect – An Important Part of the Institutional and Educational Changes of Recent Years in Danish Teacher Education

Paul Heide

The institutional and educational changes, which have taken place in the 1990's in a number of European countries, have to a great extent had an impact on the transformation of programmes and institutions which has taken place in Denmark in recent years. The close international contacts in EU- and OECD-fora between politicians, civil servants, educational planners and researchers and the reports and papers resulting hereof have an increasing impact on national decisions with regard to the organisation of programmes and the development of institutions.

The three international trends in higher education, which have been subject to discussion and decision-making, and which have had a decisive impact on the changes of the education system, which are described below, are

- Structural reforms – towards fewer and bigger institutions with a broader supply of programmes
- An extension of an attractive alternative to the university sector
- An upgrading of the non-university sector through research affiliation and development foundation.

In my article, I will give and account of the institutional and educational changes which are now about to be implemented in Denmark (autumn of 2001), in particular those involving the teacher education programme and its institutions. First some introductory remarks about the educational background of the teachers in the Danish Gymnasium (general upper secondary school) and Folkeskole (municipal primary and lower secondary school):

In order to be able to teach in the Gymnasium in Denmark, a prospective teacher must have completed a 5-year *candidatus*-programme in two subjects at a university with a subsequent postgraduate teacher training module, which is both practical and theoretical.

In order to be able to teach in the Folkeskole (1st to 9th form), a prospective teacher must have completed a teacher education programme at a college of education.

After the most recent reform from 1997, the student teacher undergoes a 4-year programme, where he or she is trained in the pedagogical subject area and in Christian studies/philosophies of life as common core subjects, and subsequently (according to certain rules) he or she chooses four of the subjects of the Folkeskole as main subjects, to which should be added teaching practice (of a total duration of 24 weeks). General didactical and subject-didactical considerations are incorporated in all parts of the programme, and the teaching is largely (almost totally) carried out by university educated associate/assistant professors with an educational background based on research.

It is the future conditions of this 4-year medium-cycle higher education programme and its institutions which are the focus of this article.

By way of introduction, it must however also be mentioned that the universities are undergoing an expansive development of education and research in pedagogical, psychological, general didactical and subject didactical topics, which will not just be of benefit to general upper secondary education but to the entire area of education.

For a great number of years, this type of research has first and foremost been carried out at the Royal Danish School of Educational Studies, but during the period in which this institution was closed down in order to reappear in 2001 as the Danish University of Education, other universities have also taken interesting initiatives. In 1998, the University of Southern Denmark established a "Department of Higher Secondary Education", which for the moment has 20 PhD-students enrolled (Gymnasium teachers, whose PhD-programme is paid for by the employers, i.e. the counties); at Roskilde University, 50 students are for the moment following the PhD-programme at the "Department of Educational Research"; at the Centre for Studies in Science Education at Aarhus University, four PhD-students follow the programme, and at the "Centre for Educational Development in University Science" (a co-operation between seven universities) 12 PhD-students are pursuing their studies. (It would have been better, if this figure was higher, as we have a great shortage of teachers who can attract more students to the natural sciences study programmes!). The Danish University of Education has no less than 130 PhD-students, of whom the majority are, however, part-time students.

It should be added that the Ministry of Education is for the moment - modelled on a British example - contemplating to make it possible to enrol for a research programme leading to a "professional PhD-degree", where the student will most often have a job alongside his or her PhD-studies.

The interest in initiating further education within the pedagogical subject area at the universities has also been stimulated by the new further education system for

adults, where learners with a relevant educational and professional background can be admitted to the Master's programmes of the universities under their "open education" system. In this context, 195 students are for instance following the Master's programme at the University of Southern Denmark's Department of Higher Secondary Education"; and they are all Gymnasium teachers who have their education partially paid for by the employers (the counties); and at the new university, the "Danish University of Education", which opened with great success in September 2001 with an intake of 900 students, 100 of these follow a pedagogical Master's programme under its "open education" system.

The institutional changes – two ministerial Green Papers

In January 1998, the government submitted a report, "The Educational Institutions of the 21st Century", on the institutional structure in higher education to the Parliament, and at the same time the then Minister of Education Ole Vig Jensen published a Green Paper with the same title. According to this Green Paper, the overall objective of a structural reform is to get

- an educational sector which is able to offer at least 50% of a youth year group a higher education programme at a high qualitative level;
- an institutional structure which maintains a geographically (but not necessarily institutionally) spread offer of education;
- an education system which is characterised by a high degree of flexibility - not least in relation to credit transfer between different levels of education, different areas of education and different educational institutions;
- an education system which at all graduation levels can deliver education and training at the highest qualitative level;
- institutions which are able to function naturally as knowledge and resource centres at regional level – not least as an active partner for trade and industry.
- an institutional framework, which ensures that the institutions will be able to satisfy the increasing demands for lifelong learning in an effective and flexible way and at a high level;
- an education system, which will be efficient in meeting the demands for internationalisation;
- an education system, which ensures an efficient and target-oriented involvement of research at the relevant levels; and
- an education system, which ensures an efficient use of IT in education and research.

In the introduction to the Green Paper, it is stated that most of our neighbouring countries have reduced the number of higher education institutions significantly, and this is among other things illustrated by a reduction of the number of institutions from 350 to 84 in the Netherlands, from 98 to 30 in Norway, from 161 to 29 in Belgium and from approx. 100 to 36 in Finland.

In Denmark, there are 195 institutions corresponding to one higher education institution per 26,000 inhabitants, whereas in Sweden they have one higher education per 258,000 inhabitants, and in Finland one per 142,000 inhabitants.

The great majority of the many institutions are concentrated on a few locations (the big towns of Aarhus, Copenhagen, Odense and Aalborg) and approx. $\frac{1}{4}$ in the Greater Copenhagen Area. Most of the smaller educational institutions with less than 100 students are located outside these four big towns.

As education and research constitute a nation's best economic means in the long term, the Green Paper naturally asks the question whether the existing institutional structure is optimal when it comes to meeting the demands and challenges which the education system will be facing in the future. Is it the right number of institutions? Do they have the proper geographical distribution and location? Do they have the optimal structure and way of functioning? These are the main questions asked in the Green Paper. And it did so at a time (1998), where the youth year groups were declining, after which they will increase again from approx. 2005 by approx. 40% up to 2010. The time was thus well chosen for the full implementation of a reform, before the big youth year groups were ready to enrol in higher education.

The ambitious target is that 50% (against 39% today) of a youth year group are to complete a higher education programme.

After a number of years with a great number of reforms of the programmes, the primary objective of the institutional reform is - as it is with some lack of moderation expressed in the Green Paper - "to lay the foundation for one of the best education systems in the world, which will be able to guarantee Denmark's welfare and prosperity well into the 21st century".

As another very important objective, it is mentioned that the institutional reform is to ensure that "high quality programmes are still offered in the local areas", and it is to turn the present trend where young people turn away from the local areas to go into the big educational towns.

A structural reform must - according to the Green Paper - include quality development in all areas of education, but here it is in particular the medium-cycle higher education programmes which it has in mind. Here, a reduction of the number of institutions (but not necessarily of the number of study places) will be a means to develop the quality of the programmes.

At the end of the Green Paper, two models are suggested for the future institutional structure. According to one model, the medium-cycle higher education programmes are to be merged with the universities. At these, higher education at a high international level is offered with a dynamic focus on research. The mergers are on the one hand to ensure a greater scope in the educational supply and the competency profiles of the institutions; and on the other hand they are to provide the financial basis for education and research at the highest qualitative level. The medium-cycle higher education sector will - through an affiliation to the universities - get a lift in terms of the depth of the study programmes, and the universities for their part may be revitalised through the merger.

From the outset, this model practically did not have a chance on earth to be carried through, and this was first and foremost due to the rooting which the medium-cycle higher education programmes have in the local and regional environments and in the popular movements they originate from (e.g. ecclesiastical movements, adult education associations and the labour movement).

The interest therefore from the outset gathered around the second model, which introduces a new institutional structure called the CVU (centre for higher education). The idea behind this model is that the existing medium-cycle higher education institutions - the so-called MVU-institutions - and also the short-cycle higher education institutions - the so-called KVVU-institutions - in a region are to be gathered in one institutional framework, whereby the individual institution will be able to develop in a new way "into an attractive partner and opponent in the regional community". According to the Green Paper, this interaction can "take its point of departure in concrete product development and systematised transfer of knowledge, further education modules, integrated practical training, final projects etc." The idea behind this is to create a qualitative lift in the contents of the programmes and give them dynamics and development prospects. It is an important element that the MVU-programmes are to be given bachelor status, which will ensure the graduates access to certain *candidatus*-superstructure programmes at the universities. By developing this educational alternative at regional level and giving the MVU-programmes bachelor status, the pressure on the university towns will also be relieved.

In the second institutional Green Paper on the structure of higher education, which was published the same year (1998) by the new Minister of Education Margrethe Vestager, the ideas of gathering in particular the MVU-programmes in centres were further unfolded, among other things in that it was now suggested to make a subject-specific division of the centres so that some would be affiliated to the pedagogical subject area (the educator training programme, the home economics and textile design teacher education programme, and the Folkeskole teacher education programme), whereas others would be affiliated to the technical/commercial subject area (the engineering programmes and certain higher business programmes). It was again underlined that a structural reform was to create bigger and less vulnerable study environments, that it was to strengthen the horizontal and vertical coherence in the educational supply, and that it was to aim at a conscious development of the competencies of the teaching staff through a continuous offer of in-service and further training courses.

None of the two Green Papers suggested a physical merger of the institutions. The programmes will thus continue to be offered in the 195 different locations, and it will be up to the individual centre management to decide on the number of study places that are to be affiliated to the centre. The forward considerations in the Green Papers about the development of a new institutional structure would no doubt have significantly better chances of being realised by moving the programmes of one centre in under one roof, but from a socio-economical point of view it would certainly be a heavy task to lift, and suggestions have been voiced in the course of the deliberations of building campus-like centres like the ones they for instance have in Norway.

The establishment of the centres

As indicated above, the idea of affiliating the MVU-institutions to the universities was rapidly abandoned. At the institutions, there was and is an expressed desire to be affiliated to the universities' research environments, but there was also a quite understandable fear of getting poorer conditions through a merger with the universities.

Examples were given to the effect that turning the teacher education programme into a university programme had in some countries given it significantly poorer conditions to function under in the form of reduced grants to the programme. Large classes and less teaching seem to be a result of being placed under a university, where the initial education in the first years is taken care of by teaching assistants and not by teachers with a research-based education, and this does in fact eliminate an essential reason for being part of a university.

The institutions then went together to discuss whether they wanted to form part of a CVU or stand alone. From political side, they - in a typical Danish way (positively speaking) - left the decision about this to the management of the individual institution (board and rector), and in the Ministry's proposal there has been more carrot than whip. And an institution, which chooses not to join a centre, does not get much poorer financial conditions than the ones who join. But it will not become part of a community with built-in dynamics and a strong development potential, so in this way an institution, which stands alone, may very well risk to loose impetus and fall behind.

At the teacher education institutions, they have been very much aware of the possibilities in connection with the formation of CVU's, and there has been an if not overwhelmingly positive, then at least hesitantly positive attitude to it.

It has furthermore been an important incitement (also financially) that the in-service and further education of the teachers (of the Folkeskole) up to and including the diploma level will take place at the CVU's. This activity, which is very extensive in Denmark (with a purchase of substitute teachers amounting to approx. 800 million DKK per year), has throughout the 20th century been taken care of by the Royal Danish School of Educational Studies, which as already mentioned has now become the Danish University of Education, but this new institution will in the future only offer Master's, *candidatus*- and researcher programmes and be a research institution. One of the obligations it will have is the very important one of ensuring that the latest knowledge within its subject areas are made available to the CVU's.

The two ministerial Green Papers were the starting signal for a round of in-depth discussions at the institutions, in the regions and finally in the Danish Parliament, where the legislation on the "centres for higher education" was adopted in May 2000. At that time, they were already in the process of forming centres in the regions. In the autumn of 2001, three of the centres, which comprise education for the pedagogical professions (including also the health professions), i.e. education leading to the professions of pre-school teacher and social educator, teacher and nurse - and radiographers - have been formed, and another 9 are expected to be recognised and come into effect as from 1 January 2002. The 12 CVU's comprise approx. 60 of the 195 institutions mentioned. Only one college of education is not part of a CVU-formation. The number of technical/commercial CVU's is expected to be 12.

The founding institutions may decide to enter into an unconditional CVU right away, i.e. they merge immediately, and the responsibility for finances and programmes at the centre is moved from the individual partner institution to the

CVU-management (rector and board). They may also choose to enter into a conditional CVU, whereby the individual partner institution will continue to have the financial and educational responsibility for the initial education for up to five years, but not for in-service and further training, and at the same time the responsibility for the spending of the considerable funds, which are allocated to the CVU in the form of research and development funds, will lie with the CVU-management.

Most CVU's will start as conditional CVU's. They will understandably enough not surrender the considerable autonomy, which the medium-cycle higher education institutions have enjoyed for the past 10 years, just like that, in particular since they have handled this autonomy with great accountability (in the majority of the cases). It may be very difficult to follow the swing of the pendulum from a very decentralised system to a centralised one just like that, when things go well. And that is one of the reasons why great parts of the opposition in the Danish Parliament have said that, if they win the election (which will take place at the latest in March 2002), they will make the transition to the unconditional CVU voluntary for the participating institutions. The way the legislation is formulated now, the participating institutions in a CVU must merge at one point of time - and this will inevitably lead to a great limitation of the individual institution's freedom of disposal as far as financial and educational matters are concerned. Opposed to this, we have the community interest, which for the regions lies in creating strong, independent and high profile educational environments for forward-looking and attractive programmes - as an alternative to the universities, which is what is expected from the CVU's.

Professional bachelors

At the same time as the above act, another act on medium-cycle higher education (MVU) was also adopted. In this act, the title of "professional bachelor" becomes statutory, and it appears from the text that it is the minister, who decides whether a "programme under this act can be recognised to entitle the graduates to call themselves professional bachelors".

The decision to this effect is among other things based on "the aims, admission, contents, duration and structure of the programme, the qualifications of the teachers and the professional foundation, research affiliation and development foundation of the programme".

The requirement of research affiliation and development foundation has thus been mentioned explicitly, and that is something new for the medium-cycle higher education programmes in Denmark. Requirements are set for the contents of the

programmes as well as for the teachers who are responsible for the subjects and subject areas of the individual programmes.

In the teacher education programme, the teaching is as already mentioned carried out by teachers with a university degree as far as most of the subjects are concerned. In the educator training programme and the nursing programme, the frequency of university graduates is much less significant among the teachers, and therefore many of the teachers in these programmes have to pursue further education in the coming years in order to be able to live up to the requirements laid down in the act.

The ministerial order on teacher education contains provisions pertaining to contents and examinations and the use of external examiners in all subjects as well as a requirement to the effect that the student must in connection with one of his or her main subjects draw up a major subject-specific-pedagogical assignment on a topic chosen by him/herself. As far as this assignment is concerned, it is stated that the student must demonstrate “an ability to use subject-specific and pedagogical knowledge and academic working methods and scientific methodology”.

I mention this in order to illustrate that the requirements set for a professional bachelor are already built into the provisions pertaining to the teacher education programme, and the teacher education programme was indeed also very rapidly recognised to entitle the coming teacher graduates to call themselves professional bachelors. That is only fair enough! After all, the teacher education programme is a 4-year programme in Denmark, whereas the officially stipulated duration of study for a bachelor-degree is three years in most places.

Personally, I could have wished that Denmark had chosen to follow Finland's and Portugal's example and made the programme into a 5-year Master's programme. The new teacher education programme (in force from 1998), where the student is as mentioned above to choose four main subjects (in-depth study of four of the subjects of the Folkeskole), makes very great demands on the student, which he or she will have difficulties in meeting within the officially stipulated time of study.

In a time with teacher shortage, such a wish will however hardly come true, and they will probably instead resort to other measures (such as a reduction of the number of main subjects to 3) in order to ease the workload of the students, if it proves necessary in order to avoid a too big dropout from the programme.

As a professional bachelor, the graduate not only acquires theoretical and practical qualifications at a high level and a basis for performing a work function, but

also qualifications enabling him or her to pursue further education studies. The way is thus also paved for pursuing Master's and *candidatus*-programmes at the universities. It will be quite obvious for a teacher bachelor to pursue further studies at the Danish University of Education, but the other universities will also be open to the professional bachelors. Dependent on the programme chosen, it will however be possible for the universities concerned to require "bridge-building" in the form of supplementary courses of education.

A coherent further education system is thus now created for all medium-cycle higher education programmes leading to a profession (e.g. teacher, pre-school teacher and social educator, nurse, engineer etc.). As far as the teachers of the Folkeskole are concerned, it must however be added that they have since the 1960's been able to pursue studies for a *candidatus*-degree at the Royal Danish School of Educational Studies (now the Danish University of Education) - and many of these cand.pæd.-graduates (in the pedagogical subjects or in school subjects) have continued their professional careers as assistant professors at the colleges of education or other higher education institutions.

Research, development and knowledge centres and special action areas

In the provisions pertaining to the tasks of the CVU's, it is among other things stated that they are to carry out development tasks and function as knowledge centres in cooperation with interested parties from the labour market, including from the professions, which the programmes offered by the institution are directed at. These are thus special tasks which must be performed. I have for instance seen a knowledge centre at a CVU described as a "centre for learning in practice" and another one as a "centre for the teaching of adults". It will for a period of for instance 3-5 years be possible to attach staff to a knowledge centre with special expertise within the theme, with an obligation to compile and update knowledge on the theme as well as to offer knowledge dissemination both internally at the CVU and externally to the areas of the profession concerned. Knowledge centres will be subject to an increasing demand for co-financing.

Such tasks are to be performed with research affiliation - and this also applies to the development and knowledge centres, which are opened in connection with the programmes (both initial and further education programmes) that are initiated by the centres. It will be new tasks for many of the employees who form part of the staff of the centres, and the centres will therefore enter into contracts with the universities to this effect. In recent months, a number of contracts have been in the process of being drawn up, and an important element in these will be to get a qualified cooperation going between the researchers of the universities and the

teachers (associate professors) of the centres. According to an example that I have seen, this can within the field: "Education for pedagogical professions" be done by carrying out research and contributing to the development of the programmes within the areas which are relevant to the core issue: The relationship between the practice of the programmes, including theoretical introductions, and the requirements set by the practice fields to the performance of a profession.

The cooperation with the universities will furthermore entail that staff from the centres will on a continuous basis be exempted from their teaching and daily duties at the centres in order to be able to pursue researcher education at the universities.

To this should be added that researchers will for certain periods of time be affiliated to the centres and have their daily work there also as teachers; so the students in the initial, further and continuing education of the centres will meet them both as researchers and as teachers. On the other hand, it will also be possible for CVU-staff to be affiliated to the universities in connection with relevant research and development projects, and it will subsequently be possible to utilise this experience in the programmes of the centres.

Considerable financial resources will be allocated to the centres during the period 2001-2004, i.e. 400 million DKK. They are on the one hand to be used for the research and development projects, which are about to be prepared, but also for the following special action areas, which all CVU's, but also the short-cycle higher education programmes and the university programmes, are to contribute to with a total grant of 1 billion DKK (of which a great part must however be gained through productivity improvements required in the Finance Act):

- the identity and subject-specific innovation of the programmes
- credit transfer and flexibility
- focus on internationalisation
- good study quality everywhere
- ICT in the programmes
- teacher qualifications
- quality assurance, including external examination
- knowledge and development functions.

These eight points will in themselves contribute to a qualitative lift of the institutions and the programmes administered by these. For the MVU-programmes at the centres, they will also contribute to mutual inspiration and probably also more homogeneity between the programmes. They may also lead to the establishment of totally new programmes, which is one of the expected objectives of the centre formation.

As a thing, I hope, has appeared from this article, it is indeed very huge work tasks, which the ministry has had to carry out, since the ministers with their visionary Green Papers in 1998 gave the starting signal to the action-packed course, where one has now – as far as most of the CVU's are concerned – got as far as to their implementation as from 1 January 2002. At the institutions, the workload in connection with the preparation and establishment of the centres has also been rather huge!

It is now up to the management, staff and students of the centres to create the dynamics, innovative thinking and impetus which are expected from both the establishment of the new types of institutions and from the general ideas of the initial and further education of the programmes, which is a significant part of the reform work, and which together will radically change the educational scene in Denmark.

The Role of Graduate and Postgraduate Studies and Research in Teacher Education Reform Policies in England

Carolyn Holcroft

1) Teacher education programmes – extent to which they are connected with research and relationship to doctoral studies

Some providers of initial teacher training (ITT) in England require trainees to carry out research during their ITT courses, for example: Durham University; Homerton College, Cambridge; Oxford University and the Institute of Education, London University. And a couple of providers offer ITT courses which can then lead into Masters degrees.

We are encouraging ITT providers to take greater account of current research evidence on best practice in teaching techniques. For example, providers are expected to teach trainees to deliver the National Numeracy and Literacy Strategies in schools using the teaching methods adopted by the Strategies. The Teacher Training Agency (TTA) is also producing guidance on best practice based on research in areas such as: behaviour management: and raising the attainment of pupils from disadvantaged backgrounds.

The introduction of flexible ITT courses in England that are tailored to suit the needs and experiences of individual trainees raises issues about the pedagogy of training. The TTA are therefore producing guidance on best practice in relation to assessing the needs of individual trainees to help providers individualise training.

2) Possibilities for serving teachers to participate in doctoral programmes and the organisation of doctoral programmes

The government is providing substantial amounts of funding to enable serving teachers to participate in doctoral programmes and post-graduate research. £12 million will be invested over the next three years to extend Best Practice Research Scholarships (BPRS) and the Teachers' International Professional Development (TIPD) programme, which were launched last year. Successful applicants receive grants of up to £2,500 to do sharply focused research into key areas of classroom practice starting in the autumn term.

Teachers' International Professional Development gives teachers opportunities to undertake short study visits and exchanges to foreign countries to learn from good practice, develop international education links with other schools, carry out research and share information with a network of other participants. The opportunities provided will enable classroom practice to be assessed within a thematic context. Both BPRS and TIPD are open to all classroom teachers.

This year the Government has set aside £23.5 million to support award bearing INSET-training courses for teachers. Quality assurance arrangements developed by the TTA ensure course quality and relevance. Award bearing courses are those that directly lead to a recognised professional or academic qualification at postgraduate level, accredited by a recognised body. We are currently attempting to embed research more closely into what happens in practice in the classroom. This should make research evidence more accessible and readily used by teachers, and improve teachers' skills in critical appraisal. The School Based Research Consortia has funded a significant amount of research activity in schools that is of high quality and meets academically rigorous quality assurance criteria. Each research project is subject to peer review by a panel of academics, teachers and policy specialists.

Teachers tend to work towards subject related Masters degrees, Masters degrees in education, and PhDs. Increasingly, teachers are also working towards doctorates in education (EdDs), which are more closely related to classroom practice. From next year some universities are introducing a new Masters in Teaching (MTeach), which is designed to be a stepping-stone towards EdDs.

3) Needs for PHDs within teacher education and within the education sector at large

We have no hard evidence on the proportion of teacher trainers and teachers who have PhDs or other post-graduate qualifications. However, we are seeking to encourage more teacher trainers and teachers to undertake EdDs.

4) Research into teacher education:

a) Funding Research is funded from a variety of sources, but the major source of funding is central government, which accounts for about 80% of total spending. The funding of educational research is, however, under review.

b) Conducted by whom? University departments of education lead 90% of research work.

c) Impact on teacher education and the school system The attempt to root research more closely within the classroom context, should help maximise the benefits of research activity. The TTA is also attempting to establish a more systematic method of reviewing research activity, working in partnership with the EPI centre at the Institute of Education, the DfEE and the National Union of Teachers.

5) Specific issues related to the role of research in teacher education:

a) Current policy debates

We are currently seeking to target funding for research at priority areas, for example: pedagogy; child development; behaviour management; special educational needs and boys' attainment compared to girls.

b) European cooperation The TIPD referred to in the answer to 2a) above is relevant.

Finnish Teacher Education and Research

Armi Mikkola

1. The structure of Finnish teacher education

All education for comprehensive and general upper secondary school teachers is available in faculties and units of teacher education. Teacher education in Finnish is provided by seven universities and three art academies and in Swedish by one university. The basic qualification for school teachers is the master's degree. Class teachers teach all subjects at the lower stage of comprehensive schools (classes 1-6). Subject teachers teach one or more subjects at the upper stage of the comprehensive school (classes 7-9) and/or in upper secondary schools. They can also teach in liberal adult education institutions and in vocational institutions (e.g. mathematics, physics, chemistry, native language, foreign language). Class teacher trainees study for the higher academic degree (master's, 160 credits) majoring in education. Subject teachers also have a higher academic degree of 160 or 180 credits and a major in the subject(s) they intend to teach. The main structure and components of studies are summarised in Table 1.

Table 1. The main components of Finnish teacher education

| | Major | Minors | Master Thesis | Teaching practices | Other studies |
|--|---|---|-------------------------------|--|---|
| Class teachers 160 credits | Educational studies in faculties of education 55 credits | Combination of basics of school subjects and specialisation in one or two subjects 35+35 credits | In education 20 credits | As a part of educational studies 20 credits | Language and communication Optional courses 10-20 credits |
| Subject teachers 160 or 180 credits | Different school subjects in faculties 55 credits | One or two other subjects and education in faculties of education 35+35 credits | In main subject 20 credits | As a part of educational studies 20 credits | Language and communication Optional courses 10-20 credits |

1.1. Experience of master's thesis studies

Teacher education evaluations explain how teacher graduates perceive the significance of their master's thesis studies. Most of the evaluations are very positive.

They emphasize the significance of the master's thesis for the cognitive process that teaches students to search for information independently and to think and be critical. Many students emphasize the importance of subject selection in thesis studies. The closer the subject matter was to the student's own interests and school, the more rewarding the process was felt to be. Long-range thesis studies were considered to be a valuable learning experience and applicable to the development and evaluation of one's own teaching work. Writing the thesis also taught the graduates to read the literature and research of their own field critically. The graduates point out that the thesis process has been useful for counselling their own students in project work. The master's thesis has also provided an incentive for further studies and general self-development.

Graduates for whom thesis studies presented a problem or who felt that the studies were not useful for teachers' work, generally criticized the subject choice or thesis tutoring. If the subject was thought to be too distant for the purpose of teaching or the school, thesis studies were not considered valuable.

2. Doctoral studies

Finnish universities combine research and teaching. Scientific postgraduate education is closely linked with research work performed at universities and research institutions. Students can begin working on a doctorate as soon they have obtained a master's degree. The licentiate is an optional degree and is not offered in all fields of study; in certain cases, licentiate programmes may include specialist training. Those who have completed class teacher or subject teacher education may apply to study for a licentiate or doctorate just like anyone else who has completed a master's degree.

The number of doctorates in Finland has rose sharply in the 1990s, with a record of 1165 doctorates completed in 1999. The number increased in all disciplines. As statistics on doctorates earned at Finnish universities in the field of teacher education are compiled by discipline rather than by profession, separate figures are not available. Although most dissertations in teacher education are made in pedagogics, some are in other faculties (for example languages, mathematics and natural sciences, history, religion, arts, crafts). In 1999, 67 licentiates and 54 doctorates were completed in education.

The graduate schools established in 1995 have greatly increased opportunities for full-time postgraduate education and the number of doctorates has risen considerably. Students in graduate schools are paid. They take top-level intensive

courses and receive research tutoring in Finland's leading teams, networking with national and international research centres. The graduate schools cover all the main areas of research. Together, they form a network ranging from units concentrated in a single faculty to nation-wide establishments combining the resources of several faculties. As far as teacher education is concerned, the most important are the Graduate School in Mathematics, Physics and Chemistry Education, the Language Learning and Teaching Programme, the Doctoral Programme for Education, Knowledge and Culture, the Finnish National Graduate School in Education (KASVA), the Doctoral Programme for Learning, Development and Education (OPKEKA), and the Graduate School for Multicultural Arts Education.

3. Content emphases of research

In Finland, although research related to teacher education is mainly conducted in the pedagogical sciences, research in the social sciences, psychology and the humanities is also relevant to teacher education. Pedagogic research is concentrated at eight universities and their faculties of education and departments of teacher education. Three art academies conduct research in art education.

The strength of pedagogic research is that it is multi-disciplinary and methodological. It covers the key areas of education and the educational system. Research focusing directly on the field itself has proved important for the development of the discipline. At the same time, diversity and practicality are the weakness of pedagogic research because they result in divergence. In research and development serving a practical end, the scientific and critical approach may remain superficial. The educational administration, local authorities and the media all expect immediate answers from researchers specializing in teacher education to any acute problems that may arise. Although it is socially significant that pedagogic research generates up-to-date information, it does not necessarily support the long-term needs of research. The challenge of the discipline is to find issues of both scientific and international importance in studies serving national interests. This would promote the development of a strong disciplinary identity.

Traditionally, educational psychology and subject didactics have played an important role in Finnish pedagogical research and the development of teacher education. In content, they are represented in the research programmes of all universities. Although the significance of educational sociology for the social aspects of teacher education is essential, educational sociology as a subject is not very visible in the research activities of the universities that provide teacher education. A stronger emphasis of educational philosophy in research has also been considered important for teacher education. The volume of research directed at evaluating adult

education and training has increased considerably, bringing new diversifying aspects to teacher education. The various learning processes, prevention of exclusion and multicultural concerns have emerged as new, interesting objects of research. Pedagogical research clearly focuses on the development of new learning environments and the pedagogic adaptations of information and communications technology.

4. Research funding

Nearly 70 per cent of university funding comes from the State budget via the Ministry of Education. In addition to funding from the State, universities are increasingly procuring external funding and expanding their priced services. Although steering by the Ministry of Education covers only activities financed from the State budget, the Ministry and the universities have agreed that external funding should also promote the objectives set for them. The operating expenditure agreed upon in result negotiations between the Ministry and the universities comprises basic funding, project funding and performance-related funding. Basic funding is intended for permanent uses such as salary and facility costs for research and teaching. Since 1997, a formula-based model has been implemented gradually. It allocates basic funds to universities according to their target for master's degrees and doctorates weighted by field of study. Since the multipliers used in the university funding model are for individual disciplines, teacher education is not considered separately for funding purposes. Consequently, in teacher education teaching and research receive most of their funding through the basic university funding model, in part from education and in part from other disciplines (subject teacher education).

In Finland no separate statistics are compiled on teacher education research funding because research funding is monitored by discipline. If research funding for pedagogic research is used as the basis of study, the main external research sponsor together with the education administration is the Academy of Finland. Academy funding has for example been directed to research on impact evaluation of education, teacher education included. The education administration's research funding has been generally allocated to studies of current issues.

5. Research example

As an example of a comprehensive teacher education research project, there is a brief description below of a teacher education impact study which was implemented as part of a larger education impact study funded by the Academy of Finland. The final report was published in 2000.

The impact of teacher education was studied through internal and external evaluation. The internal impact evaluation of education was carried out by students taking part in the education, teacher trainers, and class teacher and subject teacher graduates. The internal evaluation also covered self-evaluation by the educational units themselves and the methods to be developed.

The external impact evaluation was conducted by external parties, in other words, those who are the object of teachers' activities and the parties who place expectations on the school's operations in view of Finland's economic and cultural goals. These external evaluators included schools, students' parents, business and industry, representatives of business and industry as well as representatives from the fields of culture and education. The external evaluation was conducted using interviews, questionnaires and seminars.

The project aimed to build a comprehensive view of how well the goals of teacher education were achieved and to analyse specific areas of impact. It focused on the following themes:

1. An overview of the capabilities gained by class teachers and subject teachers from teacher education at three universities
2. Individual studies of the impact of teacher education by subject. The themes of these studies included active learning environment, information and communications technology skills, media education, multi-culturalism and equality, facing ethical problems, teachers as developers of their own work, teachers' personal development and support by education, and the relationship between teacher education, school and society.

6. Research challenges in teacher education

Our concept of learning affects all aspects of educational practice: the research methods, our vision of the challenges and opportunities involved in learning, evaluation methods, and how we support learning in diverse surroundings. There is a clear connection between the way we conceptualise learning and the way we design our learning environments.

All of this is of particular importance in view of the rapid development of ICT and the multiplying needs of society. The concept of learning is in a state of flux. The more we know about it, the more broader its definition becomes. In this context, it is especially important to remember that learning is much more than an individual cognitive process. It is a highly context-dependent and socially-determined activity. Particular attention should be paid to aspects of learning

that affect and are affected by the norms and values of the society within which it takes place.

The role of the teacher is in flux. Multidimensional epistemology sets high quality requirements on the teaching profession as knowledge is seen to evolve through the learner's processes, shaped by socio-cultural factors, located in physical and social working practices and distributed across many people, artefacts and symbol systems. The teacher's role is changing along with the new learning situations and environments of the modern era. This is a result of the expansion of the individual life space, of mobility in the virtual, intellectual or even global sense. The new teachership has been described by the concepts of tutor, co-learner and facilitator. It is important to know how to educate and support teachers in their new role.

The readiness to empower different learners and to make room for their diversity is one of the basic skills of teachers. Their task is to promote active learning, collaboration and sharing in varying learning environments, including virtual ones. Learning to learn is a key capability for learners of different ages in life wide learning situations. Learning to learn also requires active transfer and other meta cognitive skills.

Teachers are no longer confined merely to the classroom or educational institution. They are partners in multi-professional and cross-boundary teams. They work with stakeholders such as parents, cultural, health and social workers, company representatives and voluntary groups in a civil society. In working to create the supportive learning communities and networks needed in the new learning society, teachers need to be skilled in working with others and in making effective use of ICT.

Knowing how to support teachers in their new role through pre- and in-service education is a vital question. Both the educational institutions and open learning environments need a new teaching and learning culture in which collaborative problem solving, knowledge creation by sharing, and distributed cognition are common qualities.

As the new meta-knowledge of teaching and learning has emerged, the individual growth process and the collaborative working culture of the teacher have become more important. It seems obvious that teachers themselves have to learn to become learners in their profession. It is less clear how teachers can best be supported during pre-service teacher education and the subsequent in-service education, especially in becoming highly developed experts and ethical professionals with a deep awareness of their own identity.

Some examples of the core questions

How do the new concepts of learning and teaching reflect the trends in the learning environment and competence building? What is understood by learning in formal contexts and when is the context a virtual environment? What is the relationship between formal and non-formal education? What are the social and cultural conditions of learning?

How should teachers be encouraged to create a new teaching and learning culture in schools and in open learning environments? How should pre- and in-service teacher education be revised to meet the new learning challenges?

How can life-long and life-wide learning be achieved? How can teachers facilitate partnerships for promoting life-wide learning in a civil society?

How should teacher education support the growth and identity of teachers as representatives of an ethical expert profession? How should the growth of teachers as life-long learners be supported?

The question we face repeatedly in teachership research is connected with the knowledge base of teachers and more generally with the nature of their knowledge and skills. Research on their practical knowledge can significantly increase information about teachership and the development needs of teacher education. It is worth pointing out that those studying teacher education should develop and make teachers' practical knowledge known.

The diverse knowledge of teachers should not be oversimplified by dividing it into scientific vs. non-scientific knowledge; instead it comprises both theoretical and practical knowledge. The concept 'local knowledge' is connected with the universality of knowledge and is ideal for describing knowledge that emerges when teachers who study their own work interpret and theorize about their 'local observations'. This knowledge is useful for the development of teacher education. The importance of teachers' own voices and experiences has been emphasized in research on teacher education.

Research on how teachers in the field plan, implement and evaluate their work is insufficient. We need more information about the everyday routines of teachers in the field, their ways of thinking and acting in different situations, whether they are involved in the teaching, teacher-student relationship, cooperation between school and home or being part of the teacher community. An interesting insufficiently exploited potential is the meeting of researchers and working teachers in further training. This kind of forum is necessary to create closer contact between routines at school and research. Research could be used to build a continuum between

basic and further education for teachers. The fact that further education forms a rational whole for the purposes of both the research and teachers' professional development is an important challenge in developing teacher education.

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The role of Graduate and Postgraduate Studies and Research in Teacher Education Reform Policies in France

Philippe Valeri

1- Description of teacher education programmes

Graduate studies (3 years)

Since 1989, graduate studies -plus national examination- are required to be teacher in the first and secondary degrees .

The national examination **can be** prepared in a national institut for teacher training (IUFM). After passing the exam, the young teacher has an annual internship to do in the institut IUFM. This internship has to be validated by the academic authority (rectorat) so that the teacher obtain a permanent contract

Postgraduate studies (5 years)

Postgraduate studies (mastaire) prepare either to a profession (specialized diploma DESS) or to a doctoral thesis (advanced studies DEA).

Doctoral studies – research (8 years)

The obtaining of a thesis (of research) allows to get a position of teacher-researcher either in universities or in IUFM

This thesis is prepared in doctoral schools - inside of universities. These doctoral schools have research laboratories (connected to national research instituts such as CNRS or INSERM)

2- Place and role of research in teacher education

Each university sign a four years contact with the ministry of education concerning its research program. An innovative program allows extrafunds from State.

Since 1989, IUFM are also concerned by research. They have research laboratories specialized in educationnal sciences and in didactics. They also have to set up teaching teams including teacher-researchers. They also sign a four years contract.

An evaluation of the impact of the research on the teacher education is done at the end of the four years contract.

3- Specific issues

- researches accomplished inside of IUFM are not yet validated by the ministry of research
- teaching teams inside of IUFM should be mixed : IUFM researcher and university researcher.
- The teacher education has to be more professionalized : a reform will concern especially the first degree teachers education

The role of Graduate and Postgraduate Studies and Research in Teacher Education Reform Policies in Greece.

Sarantos Psycharis

Questions(Q) and Answers(A):

Q1a: Teacher education programmes and if and how they are connected with research in general?

A1a: There are courses on research planning, where research projects are developed as well as courses on research methodology under a proportion of 5/60.

Q1b: Teacher education programmes and if and how they relate to doctoral studies

A1b: Phd candidates get involved in tutorial work as well as in teaching mainly with courses of graduate level. They also do some lab work.

Q2a: Graduate and postgraduate studies and teacher education - programmes possibilities for participating in doctoral programmes

A2a: Everyone has the possibility to apply for PhD.

Q2b: Graduate and postgraduate studies and teacher education programmes - programmes organization of doctoral programmes

A2b: Doctoral programs are governed by a specific law. There are two prerequisites for someone to apply for a PhD. Selection is made through exams or interview.

At the end of a PhD program the student is obliged to compose a thesis of at least 100.000 words .Each Thesis is under the supervision of 3 members of the academic community and is subject to oral examination by 7 members of the academic community. Anyone wishing to apply for a PhD should:

- I) hold a degree of MA level
- II) hold a certificate proving knowledge of a foreign language.

Q3a: Needs for PhDs within teacher education

A3a: There is a great demand for PhDs. There is also a great demand for post graduate studies, for example there have been 5000 applications for 300 MA level placements.

Q3b: Needs for PhDs within the education sector at large

A3b: Since there is going to be a reform in the educational system and evaluation is going to be introduced, there is a great demand for PhDs on subjects relative to the administration of Education.

Q4a: Research in relation to teacher education- funding

A4a: Research is funded through the National Budget and through the European Community Support Framework

Q4b: Research in relation to teacher education- conducted by whom?

A4b: By Universities

Q4c: Research in relation to teacher education- impact on teacher education and the school system?

A4c: There is no formal evaluation

Q5a: Specific issues related to the role of graduate and postgraduate studies and research in teacher education:

A5a: A certificate of pedagogical competence is going to be incorporated. Also in service training will be fully implemented and evaluation will start operating.

Q5b: What European cooperation is concerned?

A5b: There is participation in all European Community programs.

Issues(I) and Comments(C):

In addressing the above issues in your national report we kindly ask you to take into consideration the following whenever necessary:

I 1. Issues related to differences between various teacher education programmes aimed at pre-school, primary, lower and upper secondary levels.

I 2. Issues related to pre-service and in-service teacher education

I 3. Issues related to differences between college studies (higher learning not connected with research and post graduate education) and university-based studies (higher learning with research and post graduate education).

I 4. National, regional and other variations.

I 5. Planned national changes/reforms.

C1. University Departments preparing teachers for primary school education focus on pedagogy studies, while departments preparing teachers for secondary level focus on the content. This is the reason for the establishment of the certificate mentioned above as well for the introduction of in-service training.

C2. Because the educational system is centrally organized, there is a uniform distribution and a small variation from it.

C3. The Greek Minister of Education and Religious Affairs proclaimed that there is going to be a turning point towards evaluation in 2001. The Body responsible for evaluation will consist of scientists with authority and this body will be evaluated as well.

C4. (It concerns the planned national changes/reforms)

An innovation is the establishment of a new comprehensive teacher training organization. This organization will take under its supervision all teacher training centers (PEK) currently operating throughout the country. In addition this organization will design the curricula for teacher training and will set the standards for certification for teaching and pedagogy.

The Role of Graduate and Postgraduate Studies and Research in Teacher Education Reform Policies in the Republic of Ireland – A Survey

Colm Mullen

In the Republic of Ireland teacher education is provided differently at first (primary) and second (post-primary) levels:-

- Primary teachers complete an undergraduate three-year Bachelor of Education course in one of five Colleges of Education. From time to time and usually in response to teacher shortages, an 18-month conversion course is held in the colleges for graduates from a variety of disciplines and they are also recognised as mainstream primary teachers on successful completion of their course.
- Post-primary teachers of academic subjects are graduates and teachers in secondary schools must also complete successfully a teaching qualification called the Higher Diploma in Education. Teachers of art and craft subjects must be appropriately qualified and must have a teaching qualification.
- Currently, specific expert committees on teacher education at first and second levels are nearing the end of their investigations and will submit their reports and recommendations to the Minister shortly.

In these settings responses to your questions are:-

1. Teacher education programmes are delivered (a) for primary teachers by Colleges of Education in consultation with the Department of Education and Science or (b) for second level teachers by Universities and by Faculties of Education in the Universities
2. Teachers may opt to undertake Masters and Ph.D courses of study at their own expense. Teachers' absences from school to undertake such courses is generally approved by their school Boards of Management and sanctioned by the Department of Education and Science. A system of bursaries for post-graduate studies for principal teachers in primary schools has been introduced recently.
3. Specific post-graduate work is not promoted at national level, rather it is undertaken by faculty members and by students.
4. Research is undertaken by faculty members in Universities and in Colleges of Education and by post-graduate students.

5. Post-graduate research is a growing phenomenon in the Colleges of Education that are affiliated to Universities and is no longer confined to the Universities themselves.

Matters for consideration:-

- 1) Primary and second level teacher education is described above. Pre-schooling is an emerging issue with the enactment of “Ready to Learn”, an Early Education Bill.
- 2) In-service teacher education (called “in-career development” in Ireland) is provided to meet system needs such as the introduction of revised curricula, new developments such and school development planning and provision of specific services to provide learning support (remedial education) and met the educational needs of children with specific disabilities.
- 3) Primary teacher education is provided in Colleges of Education that are affiliated to universities while teachers of academic subjects at second level take relevant university primary degree.
- 4) The Irish educational system is centrally administered and the country is too small for regional variations in teacher education. The issue of the regionalisation of some services of the Department of Education and Science is under consideration at present as part of an overall review of the work of the Department.
- 5) The National Council for Curriculum and Assessment is charged with curricular reform which is undertaken in conjunction with the Partners in Education – the Department, National Parents Council and representatives of teacher trades unions, school management etc.

Teacher training and research in the Netherlands

Febe Jansen

Initial teacher training programmes for the various types of schools in the Netherlands are part of higher education, some being provided at institutions of higher professional education (HBO) and some at universities. There are HBO teacher training courses for primary education, special education (postgraduate course) and secondary education (leading to a grade two or grade one qualification). Teacher training programmes for primary education and for secondary education grade two come with a study load of 168 credits (a full 4 years). Qualified grade two teachers may then carry on studying for a grade one qualification in the same subject. These programmes have a study load of 63 credits. Students specialise in one subject.

The university training programmes lead to a grade one secondary school teaching qualification (ULO-course). These programmes are open to university graduates who have taken a Master's degree. They can go on to obtain a grade one qualification in the subject in which they graduated. These postgraduate university teacher training programmes have a study load of 42 credits. Secondary school teacher training courses are available in all subjects taught in secondary schools. Students specialise in one subject.

Grade two teachers are qualified to teach in the first three years of senior general secondary education (HAVO) and pre-university education (VWO) and in all years of pre-vocational secondary education (VMBO) and secondary vocational education. Grade one teachers are qualified to teach at all levels of secondary education. Primary schoolteachers are qualified to teach in special education and adult education as well as at the primary level. Pre-school education is not formalised in the Netherlands. Workers in day-care centers need to have a completed 4-year programme focusing on professions in the pedagogical and child/day-care field within secondary vocational education.

| | Primary TE (PABO) | Lower secondary TE (grade 2) | Upper secondary TE (grade 1) |
|--------------------------|--|--|---------------------------------------|
| Type of HE | HBO | HBO | University/HBO |
| Age group pupils | 4-12 | 12-15/16 16-20 (sec.voc.educ) | 15 – 18 |
| Number of institutes | 36 | 10 | 9 |
| Duration | 4 year integrated | 4 year integrated | 1 year post-graduate |
| Content | Integration of - prof. studies (50%) - subject studies (50%) | Integration of - prof. studies - (50%) Subject studies (50%) | Post-graduate prof. Studies (100%) |
| Subject qualification | All subjects | 1 subject | 1 subject |
| # students (2001) | + 30000 | + 20000 | + 6000 |

Teacher training programmes and research

Teacher training programmes at institutes of higher professional education are only very loosely connected to research and have no relationship with either M.A. or Ph.D. programmes. An introduction to basic research skills, action research, and research methods are generally part of the curriculum, but to be involved in research projects is not an obligatory part of the curriculum.

University teacher training programmes may have a relation with doctoral programmes, but this is not required. The extent to which this is the case can not be quantified.

The students are required to do research with regard to their subject (mathematics, English, biology, and so on) and research with regard to teaching. In the external reviews (which are part of the quality control system) of 1992 and 1997 the integration of teacher training and educational research within these institutes was considered satisfactory).

Doctoral studies

Postgraduate education leading towards a Ph.D. degree is linked with research programmes within universities and research institutes. Students have to apply for a postgraduate place and must hold a Master's degree in order to qualify (the Dutch equivalent for Master is *doctorandus*, *meester*, or *ingenieur*). After

obtaining a Master's degree one can apply for a position as research assistant (*aió* - 'assistant in training') at one of the Dutch universities or affiliated institutes. Such appointments are on a temporary basis, usually for four years. The four-year period culminates in the presentation of a Ph.D. thesis, prepared under the guidance of one or more supervisors, and leads to the Dutch Doctor's degree.

Educational research and its relation to teacher training

Several parties are involved in educational research: research groups within universities, research groups that are affiliated with universities and private research institutes.

1. Educational research is carried out by universities, usually the education departments. Universities are funded by the ministry of education, culture and science for teaching and research. They define their research topics themselves, taking societal and educational concerns into account. This research is mainly fundamental research.
2. The Netherlands Organisation for Scientific Research (NWO) funds a research programme in the framework of the Programma Onderwijsonderzoek (Educational Research Program) or *PROO*. The *PROO* arranges research programmes and monitors the research that it has commissioned. Ph.D.'s who are employed by a university or a para-academic institution may submit research proposals within the framework of the programme. Proposals are financed on a competitive basis and after peer review. The scope of *PROO* is primary and secondary education, including teacher training programmes. Research commissioned by the *PROO* must be fundamental-strategic, relevant at the practical level for the longer term, or comparative at the international level. Fields that were singled out for research in the immediate past (1997-2001) included: education management and organization, the social context of education, learning and instruction, the pedagogical function of education policy. The *PROO* favours implementation of multidisciplinary proposals. *PROO* will be subjected to an evaluation in 2002/2003.
3. Apart from this, the schoolorganisations themselves initiate research. On a yearly basis short-term projects are commissioned within the framework of a master plan that is decided upon by the various umbrella organisations of primary and secondary schools. The projects focus on primary and secondary education. Apart from this, they are supposed to be contributive to actual school practice, to address more general educational questions, and to be oriented towards quality improvement. All projects must be completed within one year. The short-term projects master plan focuses on three lines of development: authentic learning, the pedagogical aims of schools, and the school as professional organization. The various projects are carried out by groups in which at least one university and one other research institute collaborate, so-called alliances. It is the explicit

aim to have related projects carried out by one and the same alliance. Alliances have been created around the three themes just mentioned: authentic learning, the pedagogical aims of schools, and the school as professional organization. The university teacher training programmes participate in these alliances.

4. Next to this the Ministry of Education directly commissions research in connection with educational policy. These projects particularly focus on (the evaluation) of educational reforms and policy developments. Current research looks at in-service training, ICT in teacher training programmes, the recent shortage of teachers, teaching assessment, and the so-called lateral intake of students. Also possibilities to attract more students to the teaching profession have been the subject of research.

Recent developments in higher professional education

An important new development in higher professional education, and therefore also for the TE-institutions, is the introduction of 'applied research' in this sector of the higher education system in the Netherlands. In 2001 the institutes for higher professional education received funding to appoint so-called *lectoren* (lecturers). These highly qualified *lectoren* have to develop or boost research-activities related to the spheres of knowledge taught at the institutes of higher professional education. The research activities will have an autonomous and 'applied' character: the research will be tuned in to, and adjusted according to, specific needs of society, the business world, and industry and will therefore serve as a means of innovation. Apart from this, applied research will keep the lecturers up to date with regard to recent developments, for instance by way of part-time and temporary secondments or through the use of actual case studies lifted from the world of business and industry in their teaching practice. Applied research therefore has both an economic and an educational function: it serves as a means of transferring knowledge and as a means of improving the quality of education. It is the intention of the Board that coordinates and supervises higher professional education to appoint sixty lecturers in the present year and to increase that number next year. Educational research is one of the spheres which will thus be boosted.

The role of Postgraduate Studies and Research in Teacher Education in Portugal¹

Bártolo Campos

Introduction

At present, all the initial teacher education programmes in Portugal are carried out in higher education: in polytechnics² and universities³. All the programmes, whatever the institution or the duration, award the same academic degree – a licenciatura degree⁴ – as well as a specific teaching qualification. They have a duration of 4 years when preparing teachers for pre-school and primary school education, the others last for 5 years. The concurrent model is the only model followed in polytechnic programmes; at university, there are also programmes organised according to the consecutive model, although they are not the majority; in this case they only prepare subject teachers and the duration can be 6 years. Table 1 presents the number of programmes currently in practice according to the level they prepare for and the type of higher education institutions that provide them.

Table 1

Number of teacher education programmes according to teaching level and the type of higher education providing them

| Teaching level Institutions with | Pre- school | Primary School (1 st - 4 th grade) | Primary School (1 st - 6 th Grade) | Secondary School (7 th - 12 th Grade) | Total |
|---|----------------|---|---|--|------------|
| ITE programmes | | | | | |
| Public Universities (n = 13) | 6 | 5 | 0 | 139 | 150 |
| Public Polytechnics (n = 14) | 14 | 13 | 61 | 0 | 88 |
| Private Universities and Polytechnics (n = 20) | 12 | 11 | 38 | 29 | 90 |
| Total | 32 | 29 | 99 | 168 | 328 |

Source: Instituto Nacional de Acreditação da Formação de Professores (August 2001) In Portugal secondary school covers only grades 10th – 12th, the grades 7th – 9th make up part of basic education

The ‘universitisation’ of teacher education (more precisely the passage to higher education of teacher education for *all the school levels* and of *all the components of the programmes* necessary for the professional qualification), began in the seventies for subject teachers and, in the mid-eighties, for class teachers; in this case the academic degree awarded has been the baccalaureate until 1997, and it became the same as for a subject teacher hereafter – *licenciatura*).

The standardisation of the level of qualification provided by teacher education programmes and their *universitisation* are justified not only for reasons of the social-economical status of the teacher. It is intended to guarantee preparation at a higher level and research-based in all the components of the programmes (in the case of class teachers) or in the education and professional practice components (in the case of subject teachers). The need for teacher education to be of a higher level and research based is usually justified by the fact that teaching is becoming more complex: teaching is a professional activity, a teacher is a problem-solver and teacher education is an education for a profession.

For teacher education to be research-based there are two essential conditions: (i) the existence of educational research activities and (ii) post-graduate programmes which prepare researchers and teacher-researchers, i.e. teacher educators. The complexity of teacher’s role further justifies the existence of post-graduate programmes for practising teachers in schools.

This report focuses on the development of these conditions in Portugal over the last 20 years.

Training in education research

Master and doctorate programmes

Training in educational research is usually undertaken through master and doctorate programmes. As all teachers possess the *licenciatura* degree⁵, post-graduate courses are open to all, provided they have obtained a certain mark in the *licenciatura* or acquired the relevant professional experience and knowledge in the field; these post-graduate programmes are also accessible to graduates in different areas (i.e. psychology, sociology, history etc.).

Master and doctorate programmes in the field of education have been developed in Portugal since the eighties. While the master’s, along with the preparation of a thesis, also requires a taught element, the doctorate only requires the former.

Table 2 refers to the higher education institutions which are presently running master and doctorate programmes in the educational field. *Table 3* refers to the number of enrolments and diplomas awarded in the master programmes in the last ten years. *Table 4* refers to the number of doctorates in this field from 1970 to 1999 including those obtained both in this country and abroad.

Table 2

Higher education institutions providing master programmes and awarding a doctorate degree in the education field.

| | with master | with doctorate |
|--|-------------|----------------|
| Public Universities (Total = 14) | 13 | 13 |
| Private Universities (Total = 10) | 3 | - |
| Total with post-graduate studies in education | 16 | 13 |

Source: Direcção-Geral do Ensino Superior

Table 3

Number of enrolments and diplomas awarded between 1990 and 2000 in master programmes in education and in all fields

| | Education | | | All the fields | | | Education/All the fields | |
|--------------|--------------|--------------|--------------|----------------|---------------|--------------|--------------------------|--------------|
| | Enrolled | Awarded | % | Enrolled | Awarded | % | Enrolled % | Awarded % |
| 99/00 | 867 | 223 | 25.7% | 8 725 | - | - | 9.9% | - |
| 98/99 | 641 | 180 | 28.1% | 7 673 | 1 979 | 25.8% | 8.4% | 9.1% |
| 97/98 | 668 | 226 | 33.8% | 7 448 | 2 114 | 28.4% | 9.0% | 10.7% |
| 96/97 | 602 | 175 | 29.1% | 6 666 | 1 884 | 28.3% | 9.0% | 9.3% |
| 95/96 | 436 | 174 | 39.9% | 6 139 | 1 704 | 27.8% | 7.1% | 10.2% |
| 94/95 | 356 | 132 | 37.1% | 5 925 | 1 457 | 24.6% | 6.0% | 9.1% |
| 93/94 | 468 | 102 | 21.8% | 5 287 | 871 | 16.5% | 8.9% | 11.7% |
| 92/93 | 509 | 81 | 15.9% | 5 097 | 714 | 14.0% | 10.0% | 11.3% |
| 91/92 | 403 | 47 | 11.7% | 4 312 | 577 | 13.4% | 9.3% | 8.1% |
| 90/91 | 370 | 22 | 5.9% | 3 237 | 297 | 9.2% | 11.4% | 7.4% |
| Total | 5 320 | 1 362 | 25.6% | 60 509 | 11 597 | 19.2% | 8.8% | 11.7% |

Source: Direcção-Geral do Ensino Superior

Nearly all the public universities provide education post-graduate studies, but nearly 60% of the master's between 1995 and 2000 were obtained in 3 of these public universities (Aveiro, Lisboa, Minho) and in the Catholic University. From 1990 to 2000, master's in education enrolments represent 8.8% of all the students

enrolled in master programmes; master graduates in education represent 11.7% of the total of graduates with this degree.

Eighty percent of the doctorate holders completed their doctorates in the nineties; people who had obtained these diplomas in foreign institutions, which were subsequently recognised or registered in this country, represent a third of the doctorate holders. Between 1970 and 1999 there has been a constant increase in the education doctorate holders in proportion to the doctorate holders in all the other fields; in 1999, represented as a percentage, this proportion is 4.26%.

Table 4

Number of doctorate holders in education and all other fields: obtained, recognised or registered in Portugal

| | 1970-74 | 1975-79 | 1980-84 | 1985-89 | 1990-94 | 1995-99 | Total |
|---|----------------|----------------|----------------|----------------|----------------|----------------|--------------|
| 1. Obtained in Portugal | 0 | 1* | 3 | 18 | 67 | 134 | 223 |
| 2. Recognised or registered in Portugal | 2 | 6 | 14 | 24 | 27 | 44 | 117 |
| 3. Total in education | 2 | 7 | 17 | 42 | 94 | 178 | 340 |
| 4. Obtained, recognised or registered in all fields | 351 | 424 | 753 | 1 308 | 1 945 | 3 194 | 7 975 |
| 3/4 | 0.56% | 1.65% | 2.25% | 3.21% | 4.83% | 5.57% | 4.26% |

Source: Observatório das Ciências e das Tecnologias * In 1979

The training of teacher educators

Most doctorate holders in education belong to the teaching staff of teacher education institutions, this is also true for many master's holders; in this case, nevertheless there are many who are working in schools. Notice the fact that teacher education institutions have a number of teaching positions available, not only for practising higher education subject teachers, but also for higher education teachers on education, including those who teach methodological teaching practices for each subject. Entrance into higher education teaching requires a master's or doctorate degree; this explains why the universitisation of teacher education was the one that primarily led to the development of post-graduate programmes in the education field.

The training of school teachers for specific roles, namely the teacher educator

Since the nineties, the preparation of the teaching body for teacher education institutions has stopped being the primary reason for attending master programmes, and, in some cases, for the preparation of a doctorate. Primary and secondary school teachers started to see these post-graduate studies as adding value to their teaching goals and their professional career at these teaching levels whilst continuing to work in schools and central or regional educational administration. Moreover, from the early nineties onwards, teachers of these teaching levels, who obtain a master's or doctorate degree in education, are given a rise in salary scale.

Although post-graduate studies leading to higher academic degrees traditionally prepare for research, there is a possibility of qualifying for specific teaching roles in schools, at the same time, primarily related to curriculum, management and training (e.g. school manager, curriculum developer and teacher educator). For that they must conform to specific requirements and be accredited likewise. Although these qualifications are not yet considered as requirements to carry out those roles, there has been great demand for them.⁶ One of the specific roles is as teacher educator, not only for in-service teacher education, but also for the collaboration of schools in the initial teacher education, by means of tutoring the student teachers.

Educational research

Carried out by teacher education institution staff

The most of research in the education sector is carried out in the teacher education institutions and is performed by their own staff; there are very few whose professional activity is exclusively involved in educational research, with the exception of some young grant holders enrolled for several years (1-3 years) and financed by research project funds. Traditionally in the polytechnic sector schools are not dedicated to research, although there are teachers in these schools who are involved in educational research projects and who are members of research centres.

It is also necessary to point out that in some human and social science departments (Psychology, Sociology, Economy, History, etc.) there are also educational research projects being developed.

Research centres

Educational research in higher education institutions has mostly been developed in research centres recognised and evaluated by the Science and Technology Foundation, which can have members from a range of different institutions. Table 5 shows the number of educational research centres (which are recognised and evaluated by the Foundation) and the number of full-time equivalent researchers. At present these centres are based in six public universities and in one polytechnic and six of the centres in the three public universities which deliver most master's degrees. In 1999 the number of full-time equivalent researchers of these centres represents 1.29% of the total full-time equivalent researchers in all fields.

Table 5

Centres and number of full-time equivalent (FTE) researchers

| Centres | n | Researchers (FTE) | Doctorate holders |
|--|-----------|--------------------------|--------------------------|
| Universidade de Aveiro <ul style="list-style-type: none"> • <i>Construction of Pedagogical Knowledge in the Teacher Education Systems</i> • <i>Didactics and Technology in the Education of Teacher Educators</i> | 2 | 6.90 13.10 | 18 20 |
| Universidade de Coimbra <ul style="list-style-type: none"> • <i>Centre of Psychopedagogy</i> | 1 | 5.15 | 12 |
| Universidade de Lisboa <ul style="list-style-type: none"> • <i>Centre of Education Research</i> • <i>Unit of Research and Development of Education Sciences</i> | 2 | 24 6.60 | 29 8 |
| Universidade Nova de Lisboa <ul style="list-style-type: none"> • <i>Unit of Research, Education and Development</i> | 2 | 11.65 | 12 |
| Universidade de Minho <ul style="list-style-type: none"> • <i>Centre of Education and Psychology Studies</i> • <i>Centre of Child Studies</i> | 1 | 60 38 | 54 19 |
| Universidade do Porto <ul style="list-style-type: none"> • <i>Centre of Education Research and Intervention</i> | 1 | 12.25 | 14 |
| Instituto Politécnico de Lisboa <ul style="list-style-type: none"> • <i>Interdisciplinary Education Study Centre</i> | 1 | 16.45 | 10 |
| Total | 10 | 194.10 | 196 |

Sources: Fundação para a Ciência e Tecnologia e Observatório das Ciências e Tecnologias

Research financing

The costs of premises, equipment and research staff are covered by the higher education institutions, which are in fact both teaching and research institutions, but it is not easy to separate the costs of these two activities.

The education sector is now recognised as one of the sectors in the national system of research by the Science and Technology Foundation, which guarantees the annual finance of the recognised research centres. Moreover, it finances research projects whether the researchers are from these centres or not; the financing of grants is included in the funding of projects. The Foundation still finances grants for the preparation of Master's and Doctorate degree, as well as the organisation of scientific meetings and the publication of books, congress proceedings and scientific journals.

The Institute for Educational Innovation finances research projects centred on school problems, generally lasting a shorter time (1 to 2 years) and involving school teachers. It also finances scientific meetings and publication.

Table 6 shows the research financing of these two public institutions in the education field, between 1996 and 2000. It should be noted that there are private bodies which also finance research in education, the most prominent of these being the Calouste Gulbenkian Foundation. Moreover, Portuguese researchers also participate in international or European research projects, in general financed by EC funds.

The amount of public and private spending in the field of educational research and development and all other fields is referred to in Table 7. In the field of Education there has been a steady rise in spending, not only in absolute values but also in relation to all the other fields.

Table 6

Public financing of educational research (1996 - 2000)

| (unity:€) | Centres | Projects | Grants | Scientific meetings and publications | Total |
|--------------------------------------|------------------|------------------|------------------|--------------------------------------|------------------|
| Science and Technology Foundation | 3 102 523 | 1 486 418 | 2 065 023 | 249 399 | 6 903 363 |
| Institute for Educational Innovation | - | 805 510 | - | *2 106 948 | 2 912 458 |
| Total | 3 102 523 | 2 291 928 | 2 065 023 | 2 356 347 | 9 815 821 |

Source: Fundação para Ciência e Tecnologia e Instituto de Inovação Educacional

* Also includes meetings or publications not directly related with research dissemination

Table 7

Research and development spending in education and all other fields

| (unity: €) | 1995 | | 1997 | | 1999 | |
|----------------------|--------------|---------|--------------|--------|--------------|--------|
| | | GDP | | GDP | | GDP |
| 1. Education | 6 392 095 | 0.0079% | 11 269 341% | 0.0121 | 18 342 794 | 0.0175 |
| 2. All fields | 460 037 310 | 0.57% | 576 882 713% | 0.62 | 808 103 471 | 0.77 |
| 1/2 | 1.39% | | 1.95% | | 2.27% | |

Source: Observatório das Ciências e das Tecnologias

Research output and dissemination

If in the seventies and eighties the majority of educational research was framed by preparation for master's and doctorate theses, which were necessary to enter or progress in a teaching career in higher education, since the end of the nineties there have been many research projects without these objectives. From this decade onwards there has been an increase in projects centred on actual education in schools, due to the increase in the number of teachers who have completed master's and doctorate theses, and due to the criteria for educational research funding settled by the Institute for Educational Innovation.

There are several educational research journals currently being published such as: *Revista Portuguesa de Pedagogia* (U. de Coimbra), *Revista de Educação* (U. Lisboa), *Revista Portuguesa de Educação* (U. Minho), *Inovação* (Institute for Educational Innovation) e *Educação, Sociedade e Culturas*. And, already in 2001 INAFOP has started the publication of *Revista Portuguesa de Formação de Professores* which is only available on-line (www.inafop.pt/revista).

The number of Portuguese studies in the education field compared to those of all the fields of Social and Behavioural Sciences published in scientific journals recognised by the Institute for Science Information (ISI) is referred to in Table 8; between 1981 and 1999 they represent nearly 7% of the total of this area.

Table 8

Number of Portuguese studies in education and in all fields of Social and Behavioural Sciences published in recognised scientific journals

| | 1981-85 | 1986-90 | 1991-95 | 1996-99 | Total |
|----------------------|--------------|---------------|--------------|--------------|--------------|
| 1. Education | 3 | 15 | 16 | 14 | 48 |
| 2. All fields | 49.5 | 129.6 | 231.7 | 289 | 700 |
| 1/2 | 6.06% | 11.57% | 6.90% | 4.84% | 6.85% |

Source: Observatório das Ciências e das Tecnologias/Institute for Science Information

In the Theses Database of the Institute for Educational Innovation the number of registered master's theses on education in May 2001 was 795 and of doctorate theses was 211.

We can also see that syntheses in some domains have started to appear or, are already in progress in Portugal, for example, in the sector of mathematics and science teaching and of teacher education.

Educational research and teacher education

The main reason for public interest in educational research is its relevance for education policy and school teaching decision making. It is therefore also relevant to the teacher's lifelong professional development (through initial and further in-service teacher education and other forms of learning).

On having teacher staff with master or doctorate qualifications in education and educational research in teacher education institutions we can expect that, at least, initial and specialised teacher education is research based. Also because a large number of educational research results are published, it is predictable that school teachers will turn to them during self-learning opportunities. *However, there are no studies analysing whether teacher education is research based or the impact of research on teaching processes and the organisation of schools.*

Recent teacher education reform policies and post-graduate studies and research

No recent teacher education policy measure focus expressly on post-graduate studies and educational research. Nevertheless, post-graduate studies and research are indirectly referred to in some recent policy measures.

The upgrading to a *licenciatura* degree and the extending in length of the pre-school and primary school programmes in 1997 definitely aim a deeper presence of research based or informed teacher education.

The possibility of a master's degree programme to qualify practising teachers for specific roles in schools, was set up in 1997; these programmes have to include: i) modules in research methodology and ii) the development of a research thesis.

The most recent policy measure, with implications in this matter, was the setting up of the system of accreditation for initial teacher education, in 1999. The goal of this process of accreditation is to recognise (ex-ante and ex-post) the adequacy of a programme of initial teacher education to the demands of the teaching roles. As a result, definitions are already in place, the "Standards for initial teacher education programmes" and the "School teacher general teaching profile". The former presumes that programmes will be accredited, and will function as teacher education programmes, only if they satisfy the given criteria, some of which been related to research.

In the general teaching profile, the teacher is defined as a professional (i) whose professional specific knowledge is research informed, (ii) who delineates their teaching practices making them appropriate to each context requirements and the uniqueness of each situation (the teacher as a problem solver), (iii) who reflects upon their practice relying on research and (iv) who participates in research projects, related to teaching, learning and student development.

Therefore according to the referred "Standards":

"Research and discussion of research work form a regular part of the activity of the teacher education institution:

- i. teachers undertake research projects, publish work of a scientific nature and participate regularly in the activities of the respective scientific communities;
- ii. results from research carried out in the institution, from their own experience in teacher education, and in other institutions, are used to support the development and improve the programme;
- iii. trainees learn the essential aspects of the methodologies used in research undertaken in their teaching area and educational field, and have the opportunity to participate in projects or initial research activities undertaken by the institution teachers."

Moreover, the activities aimed at the initiation of professional practice, which include the 'internship', must integrate a research component.

Regarding the teaching staff, the “Standards” settle that the majority will be doctorate holders, which is going to take time to put into practice, in the polytechnics above all.

Finally, it concerns the process of accreditation to check if the programmes enable future teachers *(i)* to have an investigative approach in each situation, *(ii)* to participate in research projects which are led, in general, by researchers, and, in self-learning situations, and *(iii)* to take into account the research that has been produced. Accreditation medium term goal, the related to the point of view outlined in this report, is that these programmes will only function when they satisfy the relevant criteria externally defined, namely those concerning educational research.

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Footnotes

- 1 Report prepared for the IV ENTEP Seminar on “Teacher education and the role of post-graduate studies and research in teacher education reform policies,” organised by the Ministry of Education and Science of Sweden in the range of the activities of ENTEP (European Network on Teacher Education Policies), on 10th and 11th June 2001, in Umeå.
- 2 Organises programmes for pre-school and primary school teachers; the law presumes that it could prepare teachers for all nine years of compulsory schooling but the conditions for this extension have not yet been legally created. The polytechnic education system only awards baccalaureate and licenciatura degrees.
- 3 Organises teacher education programmes for all levels of school education.
- 4 In Portugal there are two higher education undergraduate degrees: Baccalaureate (2-3 years), and Licenciatura (4-6 years).
- 5 The pre-school and primary school teachers, possessing only the baccalaureate degree, have been able since the end of the nineties, to take part in additional training which gives them access to the licenciatura degree.
- 6 It is important to point out that these qualifications can also be acquired by attending post-graduate programmes not leading to an academic degree, lasting for a minimum of 250 hours.

The Role of Postgraduate Studies and Research in Teacher Education in Sweden

Ingrid Karlsson & Myrna Smitt

Introduction

In Sweden, teacher education is an integral part of higher education. As such, it is required by law to be closely connected with research and postgraduate studies. This dates back to 1977, when virtually all post-upper-secondary education became integrated into higher education. However, teacher education has only recently been broadly recognised as a discrete field in higher education, with separate research funding. Thus, research and doctoral studies still lag behind. The same applies to educational research, i.e. the broad research and postgraduate education needed in teacher training and for the teaching profession.

1. Teacher education programmes

In 2000 the Government proposed a new teaching degree requiring completion of at least 120 and up to 220 credits (i.e. 120–220 weeks', or three to five and a half years', full-time study). The new education programme for the teaching degree covers three well-integrated course categories. One is a general category, requiring 60 credits. Secondly, there are one or more categories focusing on particular subjects or subject areas, comprising at least 40 credits. Thirdly, there is a specialised course category requiring at least 20 credits, designed to provide in-depth, broader or supplementary knowledge or a new approach to knowledge previously acquired.

Education for the various teaching qualifications thus varies in length from 120 to 220 credits. To teach pre-school classes (six-year-olds) and the first year of compulsory school (seven-year-olds) and to provide school-age childcare and home-language tuition, for example, 140 credits are required. For teaching at the higher levels of compulsory school and upper-secondary school, the requirement is 180 credits, except for upper-secondary vocational programmes, for which only 120 credits are required.

It should be possible to take a teaching degree with certain specific subject and qualification profiles. A teaching degree of this kind confers formal eligibility for admission to postgraduate or research education.

2. Graduate and postgraduate studies and teacher education programmes

a) Scope for taking part in doctoral programmes

Under the Swedish Degree Ordinance, postgraduate studies can culminate in either a PhD, corresponding to 160 credits (160 weeks' or four years' study), or an 80-credit licentiate (80 weeks' or two years' study). A PhD requires a thesis conferring at least 80 credits (two years' study), while a licentiate requires a scientific paper conferring at least 40 credits (one year's study). PhD programmes of research in teacher education are offered mainly in the general field of Science of Education (the current total number of PhD students is roughly 500) and in Subject Didactics (currently some 45 PhD students). No specific figure is available for the number of PhDs awarded each year, but the number is around 100.

b) Organisation of doctoral programmes

Most PhD students have one main supervisor and one or more subsidiary supervisors. They are obliged to pursue an individual study programme. A PhD course of at least 40 weeks' duration (40 credits) is usually required, and some 120 weeks (120 credits) are therefore allocated for the thesis. Altogether, the actual expected duration of PhD studies is normally four years. The study period may be extended owing to parental leave, health problems and/or part-time employment as a teacher or outside the university.

Most PhD students study on an individual basis at their university department of education, but it has recently become more common for PhD studies to be undertaken at graduate schools. One special feature of the Government Bill Research and Renewal (Govt. Bill 2000/01:3), which was passed by the Riksdag (Swedish Parliament) in December 2000, was the proposal for graduate schools. This bill proposed funding for 16 such schools, two of which – 'Technical and scientific didactics' and 'Teaching methodology' – were designated to award PhDs in education. Each of the graduate schools is to award 25 PhDs by the end of 2007. The funds allocated to each of the two graduate schools in the field of education total SEK 12m a year (about 1,3m euro).

3. Need for PhDs in school

The most recent information available on this point is contained in the Governmental Bills A new system of teacher education (Govt. Bill 1999/2000:135) and Reforms in higher education – a more open system (Govt. Bill 2001/02:15), passed by the Riksdag in December 2001. The Bill proposes that a provision be inserted into the Higher Education Ordinance concerning teaching skill. The following points, aimed at enhancing the skills both of university teachers in general and of

those involved in teacher education, are expected to boost demand for professors and senior lecturers in the Swedish university system:

- In a system of higher education where the aim is to broaden recruitment and promote lifelong learning, teaching methods must be developed to meet the needs of new student groups.
- Higher-education teaching qualifications should be mandatory for applicants for junior or senior lectureships. For postgraduate students to be appointed in teaching posts, teacher training for higher education should also be required.
- Higher education institutions should also develop and offer education in teaching methods for higher education as part of their in-service training for teaching staff. All higher education institutions are to be allocated extra funds for this purpose.
- The Council for the Renewal of Higher Education is to receive additional funding of SEK 10m a year (about 1.1m euro) to support revitalisation of teaching methods in higher education.

4. Research related to teacher education

a) Funding

Governmental funding for research on teacher training is channelled through the Swedish Research Council. Annual funds allocated amount to SEK 120m (roughly 13m euro). Universities and university colleges are funded on condition that they themselves provide at least 30% of the total project funding. Receipt of these funds is also conditional on a close connection between the research concerned and the teacher-training programmes offered by two or more educational institutions jointly. Further information is available at www.vetenskapsradet.se/english/index.asp.

Swedish higher education institutions themselves provide funding for educational science projects at about SEK 75m (roughly 8m euro) a year. In addition, the Swedish National Agency for Education can award grants for further research and development of research with a particular bearing on primary and secondary education, including pre-school education. The funding for 2002 amounts to SEK 34m (about 3.6m euro). For further information, see www.skolverket.se/english/index.shtml

b) Conducted by whom?

Research and PhD education are mainly conducted by the following higher education institutions: Uppsala University, Lund University, Stockholm University, Göteborg University, Umeå University, Linköping University, Luleå University of

Technology, Karlstad University, Örebro University and the Stockholm Institute of Education. All the Swedish universities' and university colleges' web sites are listed at katalogen.sunet.se/cat/education/universities.

c) Impact on teacher education and training and the school system

Research is strategically important to teacher education, and this is one reason for the teacher-education reform implemented from 1 July 2001. One of its central assumptions is that all higher education should be linked to research and based on a scientific approach. The quality of teacher education and those who undergo it is thereby enhanced.

Swedish education policy emphasises the importance of research to the development of education and the teaching profession. In its Budget Bill for 2001 (Govt. Bill 2001/01:1), for example, the Government proposed as the objective for Swedish education policy that Sweden should be a leading nation in terms of knowledge, characterised by high-quality education and lifelong learning, for growth and social justice.

The two key tasks of Swedish education are, first, to convey knowledge and promote learning and, secondly, to provide a democratic education based on the same foundation of common values that Swedish society rests upon.

Swedish education should be a source of knowledge, a forum for learning and a means of generating the desire for lifelong learning. Altogether, more than two million children, adolescents and adults are involved in pre-school activities, school-age child care, compulsory and upper-secondary education, and adult education.

Research on pre-school and youth education should contribute knowledge of how schools can give all children and adolescents a good start in lifelong learning and a sound platform on which to stand as citizens. Research on adults' learning should contribute knowledge of how adults can be encouraged to play an active part in lifelong learning and, in particular, knowledge of how adults learn.

Radical reforms and raised demands

One compelling reason why the Government should strengthen research and postgraduate studies in the field of teacher education is the transformation of teachers' educational function that has taken place. To be capable of analysing what every child and adolescent needs by way of knowledge and support, and also of evaluating and documenting inputs, performance and results achieved, practising teachers and educators must possess both knowledge and skills. A change

in responsibility, with new and different demands and roles for children and adolescents as well, has made staff with postgraduate qualifications, collaboration with researchers, and research inputs more necessary than ever.

Research and skills development for practising teachers and educators, to increase the breadth and depth of their knowledge and skills, are also important.

Expanding research for quality development

The Government has increased research for the education system, to provide more knowledge for work in the various activities and boost practitioners' skills. The expansion of sectorial research may also, in the long term, help to broaden the recruitment base for various professions, course programmes and postgraduate studies. The National Agency for Education will, in cooperation with researchers and representatives of pre-school, youth and adult education, select relevant ways of formulating problems for research to address.

The government approval document for 2002 assigns to the Agency the task of initiating and supporting external research. This research will focus on children's and adult's learning, and on teachers' work.

Schools as workplaces are interesting objects of research. Research elucidates the processes that emerge in the course of teaching, the significance of leadership, and the interaction between working conditions, the nature of the teaching role and understanding of activities.

National resource centres – linking research and education

To boost interest in natural science and technology, in particular, Sweden has set up various natural resource centres. Their function is to arouse greater interest in these subjects and enhance skills in the subject areas concerned. National resource centres for chemistry, physics and technology were established in the mid-1990s.

The Government is allocating resources for two national 'centres for fundamental values' to promote research, training and long-term skills development in issues relating to fundamental values. This work will be carried out in close cooperation with schools, municipalities, higher education institutions, organisations, etc.

A national resource centre has been set up at Uppsala University in collaboration with the Swedish University of Agricultural Sciences. This centre is responsible for educational and skills development among biotechnology teachers.

In spring 2001, the Government granted funds to the School of Education and Communication at the University College of Jönköping for the establishment of a skills centre for adults' learning. The plan is for the centre to serve as a hub of knowledge and research on how adults learn, to disseminate information about existing research and to initiate new research.

The efforts now under way to develop basic skills in youth education, in particular, are to be supplemented by direct measures designed to develop mathematics teaching for adults. The National Centre for Mathematics Education at Göteborg University is receiving an extra long-term grant from 2002 for this purpose.

Regional and national centres have been set up for teachers' skills development and for to promote collaboration and knowledge expansion for education. The centres are located at Swedish universities that offer teacher training.

Skills development

The aim is to establish links between the research programmes in the science of education and practising teachers as well. These teachers should thus be able to conduct development projects or engage in postgraduate studies under the supervision of skilled researchers connected with higher education institutions. Accordingly, the concept of 'skills development' includes acquiring broader and more detailed subject knowledge, developing methods and work teams, and engaging in research and development.

5. Specific issues related to the role of graduate and postgraduate studies and research in teacher training

One important aspect of graduate and postgraduate studies and of teacher-training research is the training of teachers as part of higher education, and its connection with the development of new knowledge involving research.

Research in educational science is currently attracting interest in, specifically, the notions of lifelong learning, e-learning and distance learning. For the rapid emergence of a knowledge-based society, we need new knowledge about teaching, learning and experience of various educational contexts. When it comes to European cooperation in the field of education, we consider that Swedish researchers are prepared to use relevant portions of the Sixth Framework Programme for research, technological development and demonstration activities (2002–06) to obtain resources for both national and European research in the educational field.

ANNEX

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ENTEP seminar 10-11

June in Umeå

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