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Initial Teacher Education and Continuing Training Policies in a Comparative Perspective: Current Practices in OECD Countries and a Literature Review on Potential Effects

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INITIAL TEACHER EDUCATION AND CONTINUING TRAINING POLICIES IN A COMPARATIVE PERSPECTIVE

Current practices in OECD countries and a literature review on potential effects
Directorate for Education working paper n°48

by Pauline Musset

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EXECUTIVE SUMMARY

To design policies that allow to educate and train teachers, capable of helping students to acquire the competencies needed to evolve in today's societies and labour markets is an amazing challenge. In today's context, with the undergoing economic and social changes, high-quality schooling is more important than ever.

1. Why is teacher education important?

The debate on teacher education has gained special importance, as teacher quality is more and more being identified as decisive to student outcomes. It is now acknowledged that teachers are the school variable that influences the most student achievement (OECD, 2005). Education reforms that do not take into account teacher education are condemmmed to ineffiency (OECD, 1998).

1.1. Why is teacher education policy important?

Teacher education is important because of its impact upon teacher quality. To teach is a complex and demanding intellectual work, one that cannot be accomplished without the adequate preparation. Teacher education not only ensures that teachers are – and remain competent, but it also allows to assure that they stay motivated through time (Eurydice, 2004). Research shows that most effective way to raise educational quality is to modify initial teacher education and recruitment, and to develop the means to train teachers that are already in-service; indeed, teacher education has a significant impact on teachers' behaviours and teaching skills, and on the student outcomes.

1.2. Countries face very different challenges in teacher education

There are many different challenges that have to be deal with in different countries, and the design of the teacher education has to respond to the specific needs of each system. The situation can be very different from country to country: some countries experience teacher surplus and others have to cope with teacher shortage. The shortage of teacher may be general (all type of schools, all types of teachers), or focused on certain subjects (mathematics, languages, etc.); locations (rural areas, impoverished neighbourhoods) or special kind of schools (special needs). Teacher attrition is also a problem. Finally, teachers face a third challenge: the necessity to improve teacher quality, in a socio-economic context of broader expectations toward teachers.

There is no magical "policy mix" that can be applied in each and every situation. This is why is it important for policy makers to have at their disposal a repertoire of good practices, as offered in this report. The apprehension of these good practices in their specific context, and the understanding of their interaction with the other inputs of the educational system, can lead to a reflection on how to combine these practices between themselves, the goal being the design of a policy that fits the specific needs of a particular educational system.

2. Typology of teacher initial education and continuing training programmes

2.1. Initial Teacher education

2.1.1 Purpose of initial education

Initial teacher education represents the entry point into the profession, and the way it is organised plays a key role in determining both the quality and the quantity of teachers. In case of teacher shortage for example, alternative and quicker pathways into the teaching profession can be created. Another way to regulate the quantity of teacher is to modify the level of requirement of entering the programmes: in case of shortage, a country can for example lower the qualifications asked to future teachers.

2.1.2. Scope and content of initial education

The most common "mix" among the OECD countries includes courses in subject-matter (content knowledge), in teaching techniques (pedagogical knowledge), and practical school experience. Some countries also include: the development of research skills, content in cognitive, behavioural and social sciences and knowledge in child development.

2.1.3. Emphasis

Table 1: A typology of the different models of initial teacher education

		Scope	Curriculum	Advantages	Disadvantages
Traditional Models	**"Normal school tradition"**	Traditional conception of primary school teachers' education.	Acquisition of basic skills, through practical training (field experiences, methodology courses, subject-matter pedagogy).	Provide teachers with a number of routines, which allows them to master specific aspects of the teaching practices. Allow the development of a strong professional identity.	Little emphasis on educational theory, academic and scientific knowledge and research skills.
	"Academic tradition"	Traditional conception of lower and higher secondary school teachers education.	Acquisition of scientific content knowledge in particular academic disciplines and of general problem-solving capacity. Probation period in schools.	Stimulate teachers' problem-solving capacities, which allow them to be reactive in every classroom situation.	Teachers are subject-specialists in a small number of academic disciplines and not in pedagogy. Little teaching practice.
New Models	**'Professionalization' of teaching**	Dynamic conception of teaching that focuses on professional autonomy and standards.	Acquisition of comprehensive research-based knowledge on teaching. Emphasis in studies of pedagogical sciences. Development of a professional ethic code.	Teachers are educated as experts in their precise field, with a strong critical sense, autonomy and professional problem-solving abilities. Makes them responsible for the improvement of their skills. Emphasis on collaborative work.	No empirical proof of substantial structural modifications in teacher education quality.
	Alternative pathways into the profession	Training and certification based on the possession of skills that do not come from a teacher education programme, but from the personal experience and characteristics of each aspirant.	Acquisition of teaching skills through practical, 'on-the-job' training. Strong induction and mentoring programmes. Low priority given to educational theory and to low scientific knowledge.	Allow to quickly increase the supply of teachers in teachers. They can be designed to attract very different types of candidates. Cost-efficient, since they are short, and mostly school-based.	Few studies about the content of the training they offer, and the sort of teaching they promote. At a time when the work of teaching is becoming more complex, it allows people with very little formal preparation to teach.

2.1.4. Organizational characteristics

Table 2: Characteristics of Concurrent and Consecutive Programmes

	Characteristics	Scope	Advantages	Disadvantages
Concurrent models for initial teacher education	Academic subjects are studied alongside educational and professional studies throughout the duration of the course. Shorter.	Common for primary school teachers (expect France and Germany). Lower and upper secondary education teachers in Belgium, Canada, Greece, Hungary, Ireland, Italy, Japan, Korea; Turkey, the United States.	Allows a more integrated learning experience, since pedagogical and subject-matter (content knowledge) training take place at the same time.	Little flexibility in entering the teaching profession, especially for the persons who have studied something else than education, as well as for those who would want to be able to re-enter other labour markets eventually.
Consecutive	The specialized courses in pedagogy and in teacher teaching are accessible after having completed another degree in a discipline taught in school. Longer. Entry more restrictive.	More common for secondary school teachers than for primary school teachers. Denmark, France, Norway, and Spain, Austria, Australia, the Czech Republic, England, Finland, Ireland, Israel, the Netherlands, Northern Ireland, Scotland, the Slovak Republic, Sweden, Wales	Allows a more flexible entry into the teaching profession. Allow teachers to have a strong subject expertise in a precise academic discipline.	Weaker knowledge in learning techniques and in pedagogy in general. Fragmented learning process between subject-matter knowledge and pedagogical knowledge. Weaker professional identity.
Concurrent and Consecutive	In an educational system, both consecutive and concurrent models can coexist.	Changing teacher education models can be a way to help resolve the problem of teacher shortage or to boost the quality of the teachers.	To have different programmes allows to attract into the profession different profile of potential teachers.	Extra financial cost for the country, less efficiency

2.1.5. Institutional characteristics

Table 3: Characteristics and Trends among the OECD countries

Institutional setting	Universities or higher education institutions.	Trend : Since the 1980', teacher education is increasingly being incorporated into university
Length	In most of the OECD countries, 3 years for primary school teachers, 4 years for secundary school teachers.	Trend : Since the 1980', lenghtening of teacher education programmes (6 years in some countries, eg Korea)
Provider	In some countries, State Agencies (*France, Germany, Korea, Spain*) that depends of the central education authorities. In others (*the United Kingdom, the United States, Australia*), public and private providers (non-government agencies, private consultants, training firms). Market-based approach.	
Financing	In some countries, these programmes are free of charge for the candidates (*France*), whereas in other countries, it is the aspirant teachers that pay (the *United States, Canada*).	

2.2. Continuing training

2.2.1. Purpose of continuing training

"Update, develop and broaden the knowledge teachers acquired during the initial teacher education and/or provide them with new skills and professional understanding" (OECD 2005). Even if they receive a quality initial teacher education, teachers need to be trained their whole life. Continuing training is even more important in countries where teachers do not have all the academic preparation they should have. Continuing training is a great tool to develop the skills needed to reach higher student outcomes. The promotion of continuing training is also very much linked to the idea that schools are valuable places for teacher learning.

2.2.2. Scope

These activities can be very heterogeneous: dissemination conferences, workshops (preparation to new subject-matter content), school-based activities (study groups, courses), personal teacher development (individual activities outside of schools). The most commonly-used approach is the one-time workshop, but research shows that this form of continuing training is ineffective and inefficient.

In despite of the great potential of continuing training, there seems to be a general discontent among teachers: it is said to be too fragmented, lacking in intensity, and unrelated to teaching practices. In more than half of the OECD countries, teachers have no obligation to engage in continuing training. The most common minimum requirement for the rest of the countries is of about 5 days per year. TALIS reports that teachers associate continuing training with higher levels of self-efficacy in only half of the countries. The main issue is not continuing training in itself, since evidence says that it is effective, but the forms that it adopts: the most widespread ones (short workshops) are also the most ineffective. This is why it is necessary to evaluate carefully the different policy options.

3. Possible Policy Orientations

Table 4: Common Policy Directions

General objectives	Policy objectives	Areas that need to be targeted and articulated
Improve teacher quality	Attract the right kind of teachers into the profession	Traditional models of teacher education
		Alternative models of teacher education
	Give them the right tools	Content-knowledge, pedagogical skills
		Practical field experience
	Assure that they stay competent throughout their entire teaching career	Initial teacher education
		Continuing training

3.1. Redefine teaching as a high level profession

3.1.1. Rethink the content of teacher education to attain teacher quality

The way in which practising teachers learn depends on many factors – countries' past traditions, existing institutions, systemic characteristics, etc. Specific designs of teacher education must be context-specific, and modelled in function of specific needs **(**education aims, processes that are already into place, etc.). A "complete" teacher education combines strong subject-matter and pedagogical knowledge, the ability to colaborate with diverse actors (students/collegues/administrators), and the capacity to continue

developing these skills and to understand the indepth context of the schools in which they teach. Teacher education programmes should be designed as an incentive to bring the right people into teaching and to make it adequate to the country's specific needs, depending on the quality and the quantity of feature teachers that it is considered suitable.

3.1.2. Increase the coherence between the education received by teachers and what actually happens in the classrooms

The role of practical field-experience in teacher education has to be revaluated: to include practicum during initial teacher education allows to familiarize aspirant teachers to classrooms, to prevent "reality-shocks" at the beginning of their teaching career, to link pedagogical theory with practical problems and to construct a sound professional identity. The modalities (sole observation, tutoring and assistance, full responsibility of a class, small support tasks) can be adapted to the particular context of each country. Research shows that soon-to-be-teachers that have had an extensive training in schools perform better as teachers.

3.1.3. Systematically put into place teacher quality mechanism

Systematic certification for teachers and accreditation for teacher education providers have to be put into place. Thanks to these quality mechanisms, educational authorities can establish professional standards, independently to what is taught in the teacher education programmes. This is also a way to influence on these programmes, and make their outcome closer to what the educational system needs, in terms of skills and competences. To raise the requirements to certify teachers allows to improve teacher quality. The establishment of standards to certify teachers, and/or to accreditation teacher education providers can allow to "even out" teacher education, to bring clearness and predictability into the system. This is an issue especially for the countries where teacher eduaction is descentralized (it is organized by local authorities) and/or market-based (private institues can provide it and they are heterogeneous).

3.2. Design a more coherent educational system

3.2.1. See teacher education as a continuum

The coherence of initial teacher education and professional development has to be improved. In order to be as effective as possible, teacher education has be to thought of, and teacher education policy structured as, a continuum of teacher learning (that includes formal and informal preparation activities). Teacher education is a life-long experience that goes from their initial education to their retirement. The several stages that compose teacher education have to be intrinsically connected. The initial education that teachers receive constitutes a solid base of the knowledge and the skills that they will need for their task, and continuing training allows them to update this "patrimony" and to adapt it to the changes of the teaching environment. The articulation of these different elements is fundamental, since undoubtedly there are synergies between them, that influence what and how to teach.

3.2.2. Acknowledge the importance of continuing education

Continuing training has to be perceived as an integral element of teachers' professional responsibilities. This is not generally the case, since traditionally, teacher education has focused mostly on initial teacher education. Continuing training should be closely articulated with initial teacher education: many times, continuing training programmes are carried off with little coherence with the initial education received by teachers. These continuing training programmes are effective when they have a certain length, are based on school's needs and allow interaction among teachers (peer-to-peer, mentoring).

Since continuing training should form a part of teacher responsibilities, incentives mechanisms have to be put into place, and it has to be taken into account in teachers' work load. Continuing training

represents a tool that is fundamental in the case of low quality initial teacher education: research shows that continuing training has a positive impact on teacher knowledge and skills, and on student performance.

3.2.3. Weave closer cooperation bonds between the different providers of education

Countries need to weave closer cooperation bonds between the different providers of teacher education**,** in order to articulate teacher education as a continuum. Initial and continuing training for example should be provided by the same institutions in order to assure a better coordination and to allow contacts between teachers already in service, and soon-to-be teachers. The first group could offer their practical experience, and teachers that are still in education could share the latest novelty in research and theory.

3.3. Explore alternatives for teacher education provision

3.3.1. Support new school-based effective teacher education programmes

Emphasis should not be put not on the teachers' specific needs, but on the creation of a suitable learning environment for students. School have to be at the centre of teacher education programmes, and it is their needs that have to be taken into account for the design of these programmes. Research indicates that programmes that are linked to specific school needs are more effective, especially activities based on demonstration and peer-review. They allow synergies among the teachers and the staff of the school. There should be tight linkages between teachers' own professional development, the responsibilities that they are given to them and the school's goals. This is also a way to assure that motivation for continuing training will not be lead by only individual teacher advancement, but towards more collective goals, oriented toward the implementation of innovation.

3.3.2. Making teacher education more flexible

Alternative teacher education programmes should be created. Their main purpose is to increase the supply of teachers in areas of need, geographical, or relative to a particular subject (IT, languages, mathematics, etc.). Countries can "customize" these programmes according to their specific needs and the type of "profile" they want to attract into the teaching profession, modifying the requirements to enter, the modalities to certify teachers, the way they are financed. A comprehensive design allows to articulate these routes to the existing ones: traditional and alternative teacher education programmes should not be seen as competing, but as complementary. Sponsored generally at the local scale (school districts, municipalities), alternative certification programmes are oriented toward helping new teachers learn their jobs in particular contexts, this is why they are general school-based and school-oriented.

3.3.3. Innovate in the designs of teacher education

It is important to identity the main possible design of teacher education, and the trade-offs in terms of cost-efficiency that exists between their different phases.

Alternative pathways vs. traditional pathways: Research shows that alternative pathways are less costly than traditional programmes and as effective. Complementary teacher certification and accreditation mechanisms can be designed to manage the risk of seeing the quality of teachers lower as a consequence of this new development. For a country, an option could be the development of alternative pathways, as long as it is carefully assessed and designed comprehensively and coherently.

Initial teacher education vs. continuing training: there is a certain complementary between both phases of the education continuum. Initial teacher education could be shortened, and the resources economized could be used to strengthen continuing training, based in schools. For many countries, this

change is worth consideration, but would need careful assessment. In the same way, it is more effective to raise teacher quality to improve continuing training than to increase the length of initial education. Even if continuing training should not have to compensate for a bad quality initial teacher education, in the case teachers do not have a sufficient level to teach, such measures could "correct", and compensate this "deficit" in teaching skills and knowledge. Research indicate that to increase continuing training is a cost-efficient strategy to improve student outcomes, even if compared to other more common strategies, such as reducing class sizes or incrasing the number of hours passed in schools.

4. Policy orientations for Mexico

It is fundamental to take into account the particularities of the Mexican educational system to design comprehensive reforms. The design of a coherent and comprehensive teacher education policy could allow Mexico to raise teacher quality and to "professionalize" teachers. Mexico needs better articulation between initial education and continuing training, in order to provide teachers with strong teaching skills.

Changes in initial teacher education - although necessary and important – cannot, by itself, raise teacher quality in Mexico. Continuing training represents a tool that is fundamental in the case of low quality initial teacher education: research shows that continuing training has a positive impact on teachers' knowledge and skills, and on student performance.

Continuing training also have to be reformed in depth, in a coherent and comprehensive way. For Mexico, to increase continuing training for teachers could be a cost-efficient strategy to improve sutdent performance. Mexico for example could make continuing training compulsory for teachers – through for example a recertification system, but with not necessarily advantages in terms of salaries. The school environment has to be more supportive towards professional development activities. The promotion of continuing training and the intensification of these activities can lead to an improvement in teacher quality more effective in terms of costs than the lenghtening of initial teacher education.

Adequate continuing teaching programmes are the ones that allow more interaction among teachers, and that provide them with the opportunity to evaluate their own work, through for example peer-review, mentoring, lesson studies, extended workshops. The Mexican National Catalogue of available continuing training courses should be reformed taking these characteristics into account.

Emphasis has to be put on students and on schools, rather than on teachers. School needs have to be put at the centre of the Mexican system of continuing training. Such a reform would allow teachers to be motivated not but by their individual advancement but by collective goals of school improvement. It would also allow to define in Mexico a stronger common spririt of enthusiasm and devotion toward the teaching profession.

New routes should be opened up into the teaching profession, alternative teacher education programmes that take into account the diversity of the ones who may wish to enter the profession and the diversity of the situation of the school. Mexican states that face different challenges (rural environment, indigenous schools, and special student learning needs) have to model these pathways according to their specific needs. These routes are also cheaper that traditional initial education routes.

Initial teacher education should include in a bigger extend practical field experience. In Mexico, school-based practice is already part of the initial teacher education, but it is short and disconnected from the coursework. Practical field experience must be relevant in relation to the teacher's future activity.

Systematic teacher quality mechanisms should be established, at several stages. The establishment of clear and transparent standards to certify teachers (especially for the entry into the profession) can allow to "homogenize" teacher education, to bring predictability into the selection process.

INTRODUCTION

The economic and social changes the world is undergoing make high-quality schooling more important than ever, and, as what is at stake varies, countries have to think on how they can attain better school systems. Since teachers are the most important resource in schools, it is essential to focus on them in order to reach a higher quality education. (OECD 2005) Education policies that do not take into account teachers are condemned to ineffectiveness (OECD 1998). The demands on teachers are more and more complex and this represents true challenges to the profession: multicultural classrooms, integration of students with special needs, use of information and communication technologies, demands for more accountability and evaluation, interactions with the community and the parents, etc (Eurydice, 2004).

This means that the education and training that teachers receive also has to change. This is true for initial education, but also for continuing training: "no matter how good pre-service training for teachers is, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers. Education systems therefore seek to provide teachers with opportunities for in-service professional development in order to maintain a high standard of teaching and to retain a high quality teacher workforce (p. 49)." It is essential that reforms focus on teacher education since it plays a double role: not only does it ensures that teacher are – and remain competent, but it also allow to insure that they stay motivated through time. (Eurydice, 2004)

Countries when planning the design for their teacher education programme face different options. There are several models to which they can turn when designing an effective and efficient teacher education system, in which initial education and professional development are coordinated. This work's aim is to understand how different countries design their education and training models. It will extract some conclusions of the different types of models existing across countries. This work is necessary to understand which organizational combination of initial teacher education and continuing training countries have chosen in order to fit best their educational system's needs and challenges. In which ways do teachers in different countries develop their knowledge and teaching skills all along their career? What are the different ways to articulate the different phases in which teachers learn? What are the dynamics that allow to explain the different teacher education models?

To answer these questions, this paper examines the current academic and policy literatures surrounding teacher education. It provides a typology of existing national system of initial education and in-service education, in addition to presenting some of the advantages and disadvantages of these different systems. This rapport will provide an account of the current empirical evidence on the effects of teacher education mechanisms.

1. WHY IS TEACHER EDUCATION IMPORTANT?

This section provides **the rationale for analyzing teacher education**. Teacher education is an important field of research – and debate, since OECD countries have regularly questioned the quality of teacher education. When an educational system seems to fail in educating students with proper skills and of good level, the cause is often seen as being the quality of the education that teachers provide, which in turn, is also seen to reflect the quality of the education that these teachers have received. To teach is a complex and demanding intellectual work, one that – as it is the case of doctors or engineers – cannot be accomplished without the adequate preparation (International Alliance of Leading Education Institutes, 2008).

1.1. Teacher education is vital for improving teacher quality

The debate on teacher education has especially gained importance, as **teacher quality is more and more being identified as crucial to student outcomes.** It is now acknowledged that quality teaching is fundamental to achieve higher student learning, as it "is the single most important school variable influencing student achievement (p. 26)" (OECD, 2005), more significantly than other factors, such as class size for example.

This is why **the most direct and effective way of raising educational quality** is to modify teacher education and recruitment, combined with the development of means to improve the knowledge and the pedagogical skills of the teachers that are already in-service. (Darling-Hammond, 2005)

1.2. Teacher education, a continuum of teacher learning

Now that we have explained why teacher education is essential, as it is directly link to teacher quality and to student outcomes, we will develop the **framework** used to study the main components of teacher education. The design of a teacher education programme can be apprehended in three parts: initial teacher education, induction programmes, and professional development. In order to be as effective as possible, these three elements have to be thought of conjointly as "the professional development of teachers is a lifelong process which begins with the initial preparation that teachers receive and continues until retirement (p. 8)" (Villegas-Reimers, 2003). Teacher education has be to thought of, and teacher education policy structured as, **a continuum of teacher learning,** that goes from the beginning of teachers' own schooling and throughout their entire teaching career. This continuum is not only composed by the **formal preparation** that teachers receive, but also by the **informal influences** on how and what learn to teach. These different elements have to be taken into account, and articulated in an integrated approach to meet the needs of the educational system. Nevertheless, traditionally, teacher education has always been more focused on initial teacher education, defined as "a phase of specialized institutions with an expectation of full-time engagement by the learning teachers", while continuing training was – and still is in most cases – considered as a "marginal add-on to the practice of teaching (p. 33)". (Schwille et Dembélé, 2007)

One of the main stakes is that teacher education is not perceived, by policy designers and teacher education providers, but even by the teachers themselves, as being a continuum, and the **linkages** that should be weaved between initial education and continuing training are often **missing**, which means that the different parts of teacher education are not articulated to each other.

As explained by Schwille and Dembélé, this scheme is very present in the way continuing training programmes are designed: they are most of the time created and carried off with **little coherence** with the initial education received by teachers, and with little to do with what is actually happening in the

classrooms. Another problem is that feed-back is rarely provided for these teacher education programmes, providers realize **no follow-up** upon teachers.

This is why we will analyze what are the forms that allow effective teacher education. To be truly effective, continuing training has to be designed to be a part of a larger curriculum that should extend over the all career of the teacher. This curriculum of teacher learning has to be "based on what is needed to keep the overall knowledge, skills and dispositions of practicing teachers solidly based, up-to-date and effective (pag 33)." (Schwille & Dembélé, 2007).

1.3. Empirical evidence of the effects of teacher education on teacher and student outcomes

It is fundamental to assess **what is the empirical evidence** of the impact that teacher education has on teachers. ***What is the impact of teacher education and training on the quality of the teaching and learning?*** Research shows that teacher education has an impact on teachers' behaviours and teaching skills: continuing training plays an important role in changing teachers' methods, and that these changes have a positive impact on students' learning. (Borko et Putnam 1995) Concerning the impact of teacher education on student outcomes, it is possible to subdivide this issue into three sub-questions.

1.3.1. What is the impact of teacher education on student outcomes?

In an exhaustive review of state policy evidence (1999), Linda Darling-Hammond analyses the links between teacher qualifications and student achievements, also taking into account others school inputs. This empirical study is based on data from 50 State-surveys of policies, taken from the 1990-1993 Schools and Staffing survey and the National Assessment of Educational Progress (NAEP). It shows evidence that the policies used in the different American States to promote teacher quality (especially those regarding teacher education requirement and certification, as well as continuing training) can be positively related to better student achievements. It is interesting to see that the factor that has the most impact on students' achievement is "investments in teachers' knowledge and skills", that is, the education that teachers have benefited of (it can be initial or in-service). The factor is even more significant regarding student performances in reading and mathematics (even with control of socio-cultural factors, like poverty, native language). **Teacher education does have a fundamental impact on both teacher effectiveness and student outcomes.**

1.3.2. Impact of initial teacher education

Does the initial teacher education teachers receive have an impact on the quality of their teaching and the performance of their students? The review of 57 empirical research reports on United States teacher education done by Wilson, Floden & Ferrini-Mundy (2003) puts into evidence a **positive connection between teachers' preparation in terms of subject-matter and the performances of their students**, even if it also acknowledges the fact that the solution to achieve teacher effectiveness is more complex than "simply simply requiring a major or more subject matter courses" (p.2). It also shows the positive impact on teacher practice and student outcome of pedagogical preparation.

This is not the only study that has highlighted the importance of "knowing how to teach", and its positive effects on students achievements, since others (Wenglinsky, 2002 ; Gustafsson, 2003; Wayne & Youngs, 2003) have arrived to the same conclusion.

There has also been **econometric case-studies** made on the linkages between initial teacher education and student achievement. Positive relationships has been found between **teachers' qualification** (proxy : licencure requirement) **and student achievement**. Clotfelte, Ladd, & Vigdor (2008) arrived to this conclusion through the estimation of a model with student fixed effects, that minimizes possible bias, using data from North Virgina at the high school level. Their findings are that teachers' qualifaction affects

student outcomes systematically, and that it is relevant for policy-makers to modifiy them to impact performances of schools.

The same results are found by Wayne and Youngs (2002), in a review of the studies that analyze the relationships between **teacher characteristics and student achievement gains**, taking as indicators the standardized test results in the United States. After ruling out alternative explanations (like prior achievements, or socio-cultural environment), they find a positive relationship between teachers' college ratings and test scores, as well as a positive relationship between teachers' degrees, coursework and certification and student outcomes in mathematics.

1.3.3. Impact of continuing training

It is possible to review briefly **several representative studies that develop insights on the effectiveness of continuing training**. Good, Grouws, & Ebmeier (1983) were among the first analytical study of the links between teachers' education – and in particular in-service education – and student performance. This study wanted to put into evidence the impact on students of their mathematics teachers' continuing training. To do so, teachers were assigned randomly to either a control or a treatment group. Teachers assigned to the treatment group were given continuing training in Mathematics (extended workshops, teaching manuals). After two months, the students of both groups are tested on their results in mathematics, and those were compared to their results before the experiment. It is showed that the students from the treatment group have better outcomes, even after taken into account other factors that might have influenced the experimentation.

There are also other studies that focus on the impact of improving teachers' knowledge of student's problem-solving skills in mathematics through continuing training. Thomas Carpenter (1989) highlights through an experimental study in which took place 40 teachers that the **continuing training** based on cognitive learning workshops accounts for better student performances in **mathematics**.

Deborah McCutchen (2002), also through an experimental study, analyzes the impact of **continuing training on teacher effectiveness** in the field of early reading. A group of teachers are assigned either to a control group (no particular training) or to a two-week workshop of subject-matter pedagogy (phonology, phonological awareness, etc). She then analyzes the performances of the students. She put into evidence significant differences in their performances between both groups: students taught by the teachers that had follow the workshop performed significantly better than the others. (Hill, 2007)

2. CHARACTERISTICS OF EXISTING NATIONAL SYSTEMS OF INITIAL EDUCATION AND CONTINUING TRAINING OF TEACHERS WITHIN THE OECD AREA.

2.1. Initial Teacher education

Teaching can be seen by **two alternative views**, that are not rivals, but that can be articulated between themselves: the role of teachers as knowledge transmitters, that provide correct answer to his students : the role of teachers as facilitator of active learning by the students, that are asked to develop individual problem-solving skills (OECD, 2009). These two visions have in common a similar definition of what is initial teacher education: "all professional preparation before individuals take full responsibility for teaching one or more classes of pupils (Schwille & Dembélé, 2007)".

2.1.1. Purpose of initial education

Initial teacher education is **the first entry point to the teacher professional career**, it plays a fundamental role : the way it is organises determims both the quality and the quantity of teachers. Its content allows to give to all teachers in a particular context (the national one for the majority of the OECD countries) a set of characteristics and skills, that they will need in order to perform their work correctly. To give the same initial education to all teachers is the way in a country to **achieve uniform level of qualification** between all school teachers, and to **control the overall provision** of education in this country. Even in countries in which the eductionnal system is descentralized, and great autnomy is given to schools in the hiring of teachers for example, educationnal authorities sometimes establish lists of specific skills that teachers have to master at the end of their initial education. It is for example the case in the *United Kingdom*, where authorities have established a list of competencies that have to be mastered by futures teachers ("Guidelines on Initial Teacher Education Courses") since 1998.

2.1.2. Scope of initial education

The question of the "scope" of initial education is : **what should be included in the "luggage" that is given to all beginner school teacher through initial teacher education?** It is possible to define some general guidelines on what is desirable for initial teacher education : a strong subject-matter knowledge, pedagogical skills, the capacity to be able to work with a wide range of students/collegues/administrators, a capacity for continuing developing this knowledge and those skills. The most common "mix" among the OECD countries is a combination of courses in subject-matter, of teaching techniques (pedagogical knowledge), and of practical school experience. It is interesting to note that some countries choose to include in initial teacher education curriculum the development of research skills (*Australia, Denmark, Finland, Ireland, Israel, Norway, and Sweden*), as well as conceptual foundations in the cognitive, behavioural and social sciences, research-based knowledge of child development.

What is certain is that a "complete" teacher education, when the right balance of the different elements is found, contributes to a better teaching performance, as it gives also the teachers more sophisticated tools, to understand with greater depth the context of the schools in which they teach. Teachers have to receive a preparation that allows them to deal with changing settings, in which students build their knowledge from different perspectives and sources, like small pieces forming in the end a general puzzle. It is fundamental for teachers to have the **ability to create learning experiences** that connect with what students already know, using techniques and experiences that will adapt properly to

what these students already know, taking into account the diversity of their prior conceptions. (Schneider & Stern, 2009)

Nevertheless, there is no **consensus among researchers on the optimal content to give to initial teacher education**: some say that a good teacher's education should be emphasis toward content-knowledge, and others say that it should emphasis on teaching and learning-related knowledge (pedagogical). Research evidence seems to show that pedagogical knowledge has more impact on student achievement than content knowledge (Cuadra & Moreno, 2005). It is also interesting to observe the emergence of a new trend in the OECD countries : the surfacing of a third category of knowledge, as relevant as the others, specific and specialized knowledge about teaching and learning process in a particular discipline, it is "the teacher's understanding of how to help students understand specific subject matter (pag 108) ". (Cuadra & Moreno, 2005) There seems to be a great potential for teacher education in this field.

Even among the way pedagogy should be integrated in teacher education, there is no consensus among academics. As analyzed in the UNESCO report "Global Perspective on teacher learning: improving policy and practice" by Schwille and Dembélé (2007), some scholars prefer to emphasize **content-specific pedagogy** and find no utility in general pedagogical content. Others, on the other hand, consider that **general pedagogy** is precisely what is needed for teachers that have to know how to deal with different environment and types of students… It seems that the existing research is for now unable to resolve this issues ; Schwille and Dembélé (2007) when analyzing the state of the research on the exact scope of initial teacher education concludes : " more research is needed before a better balance and integration of content knowledge and pedagogical or foundational knowledge can be achieved (pag 72)".

In the majority of the OECD countries, initial teacher education contains a part of practicum, this means, **practical modules or internships in front of students in schools**. The goal of these practical field experiences is to familiarize students to classrooms, and to avoid them having a "reality-shock" at the beginning of their teaching career. The modalities that can adopt these school-based experience vary cross-nationally, in respect to their total duration, the number and duration of the segments of field experience (can be numerous or just one), where, how and by whom they are assessed. The precise activities that are included in them can also vary considerably, especially concerning the responsibility that is given to the student teacher. It can include activities such as: sole observation, tutoring and assistance, other support task, or being in charge of the class.

In some countries, the initial education that is given to teachers is the **same for all the level of schooling, and for all the subjects taught**, and even the same for different types of school. It is the case in *Sweden* for example. Thus in some countries, the content of the initial education can be quite different according to the position the aspiring teacher is expected to have. In *Germany*, according to the school, subjects, level of schooling that a teacher is preparing to teach, the content of the education he receives can be quite different.

2.1.3. Emphasis and content

It is possible to elaborate a **typology of the different models of teacher education**, based on the one created by Buchberger, Campos, Kallos and Stephenson (2000) to characterize the different European models. They divide the existing models in two important groups, defined by several common features: **the "traditional models of teacher initial education" and the more modern ones**.

2.1.3.1. "Traditional models"

The "**normal school tradition**" is typically associated to the education of primary school teachers. Its curriculum is based on "practical training" (that is: periods of training of the student teachers in schools) through supervised teaching practice, methodology courses, and subject-matter pedagogy. On the other hand, this kind of programme lack of content in educational theory, in academic and scientific knowledge and in research-based knowledge on teaching. Little importance is given to the acquisition by aspirant teachers of problem-solving capacities, necessary for them to be able to meet rapidly changing tasks of teaching.

This model of teacher education is based on the **acquisition of basic skills, through practice**. Its advantage lies in the fact that it provides a number of routines to the teachers, which allows them to master specific aspects of the teaching practices, granting them with solutions to certain well-defined problems they may face in the classrooms.

Although in most OECD countries, teacher education for primary school teacher has been transferred to tertiary institutions, **the "normal school tradition" still exerts an influence,** on matters such as the culture of teaching, studying and learning and on the importance attached to methodology courses and teaching practice.

The second *traditional* model goes by the name of **"academic tradition"**, traditionally associated with lower and higher secondary school teachers. In terms of curriculum, emphasis is put on knowledge of scientific content of particular academic disciplines, the acquisition of skills like general problem-solving capacity, and the learning skills for knowledge acquisition. Teachers also in general have to pass a probation period in schools. On the other hand, little importance is given to educational theory and methodology and teaching practice. Rather than being specialized in specific pedagogical skills, in this tradition, teachers are subject specialists in a small number of academic disciplines. The strength of the teachers educated through this model is their problem-solving capacity, which allows them to be reactive in every classroom situation.

2.1.3.2. New Models

In parallel to these two traditional teacher education models, Buchberger *et al.* underline the emergence of **two new models** : the *'professionalization' of teaching*, and the *minimum-compentency model*. The main difference between both types of model is the way in which is perceived teaching: the traditional conception of teaching as a craft is replaced by a much more dynamic conception that focuses more on professional autonomy. Teachers are perceived as proactive agents of change.

They define the first one as a movement for the **"professionalization" of teaching**. The birth of this new alternative to teacher education was triggered in the late 1960' by the perception of short-comings inherent to both traditional model of teacher education with regard to effectiveness and efficiency. As explained by Furlong (2008), traditional programmes have been "overly academic and insufficiently sensitive to the needs of beginning teachers" (International Alliance of Leading Education Institutes , 2008). The emergence of teacher professionalization also has to be taken into account in a context of changing nature of teachers' work, and the importance of new information and communication technologies.

In the curriculum of this model, a lot of importance is given to **comprehensive research-based knowledge** on teaching and the transmission to apprentice teachers of a large repertoire of empirically validated teaching practices. The elements that compose this teacher education are studies in sciences of the teaching profession, awareness to educational research, professional problem-solving capacity, a

professional code of ethics, with the aim of forming teachers that are autonomous, with a strong critical sense, and professional problem-solving abilities. They have the ability to promote "**complex learning**" (Feiman-Nemser, 2001): teachers must be "practical intellectuals, curriculum developers and generators of knowledge in practice (p 105)". The main element that defines this model is the place that is given to teachers in the process of education quality improvement: teachers are treated as professionals, experts in their precise field, and that have a tool-kit with particular skills that are the base of their expertise. They are perceives as **decision-makers**, able to identify problems and school's specific needs, within a particular context. They are able to propose potential solutions and to assess their operability, for which a critical eye over their own action is important. They are also considered as leaders, capable of being in charge of the improvement of their skills.

H**ow can a country establish such a model of teacher education?** For A. Jasman (2002), the professionalization of teacher can be made through the **creation of a set of standards for professional practice**. Several OECD countries have in fact adopted this approach to promote teacher professionalization. *Australia* for example has launched a set of professional teaching standards (in particular for its initial teacher education programmes, including regulation of curriculum), as well as mechanisms of auto-regulation of the profession (Jasman, 2002). As we will see next, continuing training is also undergoing a process of professionalization of the profession.

What are the implications of professionalization on teacher education? Consequences are tighter entry requirements for initial education, extended duration, and transfer of initial education to higher education, modification in its content, as well as the establishment of more comprehensive system of in-service education. It is particularly interesting to see that such changes in teacher education policy are observable among the OECD countries: *Germany, England and Wales* have done similar reforms in the 1970' (Buchberger, Campos, Kallos, & Stephenson, 2000). In these countries, teacher education has been included into university. The birth of the IUFM in *France* in the 1990' can also be interpreted in that direction (Lapostolle & Chevaillier, 2008). Other countries that have reformed their teacher education system towards more professionalization are *Finland* and *Portugal*. There has been a promotion of specific research on education, and the development of a specific academic base to this discipline. This measures can be compared for example to the ones that lead to the professionalization of other occupations (nurses, lawyers for example) in order to **reinforce education as a real career and to assure the preparation of academic leaders.** Whereas in the traditional models, a lot of importance was given to teachers' individual skills, the new models of teacher education are more focus on **collaborative work, to increase synergy and achieve better outcomes**.

Globally, it is possible to say that these efforts toward more professionalization have had a **positive effect on teacher education and the quality of teaching**; nevertheless, these efforts have not lead to substantial structural modifications in the teacher education content.

2.1.3.3. Alternative models

Finally, it is possible to observe the emergence of another recent model in teacher education, called **minimum-competency model of teacher education**. This model enters in sharp contrast, with both traditional models and with the professionalization of teaching. It has been developed mainly in the *United Kingdom* ("school-based teacher training) and in the *United States* ("alternative-routes into teaching") and it is based on the multiplication of alternative entry ways into the teaching profession. 2/3 of the OECD countries offer these alternative paths into the teaching profession.

What is particularly interesting in this model is that the focus is not put in the education *per se* that teachers receive, but rather on the means that can be put into place to certify the competences of those who could be interested in teaching. Whereas in other models, certification is based on course-work, here, **it is**

based on the possession of certain skills that do not come from a teacher education programme, but from the personal experience of each aspirant.

In this model, teachers are considered as **knowledge-providers** that are fit to operate in a particular context. In this framework, the teacher's work consist in providing and transmitting this content in the most effective way to his students. We can see that both types of models (professionalization and minimum-competency) rest on both completely different conception of the teachers' work, and that they demand very different qualities from teachers. It is logical that in that perspective, initial education and continuing training are apprehended differently. **More information about these alternative ways will be provided at the end of this section.**

2.1.4. Organizational characteristics

Each initial teacher education programme operates within **certain structural and institutional parameters**, linked to the kind of teachers that are needed, how they are expected to learn, and existing resource constrains.

2.1.4.1. Concurrent versus Consecutive models for initial education

Initial teacher education can be organized in two ways. In the **concurrent model**, academic subjects are studied alongside educational and professional studies throughout the duration of the course. An example of this is for example the "Bachelor" of education. Among the OECD countries, they are common to prepare primary school teachers (expect France and Germany where primary teacher education is consecutive). In the large majority of the OECD countries, lower and upper secondary education teachers are also prepared by concurrent programmes (*Belgium, Canada, Greece, Hungary, Ireland, Italy, Japan, Korea; Turkey, the United States*).

This kind of programme have several **benefits:** in particular, it allows a more integrated learning experience, since pedagogical training and subject-matter (content knowledge) training take place at the same time. Nevertheless, this kind of programmes can also have **disadvantages:** notably, they are less flexible than consecutive models, since the students are required to decide if they want to become a teacher at a very early stage in their university studies. If teacher education is accessible only through concurrent programmes, it can cause difficulties to becoming a teacher to the persons that have studied something else than education in the first place, as well as for person who are interested in becoming a teacher, but whom also would want to be able to re-enter other labour markets eventually.

In the consecutive model, the specialized courses in pedagogy and in teaching are accessible after having completed another degree in a discipline taught in school (teachers are educated first in a specific discipline and then they receive pedagogical training). This model is more common for secondary school teachers than for primary school teachers. Initial teacher education programmes based on this model are present in Denmark, France, Norway and Spain. It also interesting to underline that a large number of countries (*Austria, Australia, the Czech Republic, England, Finland, Ireland, Israel, the Netherlands, Northern Ireland, Scotland, the Slovak Republic, Sweden* and *Wales*) offer both models for secondary teacher education. Its main **advantage** lies in the fact that it allows a flexible entry into teacher education. Indeed, since the aspirant teachers already have another degree, they can convert themselves more easily, if they change interest or job perspectives. This flexibility in relation to their coursework also makes them better equip if there is a change in labour market conditions. Also, it is important to acknowledge that in some subject, it is essential for the teacher to have a strong subject expertise, expertise that can sometimes be achieved only thanks to prior studies in that specific field (mathematics, history). The **negative aspect** of such an initial teacher education programme is that teachers formed through the consecutive model can have a weaker knowledge in learning techniques and in pedagogy in general. Since they have studies in

two different cycles, where they learned two different aspects of the teaching profession, their learning process is fragmented, rather than integrated. In the majority of the OECD countries, initial teacher education for secondary schools is consecutive, which means that their professional identity, as opposed as primary school teacher, is not constructed around teaching but around the subject in which they specialized.

In an educational system, **both consecutive and concurrent models can coexist**. There are advantages and disadvantages to this coexistence. On one hand, having several pathways/ programmes of initial education allows to attract into the profession different profile of potential teachers, this is a stake that is particularly important in the countries that are faced to teacher shortage. Indeed, concurrent model programmes attract students that feel very strongly since the beginning in becoming a teacher, and consecutive model programmes allow the aspirant teacher to first study something else, before receiving teachers education. Nevertheless, having several teacher education programmes, based on different models, can represent an extra cost of the country, and be less efficient.

2.1.4.2. Entry into the initial teacher education programme

The choice of the model is also very much linked to the way **the entry into the teaching profession** is organized. In many OECD countries, entry to teacher education is largely accessible to all those who have completed secondary education, while in others, more restrictive forms to access teacher education apply (OECD, 2005). Basically, the entrance to concurrent education programmes is based on secondary school results (as for any higher education institutions); on the other hand, entry to consecutive courses (common for secondary school teachers) depends on results in university studies. In most European countries, teachers have a civil service status, and entry to the profession is highly competitive, since it provides high job security and lifetime employment. There is a strong competition to enter teacher education programmes (in *Korea, Ireland, Finland*). An interesting example of this selection process is *Finland* : the entry into the initial teacher education programme is based on final secondary school results, as well as relevant work experience ; followed by a second selection phase, made of interviews, essays as well as observed teaching lessons.

On the other hand, in some countries, teacher education programmes are considered as **"a fall-back option"** for high school graduates who were not able to enter the programme of their choice. In *Belgium* (Flemish community), in 2001, more than 50 % of students enrolled in teacher education courses indicated that this was their second or third choice. (OECD, 2005). Changing entrance criteria to teacher education can be a way to help resolve the problem of teacher shortage (*Switzerland*), or to boost the quality of teachers.

2.1.4.3. Short versus long programmes of initial education

In the majority of the OECD countries, teacher education has been incorportated gradually into the higher education sector (university) (Buchberger, Campos, Kallos, & Stephenson, 2000). This phenomenon has happened in parallel with a **prolongation of the lenght** of the programmes of initial teacher education, a steady phenomenon since the 1980'. For primary school teachers, in the OECD countries, the average duration is at least 3 years, and the initial education programmes are even longer in some countries, like *France* and *Portugal*. For secondary school teachers, the minium in the OECD countries is of 4 years. Korea has recently reformed its initial education system, from a 4-year model, to a 6-years model, promoting in its content reflexibility in teachers, trough the development of their research capacity.

Nevertheless, providing a longer initial education could maybe **discourage potentiel aspirants** to enter the teaching profession, and lead to an incrase of shortage of teachers. (Villegas-Reimers, 2003)

According to Schwille and Dembélé (2007), there are many factors that have to be taken into account by the policy-makers when deciding the length of initial teacher education : economic constraints, potential shortage or abundance of teachers, amount and quality of teacher candidates' content knowledge…

2.1.5. Institutional characteristics

In which institutional setting can teacher education be provided? In both concurrent and consecutive models, teacher education takes place mainly in universities, or higher education institutions of other types. Even if there is in general a practical part of this formation (internship in schools for example), in most OECD countries, the majority of the teacher education programme takes place in those institutes and far away from the classrooms.

In some of the OECD countries, initial teacher education is provided by **State Agencies** (*France, Germany, Korea, Spain*). In these countries, teacher education is characterized by a strong and prominent interaction between the central education authorities (for example, the Ministry of Education) and the higher education institutions, interaction of which schools are very much left out. In other countries (*the United Kingdom, the United States, Australia*) the approach that has been selected by educational authorities is more **market-based**, it can also be offered by the **private sector** (non-government agencies, private consultants, training firms).

Some of the teacher education programmes are given by a large institution, where students have to take courses both in subject-matter faculties, and in educational faculties. On the other hand, other programmes are given in institutions that provide only teacher education (specialized institutes). Lewin & Stuart (2003) provide a good summary of the **potential and limitations of the various structural options**. On one hand, if teacher education takes place in specialized higher education institute, it can also have advantages in terms of local locations, and special linkages to communities and schools, and an efficient responsiveness to their specific educational links. It also allows to focus on a single profession and the construction of a strong professional identity. If the scale of the teacher education provider is local, rather than national, it can also allow a better coordination between the content of the initial teacher education and the continuing training that teachers can receive once they are on the job. Nevertheless, there are some disadvantages in placing teacher education in such small structures: they can be to the detriment of the lack of link to research and because of their uni- disciplinary. Also, their costs can be higher, because of their smaller size (no economies of scale). On the other hand, to place teacher education in the general university structure –and not in specialized units, allows to have inputs from academic staff with high levels of disciplinary expertise, also granting them with a useful multi-disciplinary perspective. It puts the student teacher in contact with the insight of research relevant to learning and teaching. These institutions also generally have superior teaching resources, due to their larger scale. As for consecutive model programmes, for future teachers, to study in a large structure not specialized in teacher education has the risk to lead to a less integrated learning experience, and it can also make it harder for future teachers to develop a strong professional identity as teachers.

Among the situation of the OECD countries, it is possible to distinguish the **particular situation of the European countries.** The Bologna process that started in 1999 with the purpose of making higher education qualifications across the European countries similar has lead to a reconfiguration of teacher education. This has had an strong impact on the institutional organization of teacher education, since it now takes more and more place in university-level institutions (OCDE, 2005), and the majority of European countries adopted the consecutive model (Bachelor's degree followed by a Master's). This had for example been the case in *France*, where the *loi Jospin* of 1989 passed initial primary teacher education from "Normal Schools" to the university level. This has also been the case of *Finland* and *Greece*. (Poppleton, 1999) Also, it seems that teacher education institutions are given more and **more autonomy** in

the design of the curriculum. At the same time, mechanisms to assure teacher quality have also been put into place, especially in terms of qualification requirements for entry into these programmes.

The fact that different teacher education models exist shows well that different policy-makers have found **different ways to balance the different considerations** (educational, social, economic) that enter in the decision making, and to avoid the different divergence that can occur between them.

2.1.6. Ways of financing

There are big differences between the countries on who finances the teacher education programmes. In some countries, these programmes are free of charge for the candidates (*France*), whereas in other countries, it is the aspirant teachers that has to bear the whole cost of his teacher initial education (the *United States, Canada*).

2.1.7. Existence of alternative pathways into the profession

As mentioned early, one of the most recent and important trend in teacher education is the **development of alternative pathways into the teaching profession**. These programmes have been developed in situations of teacher shortage: their main purpose is to increase the supply of teachers in areas of need, geographical, or relative to a particular subject (IT, languages, mathematics, etc.). Dai, Sindelar, Denslow, Dewey, Rosenberg (2007) offer a broad definition of these "alternative pathways": a "heterogeneous set of programmes that differ in some way from the traditional campus-based, pre-service teacher preparation (p 424)". They provide **"on-the-job" training to people** with other backgrounds and with no particular knowledge in teacher education.

It is possible to highlight several characteristics that define this model: the programme is **short**, and the preparation is mainly done trough **practical training.** Also, low priority is given to educational theory and research and to scientific knowledge. They rely on the candidates' previous education to provide adequate grounding in subject matter. The curriculum itself emphasizes 'learning by doing'.

It has to be taken into account that these alternative programmes can also be **very heterogeneous between them, and that their range is very wide**, from emergency certification for immediate employment to programmes that prepare individuals whose life experience would make them suitable teachers (Chan Lai and Grossman, 2008). What is at stake in this model of teacher education is the **selection of the student teachers**, since the programme designers need to identify the more capable candidates for these programmes, as they aim to make the teaching profession more accessible to experienced people, but with previous experience in other fields than education. The challenge is to be able to **achieve equivalent qualifications for the teachers that enter the profession through these alternative ways, than the ones that the students from "traditional" teacher education have.** This is necessary, since otherwise, there would be an important risk that these teachers would not be as good quality than the ones that come from the traditional programmes. To have such a warranty is especially important in countries where the decision of teacher employment is taken at the local level (school/district/municipality), in the *United States* for example. 47 States of the *United States* have at least one alternative programmes and about 1/5 teachers in this country come from these programmes (Walsh and Jacob, 2007). In the *United States*, generally, alternative pathways are sponsored by school districts and by the state education departments; they are generally locally-based, since they are oriented toward helping new teachers learning how to teach in a particular environment.

Their heterogeneity also lays in the fact that they seek to attract very different types of candidates. *Australia* (through its Department of Education and Early Childhood Development) for example has developed a specific programme _ called the Career Change Programme, to attract **very qualified**

professionals (engineers, scientists, mathematicians) to become teacher trainees. This Master's in Education is given by the University of Melbourne, and it focuses on subject-specific pedagogical knowledge, with an emphasis on research. Entrants participate in a summer course, and then pass through an extended induction programme. They benefit from financial support, as they complete the two-year training period, that balances study time and field experience in classrooms.

Sponsored generally at the local scale (school districts, municipalities), alternative certification programmes are oriented toward helping new teachers learn their jobs in **particular contexts**, this is why they are general **school-based** and **school-oriented**. The case of the *Netherlands* is particularly interesting: in this decentralized and demand-driven system, schools are responsible for their own supply in teachers. In the 2000', it put into place a more open and diverse system for the supply of teachers. This teacher market has been developed through the introduction of different routes into teaching, with the priority of targeting groups that normally not consider entering the profession, that can be organized at the scale of the school.

This type of teacher education model is very developed in *England:* the Teacher Training Agency (TTA) offers 32 different routes into the profession, including, apart from traditional university-based routes, employment-based and school-based pathways. The particularity of this system is that schools have an active participation in the training of new teachers. Indeed, higher education institutes that wish to get involve in alternative programmes must establish partnership with schools. The English system offers in addition to the traditional undergraduate initial teacher education, postgraduate routes (Husbands, 2008). As mentioned earlier, these routes are very heterogeneous among them, and they can be designed to **attract very different types of candidates**.

The arguments that supporters as such programmes raise are that **the existence of alternative pathways into the profession allow to attract talented people** who might otherwise not want to go through the traditional teacher education programmes. Indeed, these programmes generally require an early commitment from high school graduates. In the *United States*, most "traditional" undergraduate programmes require a commitment in junior year, can take up to one third of the whole college education course and candidates can have access at none or little financial assistance. **Alternative programmes reduce the costs of training**, since they shorten the length of the programme, and, in many cases, they pay a salary to the trainees. In *the Netherlands, England* and *Wales*, the alternative programmes are based mostly in schools and student teachers can earn an income while completing the programme.

Typically, the programmes include some formal instruction (sometimes offered on week-ends or during the holidays), and mentoring by an experienced teacher. For example, New Jersey's Provisional Teacher Programme requires 200 hours of formal instruction, 80 during the first six weeks of the programme and the rest throughout the year. In this programme, training is provided in regional training centre, and the practical aspect of the training is assumed by local schools. On the contrary to traditional teacher education programmes, **it is hard to do a distinction between initial teacher education and continuing training, since candidates in those programmes learn to teach on the job.**

Most of these programmes are provided by traditional teacher education institutes. The criteria **on which is based the entry to them are very heterogeneous across the OECD countries**. For example, the entry to the alternative programme of the University of Applied Sciences in Education of Zurich (*Switzerland*) is very selective and is based on an exhaustive portfolio (academic background, relevant work experience and personal competencies). But other types of institutional arrangements in other countries can be very different. In *Belgium* there are no fixed entry qualifications to these courses, which are very flexible concerning forms of enrolment and that benefit from a wide geographical coverage. In *Chile, Denmark, the Netherlands, Sweden*, it is even possible for trainees to follow teacher education through distance programmes.

Because alternative certification programmes are new, **they are relatively few studies about the content of the preparation they offer, and the sort of teaching they promote**. Their results can be evaluated in terms of recruitment goals, it seems as their programmes have been successful in attracting strong candidates from a variety of different horizons and labour market pools. For many – especially for policy makers, the development of alternative pathways into the teaching profession is seen as "a promising strategy for balancing the competing demands of quantity and quality (Feiman-Nemser, 1990)". It seems that more and more OECD countries are developing this type of teacher education: in *Sweden* for example, these routes have appeared in 2001, and emphasis closer ties between schools and teacher education institutes.

But **the emergence of this kind of programme challenges the very nature of initial teacher education** and raises issues on the kinds of teachers that should enter the profession through this path. Critics argue that these models undermine the efforts that have been done to "professionalize" teaching: for them, teachers issued from these pathways lack of the problem-solving capacity, the critical thinking and the pro-activity that characterized the teaching profession. "High quality education and training might not be achieved by teachers trained this way (p. 20)" (Buchberger, Campos, Kallos, & Stephenson, 2000). It is true that the development of such programmes can seem **paradoxical**: at a time when the work of teaching is becoming more and more complex, they allow people with very little formal preparation to teach.

But it also has to be kept in mind that they are **some alternative paths that resemble closely traditional university-based programmes in terms of content and emphasis** (International Alliance of Leading Education Institutes , 2008). Some of the critics that are made to them could also be made to many traditional teacher education programmes: "while quality programmes require adequate time, time alone does not guarantee quality" (Feiman-Nemser, 1990). In their defence, it should also be taken into account that there is no evidence that they enter in competition with traditional paths, they should more be perceived as alternative, that are needed, but not threatening for the mainstream model.

An interesting programme of alternative certification is: **Teach for America**, created in 1990. This programme recruits and train college graduates and professionals that are not certified teachers for a two-year teaching position in a public school located in low-income areas of the country. The recruits receive an alternative teacher certification throught training received while they are completing the training, after a five-week summercourse. In despite of critisicms about their lack of adequate preparation, this programme seems to be a success : more than 14.000 candidates have completed the programme, its attrition rate is lower than the one of teachers that are certified throught traditional teacher education programmes, and research shows that they are more effective than other begenning teachers (Xu, Hannaway, & Taylor, 2007), especially in mathematics and science (Decker, Mayer, & Glazerman, 2004). The reasons of this effectiviness seems to be to the very demand recruitement process : in 2008, there were 35.000 candidates for 3.700 positions, and most of the entrants come from elite colleges. This programme has inspired similar programmes: DC teaching Fellows, Phoenix Teaching Fellows, New York Teaching, Teach First (in the UK), Teach First Germany, and Teach for Australia. **This is a good example to prove that they are some successful alternative pathways into the teaching profession, but that their design has to be thought of with a lot of precautions.**

2.2. Continuing training

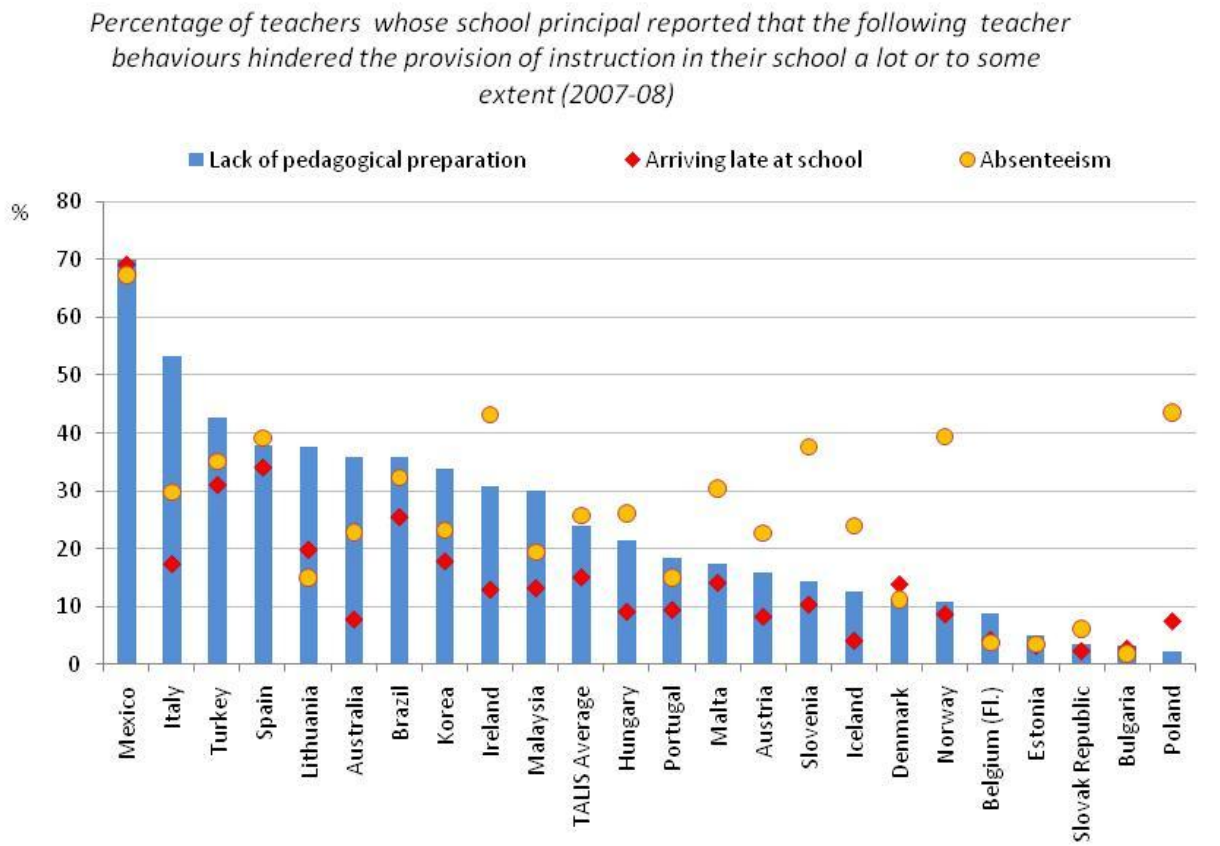
2.2.1. Purpose of continuing training

Continuing training activities seek to « update, develop and broaden the knowledge teachers acquired during the initial teacher education and/or provide them with new skills and professional understanding (p 122).»(OECD 2005). These activies have in common that they lead to changes in knowledge and skills to respond better to practical problems in the classrooms. Continuing training allows teachers to understand

the link between particular teaching activities and techniques, the way different groups of students respond and what their students actually learn: "Because teachers work in such varied contexts, there can be no guarantee that any specific approach to teaching will have the desired outcomes for students. (p 8)" (Timperley, 2008)

It is necessary for teachers to update their skills, **especially in context in which the school situation has changed**: introduction of new curriculum, new research on teaching, adaptation to the changes in student needs due to socio-economic evolutions. As analysed by Buchberger, Campos, Kallos, & Stephenson (2000), "in rapidly changing societies with increasing demands on the teaching profession, even preserving the existing quality of the school systems **calls for increased training as well as new competencies** (p. 54)". Even if they receive a quality initial teacher education, teachers need to be trained their whole life, to know how to manage the ever-changing challenges to which they are faced; these are of such magnitude that they will necessarily start the job without all the capacities that they will need. Continuing training is especially important in countries where teachers do not have all the academic preparation that they should have. The OECD's Teaching and Learning International Survey (TALIS – 2009) reports that this is an important issue in many countries: in Mexico and Italy, more than half of the teachers are reported by the principal of their school as lacking of pedagogical preparation, which hindered the provision of instruction. This lack of formal preparation is also a concern for others of the countries surveyed: Turkey, Spain, Lithuania and Australia also report high levels of lack of teacher preparation.

Figure 1. Behaviours principals report hinder school instruction



Countries are ranked in descending order of the percentage of teachers reporting lack of pedagogical support as a factor hindering instruction.
Source: OECD (2009), Creating Effective Teaching and Learning Environments: First Results from TALIS, OECD, Paris.

Continuing training is defined by the International Alliance of Leading Education Institutes (2008) in their report "Transforming Teacher Education : Redefined Professionals for 21st Century Schools" as a "**key avenue**" for developing the knowledge; skills and dispositions needed to reach higher student outcomes. The promotion of continuing training is also very much linked to the idea that **schools are valuable places for teacher learning**, idea also underlined as mentioned early in the development of alternative programmes into the teaching profession.

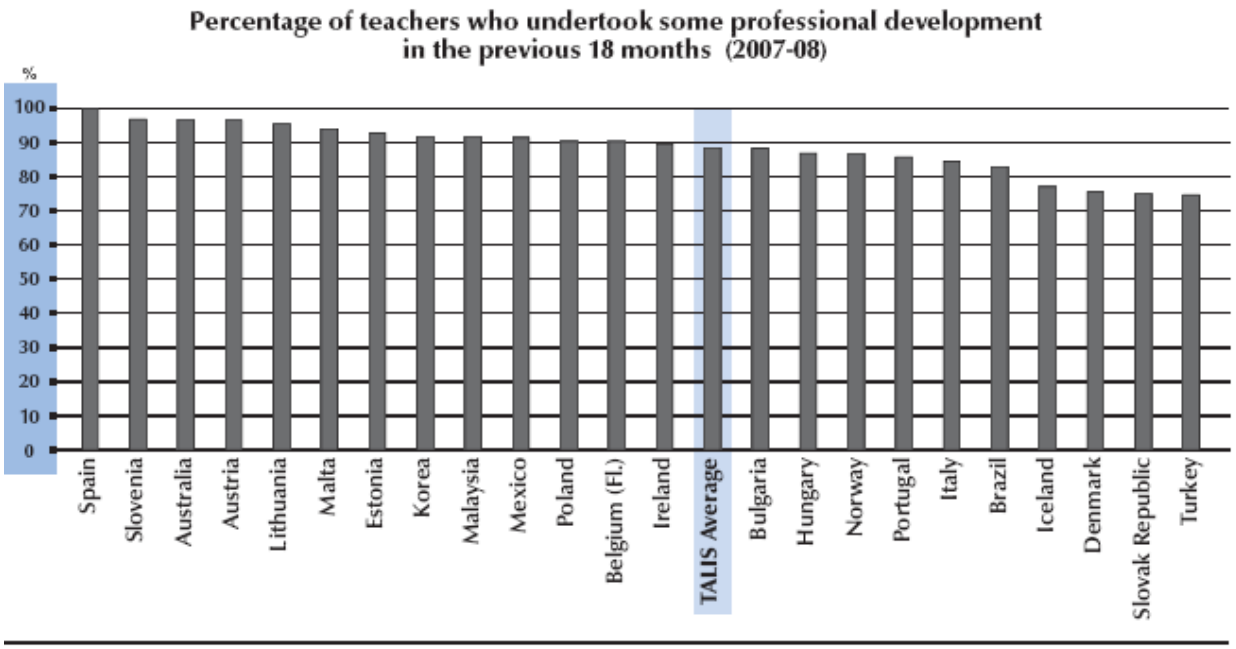
Nevertheless, **these activities are often fragmented, and lacking of intensity and with no follow-up**, a repeated criticism is that they are unrelated to the teaching practices. It is also difficult to analyze precisely the different types of continuing training since it includes many different activities, with also many different purposes, and with many different forms.

2.2.2. Scope of continuing training

TALIS (2009) examines important aspects of teachers' continuing training in the 23 participating countries. On average, almost 89 % of teachers in these 23 countries report participation in some continuing training activity (at least one day in the survey period, of 18 months). However, the participation rates country-by-country varies quite considerably: over 95 % of teachers benefited from

continuing training in Spain, Australia, Austria, Lithuania and Slovenia. On the other hand, in Denmark, Iceland, the Slovak Republic and Turkey, 25 % of teachers report no participation in any continuing training activities.

Figure 2. Teacher participation in continuing training



Countries are ranked in descending order of percentage of teachers having had some professional development in the 18 months prior to the survey.

Source: OECD, Table 3.1.

Eleonora Villegas-Reimers (2003) in an exhaustive literature review states several of the main characteristics of continuing training activities: she highlights that there are extremely **heterogeneous** and that their outcomes are linked to the circumstances in which these activities are organized. This means that there is no "magical formula": it is not because one particular continuing training design was effective in an environment that it can be transposed to another.

The scope of these activities is very wide; nevertheless, it is possible to identity some broad trends (OECD, 2005):

- Continuing training can include **activities intended to facilitate the implementation of a policy or an educational reform** (ex: dissemination conferences to provide teachers with information about new pedagogical content), in the case for example of the implementation of a new curriculum.

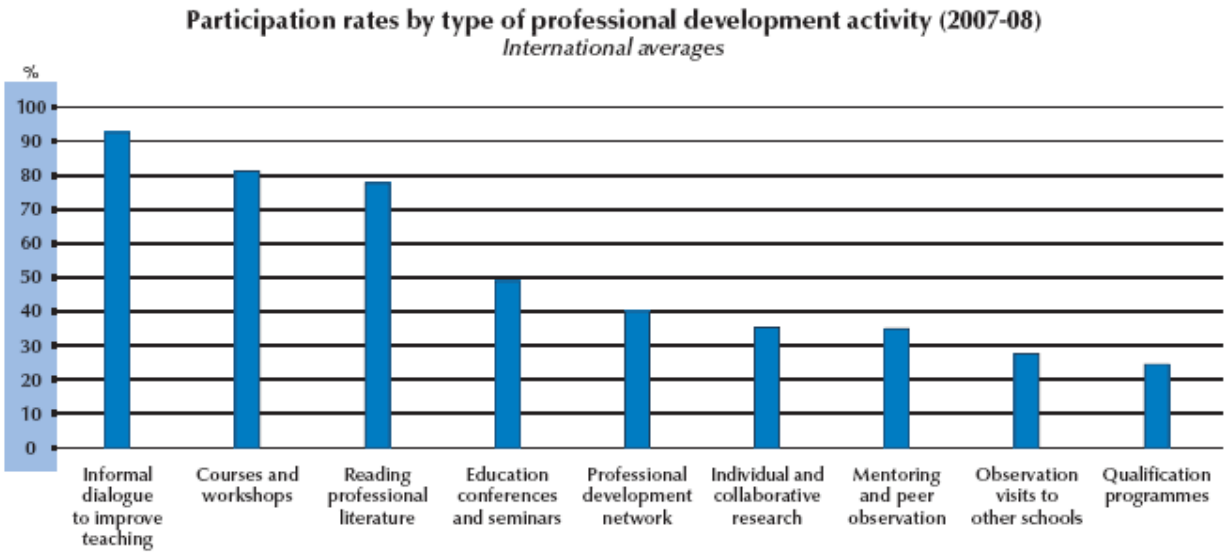
- **Subject-oriented continuing development**: preparation of teachers to new subject-matter content, or to pedagogical content (task-oriented). Also for the preparation of new functions (becoming school leaders for example). In this case, continuing training organized in smaller groups, under the form of workshops, short courses.

- **Continuing training is becoming increasingly school-based**; it is organized by the schools to respond to specific. In this case, it involves study groups for example, or work-shops with teachers from the same school working together on a specific issue, or learning about new skills that are needed by the school as a whole. Can also be for example to develop a programme. School-based continuing training allows to enhance collegiality between teachers, providing a fertile learning context for them. To place continuing training at the scale of the school also allows teachers to be present in the precise identification of what they need to learn.

- Teachers can also choose to follow continuing training activities for their **own personal teacher development.** These activities usually take place outside for schools, individually or with teachers from other schools.

As for the evolution of the important of each of these types of continuing training, it seems as in the OECD countries, **school-based continuing training is becoming more and more common,** even if the other three types of continuing development exist simultaneously. Individual based teacher continuing training is becoming less common, at least in terms of programmes funded publically. TALIS (2009) asked teachers to which continuing training activities they had participated in. 93 % of the teachers surveyed mentioned having participated in "Informal dialogue to improve teaching". 80 % of teachers report participation in "Courses and workshops".

Figure 3. Teacher participation in continuing training by type of activity



Activities are ranked in descending order of participation rates.
Source: OECD, Table 3.2.

The design of continuing training also represents **a tool that is fundamental to the development of the alternative pathways** : the persons that enter the teaching profession through this way, after benefiting from generally very short school-based initial teacher education, need to enter actively in continuing training activities, since they learn how to teacher on the job. It is also a way of making the teaching profession more attractive: it can be used to keep **teachers motivated**. Access to quality education – initial but also continuing - has be analyzed as essential to establishing and retaining teachers' interest and effectiveness. (Macdonald, 1999) Teacher training can lower the attrition rate. Since there are now

increased and diverse work opportunities from tertiary education graduates, educational systems have to find ways to ensure that teaching remains competitive within the current general labour market, to attract quality candidates. To keep them motivated by their work seems fundamental, and continuing training could be a key factor to insure this motivation.

As mentioned by Doune MacDonald in "Teacher Attrition: a review of literature", there are **strong links between teacher attrition and teacher quality**. Teacher shortage increases the need for continuing training, especially in the case when requirement levels have been lowered and teachers are teaching subjects for which they have no specific preparation. Since attrition rates are the highest among secondary school teachers (and especially among male teachers and for those in high-demand fields, like mathematics, science, technologies, it is on this target that continuing training should focus. (Cuadra & Moreno, 2005)

2.2.3. Emphasis and content

The emergence and consolidation of comprehensive systems of continuing training began in the 1960' (Buchberger, Campos, Kallos, & Stephenson, 2000). Since then, a vast repertoire of continuing training for teachers has been developed. It is possible to outline main features of a **typology of continuing training models.** In the 1960', these models were oriented exclusively on traditional knowledge-transmission activities (conferences, workshops in large groups, etc) decided from above, and **focused on individual teachers** and the gaps in their knowledge ("deficit models"). The systemic needs of schools were not taken into account at all. Since the 1960', continuing training models have evolved and more importance have been given to **teachers' professional autonomy.** They have been given more **freedom in the design of the programmes** and in the **administration of the continuing training systems**.

Since the 1960', models of continuing training have evolved **and more importance have been given to teachers' professional autonomy**, teachers have been given more freedom in the design of the programmes and in the administration of the continuing training systems. But it is only much later – in the late 1980' **- that more systemic approaches, focused on schools, have been introduced** : in these models based on school needs, continuing training is designed as a instrument to improve the quality of an entire school. This type of school-based approach, that have a integrated design is more efficient than traditionnal teacher-based approaches. An example of this integrated design is the concept of professional development schools developed in the *United States* in the 1990'. They are schools for the development of novice teachers, where is also lead research in teaching practices (Price, 2004), and they "aim to provide new models of teacher education and development serving as exemplars of practice, builders of knowledge, and vehicles for communicating professional understandings among teacher educators, novices and veteran teachers" (Darling-Hammond 1994 in Price 2004). Professional Development Schools choose to focus on **mutual partnership of schools with continuing training providers**, and in this way, integrate academic studies, with new insight from research and school-based practicum and mentoring (Buchberger, Campos, Kallos, & Stephenson, 2000) : they develop "collaborative problem-solving processes". Traditionnaly, professional development has been focused on the characteristics of teachers and teaching, but there has been a tendency to become concerned more directly about student learning (OECD, 1998) and the development of new pedagogical skills.

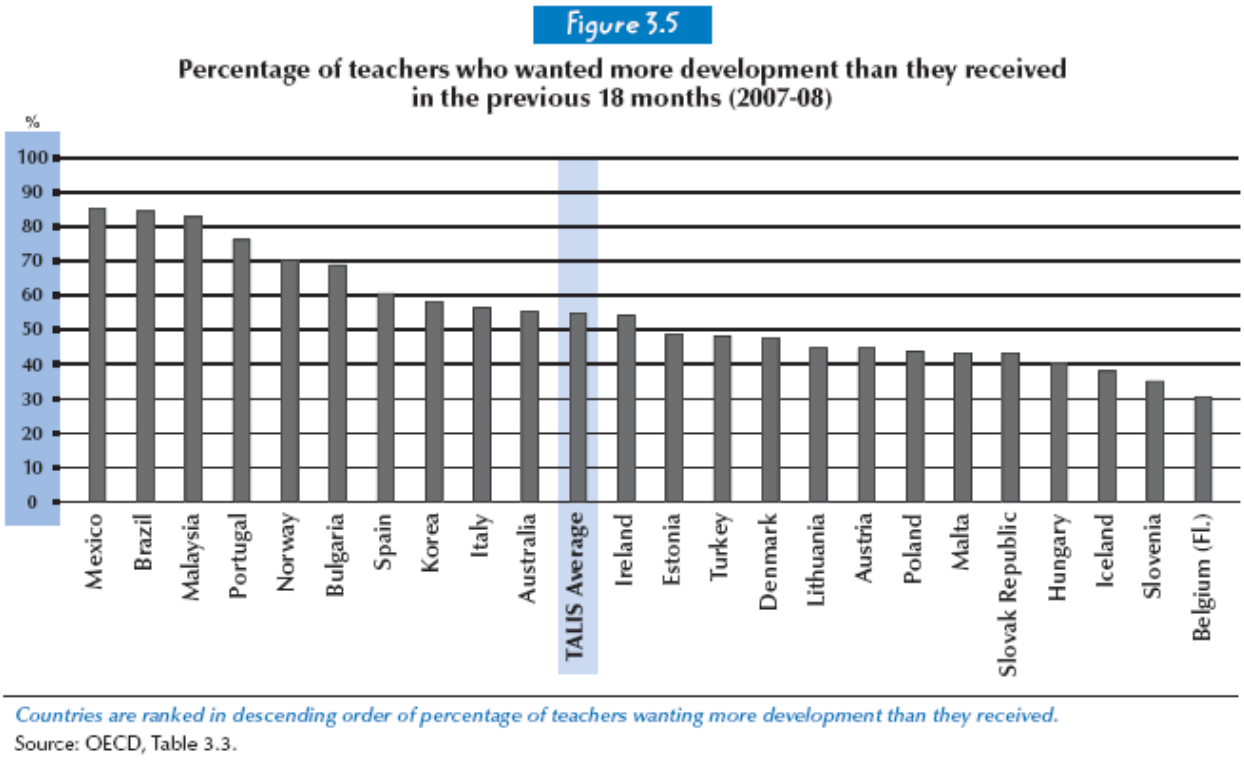
Nevertheless, **several forms of continuing training coexist** (Kennedy, 2005). The most commonly-used approach is the **one-time workshop, or seminar**, in which experts from outside from the school give lectures, or proceed to information dissemination (for example, the introduction of new techniques). This form of continuing training is generally chosen for dissemination activities, when a single purpose has to be served: for example, to launch of a new textbook, to raise a particular concern, or to learn new precise pedagogical skills. : But "research indicates that this is an **ineffective, inefficient and costly** investment of

human and fiscal resources." (Schwille et Dembélé 2007) Indeed, the study, done by Feiman-Nemser (2001), finds **no long-term improvement in the quality of teaching linked to this kind of continuing training activity**: "teachers have little say about the content of (such) sessions. There are limited opportunities for meaningful interaction and follow-up. Teachers may go home with a new idea, but the design of these sessions makes it unlikely that teaches' practice will change in any significant way".

Another common form of continuing training is the **"cascade model"**: a select group of teachers are trained and are then expect to transmit the ideas at the school level. This form of continuing training is usually put into place when the educational authorities' main concern is to reach as many participants as possible in a short time, and on a short budget. Nevertheless, "Usually, however, adaptation by new users leaves much to be desired (p 105)". (Schwille et Dembélé 2007) This model is very common in *Germany* (OECD, 1998): teacher educators are trained at the central level, and then introduce themselves what they have learned in their regions. This approach has been complemented by the development of school-based initiatives (combining teachers, parents and students together), to improve school management. The German continuing training system is very interesting; it is at the same time flexible but coordinated. This presents advantages over centralized systems (*France, Japan*), but also decentralized systems, where the supply of continuing training is market-based (*the United Kingdom, the United States*).

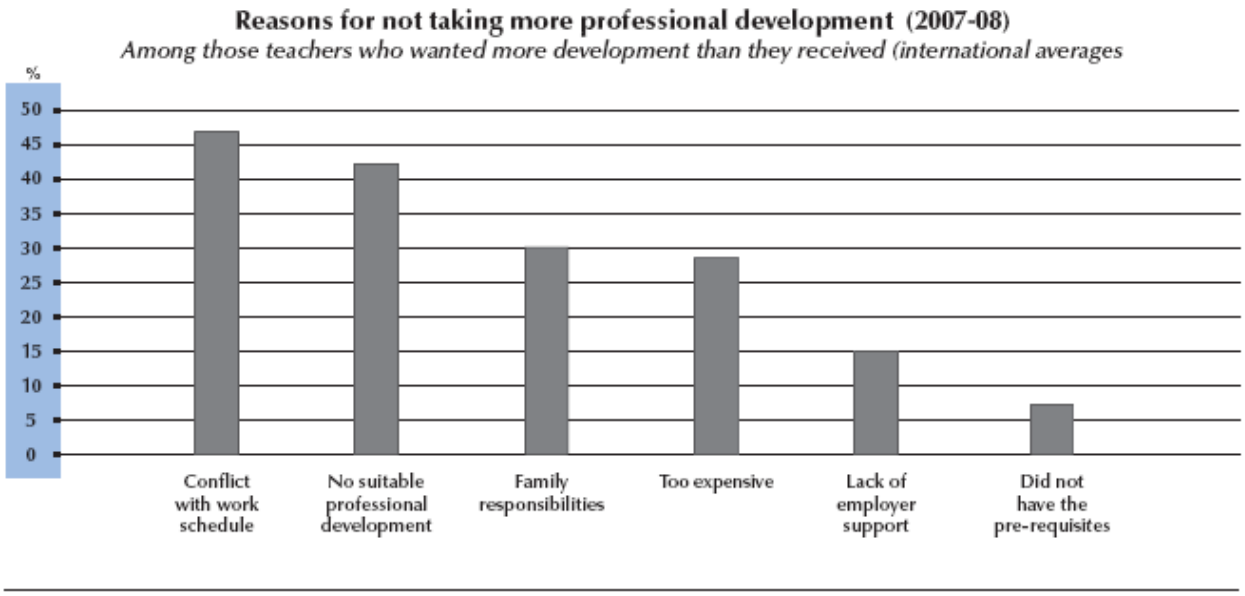
In despite of the great potential of continuing training, there seems to be a **general discontent among teachers**. In only half of the countries that have been surveyed in TALIS (OECD, 2009), **continuing training programmes are associated with higher levels of self-efficacy by teachers**. It is often criticize to continuing training that it is fragmented, and unrelated to the real experience in classroom. It is argued that: "the natural environment for enhancing a teacher's skills and knowledge is the classroom itself, and not the less authentic meeting or conference room in which in-service education has more traditionally taken place. (…) Thus, part of what is missing from the dominant in-service paradigm is the acknowledgement and use of a wide range of informal, on-the-job resources for teachers – classrooms, schools, communities, even casual encounters that result in discussions of teaching practice; in a nutshell, the whole social system in which a teacher lives and functions (p. 106)" (Schwille et Dembélé 2007). Another critic is that it lacks of intensity and of follow-up (OECD, 2005). In TALIS (2009), teachers were asked if they would have wanted more continuing training than they received during the survey period. The international average indicated that more than half of the teachers answered having wanted to participate in more continuing training activities. The range of this unsatisfied demand varies among counties, from 31 % in Belgium, to more than 80 % in Mexico.

Figure 4. Teacher satisfaction in the amount of continuing training received



TALIS also asked teachers what were the causes that had prevented them from participating in more continuing training activities. Among the participating countries, the most common reason was "Conflict with work schedule" (47 % of teachers) and "no suitable professional development" (42%). This confirmed the importance of having supportive school environment that promotes continuing training and also quality activities, which are designed in a comprehensive way.

Figure 5. Why are teachers not taking more continuing training



Reasons are ranked in descending order of frequency with which the barrier was reported by teachers.
Source: OECD, Table 3.7.

There are for example a lot of criticism toward the Irish continuing training system: it is done mostly under the form of annual summer courses (workshops, conferences), teachers can attend to the courses they wish to. Their participation is voluntary but they get an extra bonus in terms of personal vacations (3 days more). The provision is very fragmented, and there is no school-approach in the design of the programmes (OECD, 1998).

2.2.4. Organizational characteristics

The OECD has gathered together information on the organizational features of continuing training in the OECD countries (OECD, 2005). It is possible to extract from that very exhaustive information several important trends. **In more than half of the countries, teachers have no obligation to engage in continuing training.** For the ones that do have minimum requirement, the common one is of about **5 days per year**, with a range of 15 hours per year in *Austria* to 196 hours in *the Netherlands* (OECD, 2005). *Sweden* is a country that has a long tradition of continuing training: it was the first country in the 1950' to introduce study days for teachers (5 a year at first). Today, Swedish teachers have to complete compulsorily 104 hours per year ((with an important number of these hours during the summer holidays).

In about one-quarter of the OECD countries, it is necessary to **obtain a promotion or a raise in salary to complete a certain amount of continuing training**. It is the case in *England* and in *Wales* to become a principal, in *Korea, Northern Ireland, Switzerland* and the *United States* to get a wage bonus, and in certain states of the US to be re-certified.

Another organizational feature that it is interesting to look at is the **link between continuing training activities and the school's specific needs**. In some of the OECD countries (*Iceland, Belgium, Denmark, the Netherland, and Sweden*), the design of continuing training programmes have become decentralized in relation to the central educational authorities, and becomes a responsibility that is school-based. In this case, the content of the programmes is built according to the school's needs, and as seen before, this results in more effective programmes. In ¾ of the OECD countries, these activities are planned by the school, sometimes jointly with the local school authorities.

Sparks and Loucks-Horsley developed a **typology of different continuing training models** focusing on the existing major reviews of the programmes existing in English-speaking countries during the 1970' and the 1980'. What is particularly interesting of this study is that it **underlines the characteristics of an effective continuing training programme**. Their findings are that **programmes that are school-based are more effective**, since they are linked to particular school needs (the teachers are the ones who decide the content of the continuing training programme) and allow synergy among the teachers of the school – and with the non-teaching staff. Emphasis should be put on **demonstration**, through activities like supervised evaluation, lesson study, mentoring and feedback. It seems that benefiting of an **on-going assistance over time** by experienced teachers is an effective way to improve teacher quality. Villegas-Reimer's findings go in the same directions.

To be successful, it is possible to underline **three characteristics of a successful continuing training programme**: it focuses on specific content – and not on generic methods of teaching, it is based on active learning opportunities for teachers, with meaningful analysis of teaching and learning, it has to be designed in a coherent way: there should be a fluent professional communication among the different actors, and teachers' feedback should be incorporated to the design of the programme.

It seems fundamental that the continuing training is supported by the school. If the continuing training programmes are designed to target teacher from a same group (that come from the same school, or that have the same grade level), as opposed to teachers from different locations, the synergy between the different actors is enhanced and outcomes are bigger. There has to be a close connection between teachers' own professional development, the responsibilities that they are given and the school's goals. *Sweden* is a country that is particularly interesting: indeed, in the 1990', it has reformed its continuing training system, from teacher-based to school-based, in order to create a learning environment favourable to students. A **'bottom-up" approach** has been favoured, as opposed to the tradition "top-down' one : it is the municipalities with the teachers and principals that decide on the particular programme they want the teachers to engage in, according to the specific needs of the school. The decision-making has been decentralized from the level of the *National Agency for Education* to municipalities. Along with some traditional continuing training courses, programmes concerning the whole school (for ex, research from universities that work with individual schools to help them create their own specific learning environment and solve particular problems) have been developed. (OECD, 1998).

The OECD report "Teachers matter" (2005) explicit the condition in which continuing training is the more valuable : "the most effective forms of professional development seem to be those that focus on clearly articulated priorities, providing ongoing school-based support to classroom teachers, deal with subject matter content as well as suitable instructional strategies and classroom management techniques and create opportunities for teachers to observe, experience and try new teaching methods.". There exists a quantity of practices in some OECD countries that are worth highlighting, as they could inspire others. Japan has a long tradition of teacher continuing training, seen as fundamental in teacher education. It is used to promote new approaches, like team teaching and specific responses to individual student needs. Specific school-based programmes are also designed to encourage greater diversity, creativity and autonomy among both the school and teachers. There are many well-developed centres for continuing training that have specific equipments and staff. Continuing training providers are organized in a very centralized and hierarchical system; but at the same time teachers have a very active role in their continuing training: in schools, there is a great sense of collegiality among teachers, through peer collaboration, planning and management. Each schools counts with continuing training coordinators, selected among senior teachers. Teachers associate voluntarily in associations that promote good practices of teaching. It is interesting to highlight that continuing training is not linked with raises in salaries, but it is mandatory for Japanese teachers to do each year a certain amount of continuing training: 7 days for teachers with 5 years of experience, 9 days for teachers with 10-20 years experience. It is interesting to see that these continuing training programmes seem to have the characteristics that are defined by D.

Hargreaves (2003) of a "good" continuing training programme: "motivation to create new professional knowledge, the opportunity to engage actively in innovation; the skills of testing the validity of innovations; and the mechanisms for transferring the validated innovations rapidly within their school and into to others schools (p. 130). (Hargreaves, 2003)"

2.2.5. Institutional characteristics

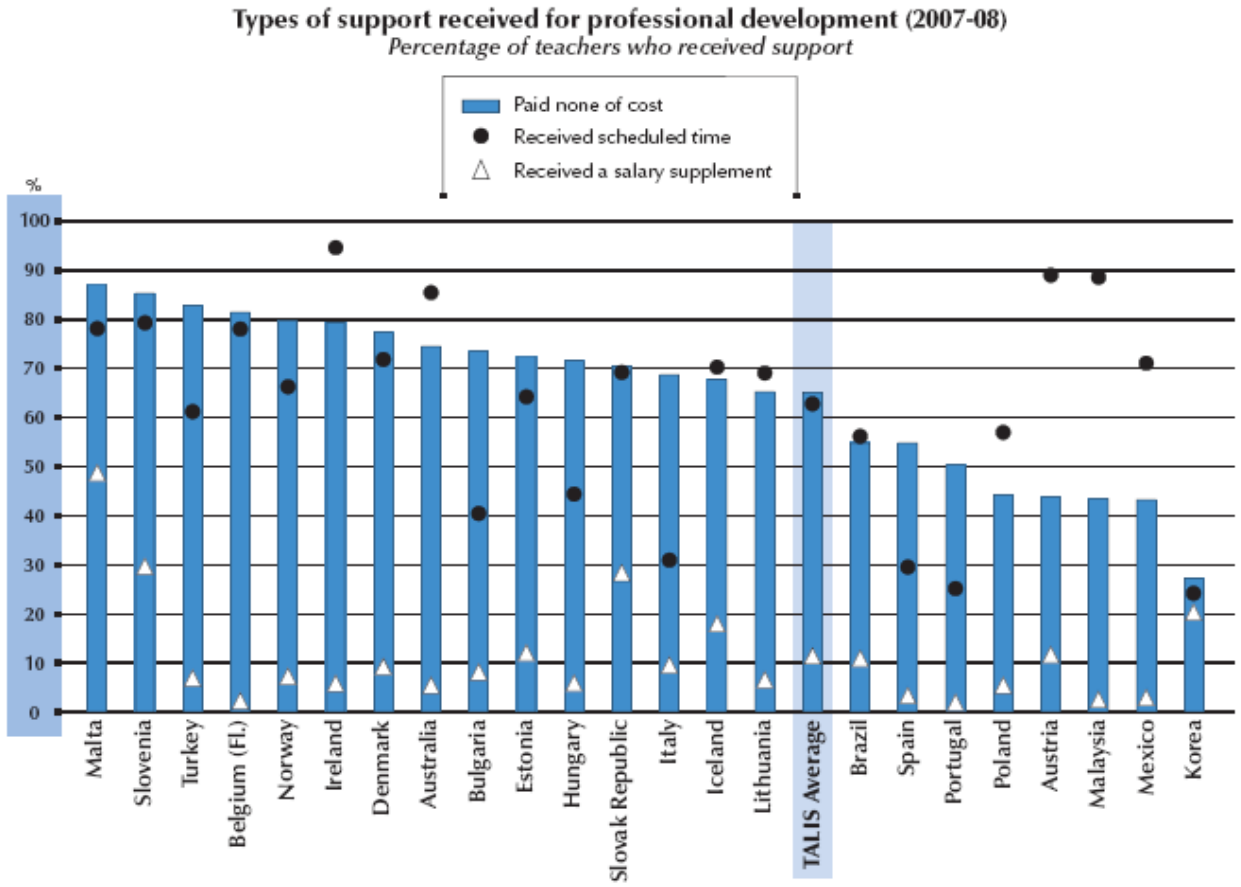
Who provides continuing training? **Continuing training can be provided by different institutional actors**. In many cases (*France, Germany, Korea, Spain*), universities and teacher training institutes are the suppliers of professional development courses in both subject-matter content and pedagogical skills. Thus, in other OECD countries (*Belgium, Denmark, Finland, Hungary, Italy, the Netherlands, Norway, Sweden, Switzerland*), the continuing training market has been more or less des-regularized, and schools and/or teachers can choose the provider of this service (independent counsellors, specific training offered by privates institutes, etc).

In the *United States* for example, **most providers are based locally**, in the school district that they serve. These providers are also very heterogeneous among themselves, including local teachers and district personnel, independent consultants, faculty members and even curriculum materials publishers. (Hill 2007) In the *United States*, as well as in other OECD countries as the *United Kingdom* for example, the extreme variety of the providers of continuing training leads to the fact that neither the form nor the content is standardized at a national level. Indeed, in the *United Kingdom*, continuing training is organized following a market-based approach. Schools organize and plan their own continuing training, choosing between a range of different providers, and funding these programmes with their own resources. 48 % of continuing training organized by local education authorities, and 40 %, by the school itself and by colleagues. 8 % of continuing training is given by consultants (OECD, 1998). This is why the quality and nature of continuing training available is very uneven. In *Germany*, religious organizations are also providers of continuing training. An interesting case figure is the one of *Switzerland*: there, continuing training is traditionally provided by teacher association (for example, by the Swiss association for School and training), at the canton level.

2.2.6. Ways of financing

In most countries, **teachers** have to make a **financial contribution** to the cost of the programme (transportation, course fee). In some countries nevertheless, continuing training is free of charge: *Chile, Sweden, Northern Ireland.* TALIS (OECD, 2009) distinguishes between two types of financial support: **direct payments of the costs of the development activities or salary supplements for having realized continuing training activities**. In the countries that are taken into account in TALIS, around ¼ of teachers have to pay some of the cost linked to their professional development themselves, and 8 % have to pay the entire cost. The countries with the highest percentage of teachers who paid nothing for their participation are *Belgium, Malta, Slovenia* and *Turkey*. In contrast, less than half of teachers in *Austria, Mexico, Korea* and *Poland* received free professional development. On the other hand, *Portugal, Mexico* and *Italy* are the countries where the percentage of teachers paying the full cost was the highest.

Figure 6. How is financed continuing training



Countries are ranked in descending order of percentage of teachers having paid none of the cost of professional development.
Source: OECD, Table 3.5.

On one hand, one might expect a higher participation to continuing training in countries with a high level of financial support for participation. But on the other hand, having the teachers finance themselves their professional development allows to have more supply, and of higher quality, by the continuing training providers. It sends a signal to teachers that could allow to enhance their motivation in undertaking these courses. The contribution to the cost of the activity can also be rewarded by other mechanisms (for ex: certification, higher qualification and impact in their remuneration), as it will seen later. Countries where teachers reported that they had to pay the costs of their continuing training are also the countries in which teachers participated averagely the most in this kind of programmes. In *Malta*, *Slovenia* and in *Slovak Republic*, teachers receive a salary complement for realizing continuing training activities.

This is also a great heterogeneity among the OECD regarding the school's financing of continuing training: in some countries, **school have their own budget for continuing training** (*Denmark*, *Sweden*, *Belgium*), and other, this budget is much more restricted and school depends on educational authorities (*France*, *Spain*, *Portugal*). Continuing training is in this case funded by public central authority, and schools do not have their own budget for professional development. Resources allocated to professional development programmes represent only a small proportion of total expenditure of schools.

2.3. Conclusions and recommendations

This brief panorama shows that teacher education is complex. It raises many challenges such as the lack of agreement among experts, policy-makers and reformers about what is most important; competing views on the importance of subject matter, pedagogy, knowledge of students, etc; the problematic relationship of theory to practice; the generally low level of coherence between initial teacher education and continuing training. Nevertheless, it is important – and even fundamental to take into account these different issues, to design comprehensive policies, that allow to attract and retain in the profession high-quality teachers. Teacher education is of course essential in this policy, and continuing training shouldn't be forgotten.

The way a country structures its education system depends of many factors, among which tradition plays a major part. **The particularities that lay in each system have to be carefully analysed before encouraging any reforms**.

Initial teacher education is a very important stake in any educational system, since it represents the entry point into the profession, and has a fundamental **influence over the quality and the quantity of future teachers**. In case of teacher shortage for example, alternative and quicker pathways into the teaching profession can be created, even if there is a risk that this should be at the expense of quality. Another way to regulate the quantity of teacher is to modify the level of requirement of entering the programmes: in case of shortage, a country can for example lower the qualifications asked to future teachers.

It is also important to notice that the form that teacher education adopts also acts as **an incentive to bring the right people into teaching**. Indeed, in most of the OECD countries, teacher shortage and teacher surplus are generally present at the same time, but in different field and in different locations. Teacher education should not just attract more people in joining the profession – and people from different labour market peoples, thanks to alternative routes, but also better tailor the content of teacher education, to make it more adequate to specific needs.

There is double dynamic that is happening now: teacher education programmes are becoming more and more **flexible:** development of part-time programme, distance education, or on the contrary, possibility of training to be a teacher in a very short period of time, with intensive classes, etc. At the same time, expectations towards teachers are also increasing. There is a **demand for more professionalization, and a higher level of teacher quality**. These two dynamics can seem paradoxical.

The role of schools in teacher education is changing; they are having a different purpose in the initial education of teachers, since they are given, in many OECD countries, **more autonomy in the recruitment of candidates, and also in the content of the programme itself**.

3. CHALLENGES AND PENDING AGENDA

3.1. Structuring Teacher Education as a continuum

In most OECD countries, **the majority of the resources and of the debate have focused on initial teacher education**: what has been debated by the policy-makers is what kind of skills teachers should have at the beginning of their career, and how to certify those skills (through traditional teacher education or through alternative pathways). There has been little focus on continuing training.

However, initial teacher education – although it is necessary and important that it should be of high-quality – cannot, by itself, be expected to prepare entirely teachers in meeting the rapid changes that are undergoing schools. As explained by Eurydice (2004), "In many countries, initial teacher education responds less rapidly to the new roles and tasks facing teachers, as its courses have an academic rather than a practical emphasis. (…) By contrast, the provision of in-service training is often more flexible and demand-oriented and thus better able to adapt its content swiftly to emerging new requirements (p 19)". Initial teacher education should not be seen as a process that produces "ready-made professional" (OECD, 2005) but should rather b**e perceived as the first stone of a life-long undergoing process through which each teacher has to pass through.** Teachers will develop in the profession, and this is why they need to constantly upgrading their knowledge. (OECD, 1998). The several stages that compose teacher education – initial teacher education, induction, continuing training – have to be intrinsically connected, to allow the creation of a coherent learning environment for teachers, in this way, trigger synergy between the two main phases of teacher education. The initial education that teachers receive constitutes a solid base of the knowledge and the skills that they will need for their task, and continuing training allows them to update this "patrimony" they have, and to adapt it to the changes of the teaching environment. **Teacher education has to been seen as a "continuum".**

Structurally, in order to build/articulate teacher education as a continuum, closer cooperation bonds need to appear between the different providers of education. In the majority of the OECD countries (*France* for example, in the IUFMs), the institutes / providers are the same for initial and continuing training, but student teachers and those in service are rarely mixed (Eurydice, 2004). But communication/ to share experience/ more contact could lead to synergy, better learning experiences, especially to avoid "reality shocks" from new teachers that enter the profession. Indeed, as explained by Eurydice (2004), teachers still in education could offer teachers in service their latest know-how and knowledge in recent teacher education trend (trends, new outcomes in research for example); teachers in service can offer students their practical on-field experience.

There are some **positive experiences that exist**, that could be inspirational for other countries. For example, some Landers in *Germany* have started to offer initial teacher education and continuing training in the same centres, located within universities, in order to assure a better coordination between both segments of the teacher education continuum. In *Sweden*, teacher educators have to work on both initial teacher education and on their continuing training, in order to guarantee an important continuity between both (Eurydice, 2004).

Nevertheless, organizational problems still remain in the majority of the OECD countries: **continuing training is not yet perceived as an integral part of the teachers' professional responsibilities**; neither is it accounted in their work load. It is mostly perceived by teachers, and by educational authorities as a

"voluntary addendum", and this can explain why for now continuing training has not been able to live up to the expectations that had been made in achieving a higher quality education. To achieve higher quality education, continuing training must be perceived as an integral part of teacher's work and development.

To this idea is closely link the question : **should continuing training be voluntary or compulsory?** On one hand, there are some advantages of making it compulsory: it would allow the teachers to gain the new skills and knowledge that are considered fundamental to enhance the quality of their teaching. A way of making it obligatory would be to link it for example to the recertification process, as it is done in some States of the *United States*. But on the other hand, making the continuing not compulsory, but voluntary, allows teachers to **exercise their own professional judgment** and so to take part only in the activities that they feel they will benefit the most from, which makes it more cost-efficient (OECD, 2009).

A similar debate exists on the **subject of the incentives given to teachers that undergo continuing training**. To give bonuses, in terms of certification or/and salaries to teachers produces a demand for continuing training, but at the same time to respond at this demand, in many OECD countries, **the market-based approach to continuing training leads to an offer of professional development that can be of bad quality**. Continuing training can by linked to recertification mechanisms (process through which teachers that are already working can renew their teaching license and they have to do it at regular intervals).

In the *United States*, **almost every state and school disctrict provide incentives**, of different types, to particapte in continuing training programmes (for advancement on salary scales). This obligation can adopt several forms, for example, mosts states give teachers the option of accumulating training credits to be re-certificated. (Hill, 2007) In most of the States, the requirement for certification is 120 hours of continuing training over 5 years. Some States are most precise in their requirements and require for example continuing training in specific subjects or given by specific providers.

An phenomenon that can seem paradoxical is highlighted in the study realized by Heather Hill (2007) that focuses on the *United States* : an important demand for teacher continuing training is conjointed with an abundant offer of continuing training, by many types of different providers, but in their majority, of **bad content-subject level, and of little usefullnes for the teachers**.

3.2. In which teaching environment should teacher education and training take place?

The debate on '**in which teaching environment should the teacher education take place in**' is very interesting. Teacher education can be practical field-based (set in schools), or be more focused on theoretical content. Traditionally, it is clearly the second element that has been prominent in the training of teachers, but more and more, **traditional didactic methods are being seen as insufficient to accomplish its educational tasks.** One of the challenges to which is faced teacher education is to find methods that involve actively future teachers in the learning process (OECD, 1998).

For initial teacher education, it is interesting to turn toward methods used in professional development, to apprehend the possible ways in solving **the "theory-practice gap"** (Klette, 2002), between the theory of pedagogy and its practice. This has lead to attempts to resolve it through the development of approaches to teacher education that are "site-, problem- and enquiry-based". (Jasman, 2002)

Indeed, as seen before, continuing training, in ¾ of the OECD countries, is **increasingly being planned at the school level**, and linked to specific needs that have the school. As a consequence of a general trend towards more school autonomy, continuing training is delivered to teachers directly on school premises in many OECD, in complement to certain alternative pathways into the teacher profession

which are delivered also in schools directly. It seems that for continuing training as well as for initial teacher education (mainly through the alternative routes into teaching), classroom-based training is getting increasingly important. **Initial teacher education and continuing training are becoming closer and closer in schools themselves.**

This trend of placing more and more teacher education in schools, on concrete practice and less on theory has some **disadvantages**. Their duration and the modalities of their organization vary a lot throughout the different OECD countries. In *the Netherlands* for example, students coursing the last year of teacher education are placed on a part time basis in a school. During this one year period, they teach, but also assure feed-back to their initial teacher education institution on new developments in schools. In *Mexico* also, students are placed in school as part of their final year of training. They are mentored by a group of experienced teachers in their host school and by a tutor that comes from their initial teacher education institute. Initial teacher education in the *United Kingdom* since the mid-1990' is mostly practice-based: it counts 36 weeks of education, among which 20 are in schools. Some of the practical field experiences in others countries are not design in such comprehensive ways, and **the period of practicum are often too short and with no connection to the coursework.** Another reproach that appears frequently to the way practice internship are structured is that trainee does not perform the entire repertoire of task done by a teacher, and that this exercise have little relevance in comparison to their future activity. Criticisms also include lack of mentoring from more experienced teachers and the irrelevance of high levels of academic knowledge.

Nevertheless, the inclusion of practical field experience in teacher education has some considerable advantages. In order to be as effective as possible, it has to be well prepared and design in close collaboration with schools, in order to make the best of the integration of academic content with the fieldwork. It is proven that **it reduces** (Macdonald 1999) the **rate of beginner teachers that leave the profession very quickly**. Fleener's findings (1999) are that teachers that have extensive training in schools have retention rate three times higher that of teachers that are trained through traditional initial teacher education. They also perform better as teachers: in a case-study, Reinhartz & Stetson (1999) compile school leader's perception of beginner teachers who have benefited of extensive practical field experience during their initial teacher education: they are willing to take more risks in trying new pedagogical strategies and use technology better, they work longer hours that most novice teachers, they seem to have better solution-solving skills when faced with complex teacher environment. To place a part of teacher education into school allows soon-to-be teachers to **establish a link with practical problems** and to receive directly advice from experienced teachers. It also permits a gradual socialization into professional norms and standards. (Schwille et Dembélé, 2007).

There are some interesting programmes that exist in some of the OECD countries and that manage **to deal with this gap between theory and practice**. In *Australia*, the University of Melbourne has designed a course to respond to concerns about this gap. This Master of teaching provides aspirant-teachers with strong analytical and solution-solving skills, to meet the learning needs of individual learners.

As it has been seen with the typology, traditionally, initial teacher education is assured by **university or university-like institutes**; and **continuing training, by the schools, or school-level providers**. It appears that the responsibility for teacher education has typically been divided between these two types of actors, rather than shared between both systems. This is a missed opportunity for developing synergies between teacher education institutes and schools. (Price, 2004) A study by Wilson *et al* (2002) shows the relevance of the quality of the practicum: they establish a link between direct classroom observation and teacher teaching of particular subject matter, and this kind of improvement should be worth developing in future policies. New policy strategies should go toward both initial teacher education institutes and schools **to share responsibility for teacher education, both initial and continuing**… An illustrative example of

such policies is a New York State project that since 2001 works towards the development of partnerships between schools and initial teacher education institutes. (Price 2004)

3.3. Under what circumstances are teacher education and training systems more effective?

3.3.1. What makes teacher education systems effective?

Evidence from research gathered by Ingvarson, Meiers, & Beavis (2005) suggests that the substance of what teachers learn is more important than the form or structure of the programme (e.g. whether programmes are school-based or not, collaboratively planned or not, extended over time, etc.) (…). In summary, this research indicates that professional learning is more likely to improve student learning outcomes if it increases teachers' understanding of the content they teach, how students learn that content and how to represent and convey that content in meaningful ways (Cohen & Hill, 2000). The most effective programmes are the ones that put an emphasis on the subject-matter that is being taught, and especially, how it is learned by students, in order to design lessons that allow to teacher these subjects (research-based knowledge about student learning of content). These programmes tend to facilitate more active school-based professional learning processes. According to Ingvarson, Meiers, & Beavis (2005), 'They included opportunities for teachers to examine student work collaboratively – and in relation to standards for what the students in question should know and be able to do. They led teachers to actively reflect on their practice and compare it with high standards for professional practice. They engaged them in identifying what they needed to learn, and in planning the learning experiences that would help them meet those needs. They provided time for teachers to test new teaching methods and to receive follow-up support and coaching in their classrooms as they faced problems of implementing changes. They included activities that led teachers to teach in public and gain feedback about their teaching from colleagues."

The second element that is important to take into account in the design of effective teacher education system is **the level of school support**. A supportive school environment has a significant influence on teachers' learning opportunities (importance of feedback, importance of giving programme designers the time and resources that will enable them to incorporate what they have learned into their teaching). Study indicates that the most effective programmes, in terms of impact on student outcomes, are the ones that give teachers useful problem-solving capacities.

What comes out of these analysis is the **importance of having teacher education programmes based on schools**; whereas on their premises directly, or based on their needs. Nevertheless, it is difficult to see exactly what are elements in a teacher education programme that will lead to high-quality teachers, since the effects of education of teacher practice are extremely hard to asses.

3.3.2. Which format should continuing training have?

TALIS asked teachers to **assess the impact of the continuing training activities on their development as teachers**. They report the perception of effectiveness. If teachers feel that certain continuing training activities have a limited impact, it will influence their participation and their satisfaction. Globally, **teachers view in a positive way continuing training activities**. They report the most effective form being "Individual and collaborative research", "Informal dialogue to improve teaching and "Qualification programmes" (with 90 % of teachers reporting a moderate or large impact on their development as teachers). Activities that are perceived by teachers as being less effective are participation in "Education conferences and seminars", and "Observation visits to other schools", even if 75 % of teachers report a moderate or high impact.

Figure 7. What impact for what continuing training activity?

Impact of different types of professional development undertaken by teachers (2007-08)

Percentage of teachers of lower secondary education reporting that the professional development undertaken in the previous 18 months had a moderate or high impact upon their development as teachers

	Courses and workshops		Education conferences and seminars		Qualification programmes		Observation visits to other schools		Professional development network		Individual and collaborative research		Mentoring and peer observation		Reading professional literature		Informal dialogue to improve teaching	
	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)
Australia	78.5	(1.04)	67.6	(1.32)	78.6	(2.67)	72.2	(2.26)	73.5	(1.27)	85.8	(1.53)	72.5	(1.40)	66.4	(1.28)	86.0	(0.85)
Austria	75.7	(0.89)	55.5	(1.24)	89.0	(1.21)	61.0	(2.99)	68.6	(1.33)	88.4	(0.96)	72.7	(1.63)	82.4	(0.69)	84.9	(0.71)
Belgium (Fl.)	52.9	(1.26)	42.6	(1.82)	67.0	(2.01)	47.0	(2.84)	53.9	(1.92)	67.6	(1.52)	48.1	(2.64)	57.8	(1.20)	71.7	(1.05)
Brazil	76.1	(1.07)	72.9	(1.32)	89.9	(0.93)	67.5	(1.49)	73.4	(1.91)	80.9	(1.26)	65.8	(1.66)	82.6	(1.09)	76.5	(0.99)
Bulgaria	84.2	(1.58)	80.6	(1.67)	88.0	(2.06)	79.3	(3.00)	86.2	(1.83)	87.1	(1.70)	86.0	(1.68)	92.3	(1.21)	86.3	(1.20)
Denmark	86.0	(0.96)	82.9	(1.70)	96.8	(1.18)	83.6	(3.34)	88.1	(1.32)	94.6	(0.86)	78.7	(3.45)	84.9	(1.14)	92.8	(0.89)
Estonia	86.4	(0.74)	70.4	(1.52)	90.4	(0.99)	69.9	(1.27)	84.3	(1.06)	90.5	(1.04)	76.8	(1.58)	87.3	(0.70)	81.8	(0.94)
Hungary	86.0	(1.04)	78.2	(1.46)	93.1	(0.93)	81.4	(1.74)	84.8	(1.11)	93.8	(1.30)	91.1	(1.00)	92.6	(0.78)	92.9	(0.89)
Iceland	83.0	(1.13)	73.7	(1.75)	92.4	(1.76)	80.5	(1.37)	90.6	(0.85)	94.2	(1.70)	77.8	(2.09)	88.7	(0.97)	91.8	(0.85)
Ireland	81.9	(0.96)	74.5	(1.55)	92.5	(1.53)	81.0	(4.35)	78.7	(1.36)	86.8	(1.41)	71.3	(2.81)	71.0	(1.55)	83.0	(1.00)
Italy	81.9	(1.17)	78.5	(1.16)	86.8	(1.58)	82.6	(2.06)	86.6	(1.06)	95.1	(0.45)	89.6	(1.03)	90.9	(0.60)	90.6	(0.47)
Korea	79.2	(0.87)	75.1	(1.36)	84.2	(1.37)	65.2	(1.15)	85.4	(1.01)	89.9	(0.82)	69.5	(1.17)	77.4	(1.22)	85.8	(0.67)
Lithuania	91.4	(0.62)	83.2	(1.03)	88.2	(1.26)	90.7	(0.81)	90.0	(0.94)	91.4	(0.78)	85.2	(1.24)	96.2	(0.41)	92.0	(0.64)
Malaysia	94.4	(0.48)	89.1	(1.05)	95.0	(0.88)	87.6	(1.30)	90.3	(0.97)	88.8	(1.17)	89.9	(0.89)	86.4	(0.78)	92.2	(0.49)
Malta	73.9	(1.65)	70.0	(2.47)	94.4	(1.56)	69.8	(3.87)	75.2	(2.45)	89.8	(1.57)	67.8	(3.78)	78.1	(1.83)	84.3	(1.29)
Mexico	85.4	(0.77)	82.2	(1.54)	91.3	(1.03)	77.7	(1.65)	81.3	(1.69)	91.0	(0.69)	78.3	(1.59)	84.0	(0.98)	81.6	(0.92)
Norway	79.3	(0.96)	73.7	(1.46)	93.7	(1.24)	71.9	(2.39)	81.1	(1.83)	95.3	(1.39)	77.9	(2.62)	78.1	(0.93)	95.7	(0.44)
Poland	86.3	(0.73)	75.8	(1.31)	92.1	(0.97)	78.2	(2.29)	88.3	(0.91)	92.8	(0.90)	77.9	(1.11)	93.4	(0.49)	90.0	(0.70)
Portugal	82.8	(0.88)	73.0	(1.38)	87.0	(1.12)	67.4	(1.82)	80.7	(2.04)	94.0	(0.76)	87.6	(1.84)	78.9	(1.04)	88.1	(0.68)
Slovak Republic	75.5	(1.57)	75.9	(1.44)	83.0	(1.43)	66.0	(2.02)	78.0	(1.93)	83.8	(3.72)	78.6	(1.10)	88.8	(1.03)	85.9	(0.85)
Slovenia	83.3	(0.73)	78.6	(0.91)	80.2	(2.43)	77.3	(2.74)	64.1	(1.30)	89.9	(1.44)	76.1	(1.53)	81.5	(0.85)	87.0	(0.74)
Spain	76.5	(0.94)	71.8	(1.75)	73.1	(1.97)	76.2	(2.31)	81.5	(1.49)	89.9	(0.89)	81.1	(1.49)	74.4	(1.01)	80.2	(0.74)
Turkey	72.9	(1.78)	74.1	(1.65)	79.3	(3.77)	87.8	(1.99)	80.5	(1.43)	92.3	(2.11)	84.8	(1.77)	91.3	(1.17)	92.8	(1.01)
TALIS average	**80.6**	**(0.23)**	**73.9**	**(0.31)**	**87.2**	**(0.35)**	**74.9**	**(0.50)**	**80.2**	**(0.31)**	**89.3**	**(0.30)**	**77.6**	**(0.41)**	**82.8**	**(0.22)**	**86.7**	**(0.18)**

Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/607807256201

Heather Hill (2007) elaborates a list of characteristics of what makes continuing training effective: given the complexity of the tasks to which teachers are faced, **short workshops have little effects on their teaching**. An effective programme should have a certain length, and feedback on the programme should be assured. A possible format is extended workshops. To be effective, the workshop should last at least for **several days**, it must be **subject-matter specific**, and its content and emphasis must be articulated taken into account the instructional goals and the challenges faced by the school in which the teacher is working (it must be school-based).

Lesson studies are a format of continuing training particular popular in *Japan* and *Korea*, but that it also gaining popularity – and adepts – in the *United States*. A lesson study is organized in the following way: teachers collaboratively produce a detailed plan for a particular lesson; then, as one of the members of the group teaches, this lesson in front of a classroom, the others observe (Hill, 2007). Then follows a **critical analysis of the lesson**. This collaborative view of teaching allows to develop critical thinking among peers, and also to promote collegiality over individualism between teachers. (Britton, Paine, Pimm, & Raizen, 2003)

As a conclusion : **two factors** have to be taken into account in the **design of continuing training programmes**: **local specific needs** have to be acknowledge, and **effects on student learning have to be assessed**, through the framework of the existing empirical evidence on the linkages between teacher education and student outcomes.

3.3. How to assure teacher quality?

Teacher quality is important since it can be directly linked to student performance. The question of "how can teacher quality be assured "can be sub-divided other interrogations: **to which degree can**

teacher education be given by multiple providers, but still be effectively coordinated and consistent? How can continuity in the supply of initial teacher education and continuing training be assured in the case that those institutions are free to formulate their own content? Evaluation mechanisms are particularly important, since they respond to an increasing demand of accountability and efficiency in public policy.

In the majority of educational systems, they are two selection phases, **selection mechanisms at the entrance of the teacher education, certification mechanisms at the end**, that allows to obtain the status of qualified teacher. To understand in depth these different issues, emphasis has to be put on the variety of mechanisms that exists: programme accreditation, external control of examinations, national curriculums or other curriculum agreements.

How should teacher education institutions be held accountable for the quality of their graduates? With a national curriculum? By external examinations? By other means, such as accreditation? Who sets the requirements for becoming fully qualified through certification, licensure, etc? All countries have set requirements for becoming fully qualified teachers. But the nature of these and how they are administered varies significantly. Regarding the mechanisms concerning the *teacher education providers*, two main mechanisms exist: **external systems of approval and accreditation of the teacher education programmes**. The aim of these mechanisms is to give public assurance of the adequacy of programmes of teacher education (initial and continuing) and throught changes in the norms, can lead to the improvement of the programme's quality. Indeed, educationnal authorities can promote the improvement of teacher education by raising accreditation requirements for the programmes that train teachers. This is an issue especially for the countries where teacher eduaction is descentralized (it is organized by local authorities) and/or market-based (private institues can provide it and they are heterogeneous). Accreditation mechanisms allow to develop common professional standards and a shared understanding of the skills that a high-quality teacher should have.

To make accreditation mandatory for teacher education programmes is a way of assuring that they all meet the standard set by policy makers. What should the accreditation criteria be? According to the report "Teachers matter" (OECD, 2005), accreditation should focus more on the **outcomes of teacher education than on the inputs**, precise curriculum and modalities. Ingvarson (2002) analyzes the different aereas on which accreditation should focus. In the *United States*, the National Council for Accreditation of Teacher Education accredits teacher training institutions, by standards that have been developed by professional associations, such as the National Council of Teachers of Mathematics.

As it is analysed, **a focus on inputs would reduce the potential of innovation**, lead to an uniformity of programmes and to the consolidation of the conventional wisdom on how to prepare teachers. In *Switzerland*, this is the approach that have been chosen : teacher education institutions are accredited on the basis of the objective they meet, but the means to reach them –in terms of curriculum, teaching methods, pegogical approach can differ among the different providers (OECD, 2005).

In the *United States*, universities traditionally benefit from a substantial autonomy in setting requirements for teacher education and certify students to teach, responding only to general and little requirements set by the state for the nature and content of their programmes. Nevertheless, **external examination as part of the certification process** is becoming more common. Some interesting practices in terms of external examination exist among the OECD countries: in *England* and in *Whales* for example, the Office for Standards in Education (OFSTED) organizes an inspection every four years of schools and initial teacher education providers, this office being funded by the Teacher Training Agency (TTA). (Poppleton 1999).

To improve teacher quality policy makers can also allow to raise teacher certification requirements, as for accreditation for teacher education programmes,. In half of the OECD countries, **to have followed a teacher education programme is no sufficient to get a certification to teach.** In *France, Germany, Greece, Italy, Japan, Korea* and *Spain*, aspirant teachers have to pass a competitive exam to be certified and enter the profession. The examination can be used to obtain a teaching license but also to obtain tenure in a public school. In other countries, they have to complete as well a probation period before getting their certification, in *Spain* and *Italy* this period is of one year.

In the *United States*, the National Board for Professional Teaching Standards manages a **national voluntary system** that assesses and certifies teachers who meet the high standards they have established. In order to be certified, teachers have to have a BA degree and at least three years of teaching experience. They are asked to demonstrate by using concrete examples of their work (portfolios, essays). One of the purposes of this certification, apart from recognizing highly qualified teachers, is also to promote professional development, since the process of preparing the certification is a form of continuing training.

Thanks to certification requirements, educational authorities can establish **professional standards, independently to what is taught in the teacher education programmes**. This is also a way to influence on these programmes, and make their outcome closer to what the educational system needs, in terms of skills and competences. On the other hand, having to pass a certification process can discourage certain appropriate candidates to enter the teaching profession.

It is also interesting to note that certification mechanisms do not exist in all the OECD countries, but principally in those where teacher education is fragmented among many providers, and these providers are seen as heterogeneous. In this case, **setting standards for certification can allow to establish a common understanding of what is a good teacher.** For this, it is more important to certify output requirements (professional values, knowledge, and teaching skills) than inputs (coursework that has been completed). Certification based on this type of criteria has been developed in *England, Canada* (Province of Quebec) and *Australia* (Victoria). (OECD, 2005). Nevertheless, it should also be highlighted that what is perceived by different countries as "being a good teacher" vary quite widely between the different countries, and the way of measuring standards of teacher performance is an extremely complex process, since they are based on many subjective judgments of teaching.

This is why in the OECD countries; teacher evaluation can also take many very different forms. In *Sweden* and *Spain* for example, evaluators are seen as advice-giver inspectors that provide feedback and help on teaching practices (Poppleton 1999). In *New Zealand*, evaluation is made by self-review mechanisms within an autonomous school system, with the objectives of raising standards. (Poppleton 1999)

3.4. Financing and articulating teacher education

As mentioned earlier, we are facing the emergence of social challenges in such scale that it can be expected that demands on teachers will increase, as they now faced broadened responsabilities. More continuing training can be a tool to deal with this challenge. Indeed, continuing training is effective in enhancing teacher quality as it as been presented earlier. But simply investing more financial ressources into continuing training courses can be ineffcient, unless such programmes are designed in a coherent and consistent way. **There are costs and benefits associated to every teacher education programme.**

To understand the dynamics of teacher education programme financement is fundamental, in order to design a programme that is as efficient as possible. This concern is of increase importance, especially in a context of extra financial contrains on education budget. It is interesting for example to analyse **the trade-offs in terms of costs between developing initial teacher education and continuing training**. Indeed,

this idea is in the heart of the debate on the financing of teacher education. As it has been seen in the section on initial education, there is a tendency in the OECD countries for teacher education to get longer : to four years for primary-school teachers, and to a post-graduate qualification for secundary school teachers. This extention might lead to an increase in costs (and a diminution of supply of teachers, since some suitable candidates can be deterred by a lengthy training). What the OECD report "Teacher matter" (2005) concludes in this point as that: "there could be a better value from providing more resources to improve teacher development throughout the careers rather than increasing the length of pre-service education (p. 105)." Policy-makers should take into account when designing teacher education programmes. According to these conclusions, **the promotion of continuing training and the intensification of these activities can lead to an improvement in teacher quality more effective in terms of costs than the lenghtening of initial teacher education.**

According to Angrist and Lavy (2001), **to increase continuing training is a cost-efficient strategy to improve student outcomes**, even if compared to other more common strategies, such as reducing the student to teacher ratio, or to increase the number of hours passed in schols.

The question of how to educate school teachers as effectively as possible when there is a limited amount of financing has also been treated by Ingvarson, Meiers, & Beavis (2005). The question on which they focus is : **it is more efficient to involve fewer teachers in professional development than to produce less significant change among many?** Indeed, the most efficient continuing training programmes (as mentioned earlier, extended workshop, with follow-up and feedback) are also the one that are the most labour intensive and time consuming and, consequently, expensive.

As for initial teacher education programmes, **it is frequently accused of being rather ineffective in training good teachers, and of having high costs.** Critics say that these costs would be better spend in strengthening continuing training programmes. In a research paper by Lewin and Stuart (2003) on the cost of initial teacher education, the problem of the high cost of initial teacher education appears very clearly: "traditional teacher education programmes are heavily 'front-loaded' with most investment at the beginning of a teaching career. Their unit costs can exceed those of university education and may be 50 or more times the annual costs of a primary school place" (Lewin & Stuart, 2003). Alternative programmes are cheaper, since they are mostly school-based. But as seen earlier, further research is still needed to assess their impact on teacher quality.

4. CONCLUSION

There are many different challenges to be dealt with in different countries, and the specific construction of the educational design has to be according to these ones. The situation can be very different country to country: some countries are experiencing teacher surplus (*Korea, Canada*) and others have to cope with teacher shortage (*England, Wales, Sweden*). The shortage of teacher may be general (all type of schools, teachers), or focused on certain subjects; locations or special kind of schools. Science, mathematics, foreign languages and special education are especially exposed to the problem of teacher shortage. This problem is also very much linked to the one of attrition, very high in the teaching profession: in the United States, 1/3 of all teachers that enter the profession leave, half within the first 5 years. It is especially high in special education, mathematics, sciences (20 % annual in each field) (Suell & Piotrowski, 2007). Finally, teachers face a third challenge: the necessity to improve teacher quality, in a socio-economic context of broader expectations toward teachers. It is in that context that countries have to think on how to achieve better teacher education systems. To design policies that allow to educate and training teachers who can help students to acquire the competencies needed to evolve in today's societies and labour markets is an amazing challenge.

The design of the teacher education (the way in which is articulated initial education (continuing training) **has to respond to specific needs of each system**, so policy has to be thought of case to case. There is no magical "policy mix" that can be applied in every situation. This is why it is important for policy makers to have at their disposition a repertoire of good practices. This is what this paper has tried to do. To apprehend these good practices in their specific contexts, and to understand their interaction with the other elements of the educational system can lead to a reflection on how to combine these practices between themselves, in order to create a policy that fits that specific educational system's needs.

It is also important to take into account that the way in which practising teachers learn depend on many factors - country's past traditions, existing institutions, way the educational system articulates as a system). Teacher education models are influenced by the character and the status of the teaching profession, by certain attitudes towards curriculum and pedagogy and by political and administrative relationships in the education system. T**eacher education designs must be context-specific.**

Before undertaking any changes, **these factors have to be analyzed systemically, and teacher education has to be apprehended as a continuum**. This also means that mechanisms have to be put into place, to do systemic and rigorous analysis of the existing programmes (to see their strength and weakness). It is in this perspective that **certification and accreditation mechanisms, for teachers, but also for teacher education providers are useful**. They allow to justify the allocation and use of economical resources, they provide data concerning standards and outcomes attained, and they ensure accountability. They can also encourage teachers in undergoing continuing training.

Teacher education has to be perceived as a life-long experience for teachers, a continuum that goes from their initial education to their retirement. **The different phases of this continuum have to provide teachers not only strong subject-matter knowledge, but also pedagogical knowledge** (general and subject-specific). They also have to develop critical thinking and problem-solving skills. These skills can be developed thanks to effective continuing training. School have to be at the centre of continuing training, and it is their needs that have to be taken into account in the design of continuing training programmes.

This approach also allows to use continuing training as a way to restructure schools and educational system.

Teacher education has to be flexible: it is necessary that the teaching profession should be opened to a wide range of "profiles', in adequacy with the specific needs of schools. Teachers for example should be given the opportunity to enter the profession after having completed studies in another discipline, or after having accumulated valuable experience working in another field. This can include structure such as "on-the-job" training and distance training.

Adequate continuing training programmes are the ones which allow more interaction among teachers, and that provide them with the opportunity to evaluate their own work, through for example peer-review, mentoring. This also helps to redefine or define a common spirit of enthusiasm and devotion to their profession. In the same way, systematic feedback mechanisms allow to control and to improve teaching quality.

There is also a reflection among the OECD countries about the **role of field experience in school in teacher education.** Initial teacher education is increasingly being transferred to schools. Research puts into evidence the positive impacts of reinforcing complementarity between field experience and academic studies. This is why it shouldn't take over completely on the theoretical part of teacher education, fundamental to obtain high-quality teachers. Countries should establish shared responsibility between teacher education institutes and schools in the training of teachers, in order to fill the "theory-practice" gap. It would allow to raise the status of the teaching profession, in order to assure quality education, but also to bring teacher education back to the classroom, that seems to be more relevant and efficient.

Research seems to show that **alternative pathways are less costly and more – or as effective – than traditional initial teacher education.** If the periods of initial teacher education are shortened and alternative pathways are developed and generalized, this might put in jeopardy the academic status of the teaching profession. On the other hand, a way of dealing with this risk is through the teacher certification and accreditation system. Raising the requirements to enter the profession allows to improving teacher quality. Initial teacher education and continuing training seem to be complementary: initial teacher education could be shortened, and the resources economized could be used to strengthen continuing training, based in schools. For many countries, this change is worth consideration. (Cuadra et Moreno 2005)

BIBLIOGRAPHY

Acevedo, G. L. (1999), Learning Outcomes and School Cost-Effectiveness in Mexico : the PARE programme, World Bank Research Working papers.

Angrist, J. D., & Lavy, V. (2001), Does Teacher Training Affect Pupil Learning? Evidence from Matched Comparisons in Jerusalem Public Schools, *Journal of Labor Economics*, pp. 343-370.

Berry, B., Darling-Hammond, L., & Thoreson, A. (2001), Does Teacher Certification Matter? Evaluating the Evidence. *Educational Evaluation and Policy Analysis*, pp. 57-77.

Borko, H., & Putnam, R. (1995), Expanding a teacher's knowledge base: A cognitive psychological perspective on professional development, in T. Guskey, & M. Huberman, *Professional development in education: New paradigms and practice* (pp. 35-65), New York : Teachers College Press.

Boyd, D., Grossman, P., Lankford, H., Loeb, S. & Wyckoff, J (2008), Teacher Preparation and Student Achievement, *National Bureau of Economic Research*, pp. 1-44.

Caires, S., & Leandro A. (2005), Teaching practice in Initial Teacher Education: its impact on student teachers' professional skills and development, *Journal of Education for Teaching*, pp. 111-120.

Britton, E., Paine, L., Pimm, D., & Raizen, S. (2003), *Comprehensive Teacher Induction*, Dordrecht: Kluwer Academic Publishers.

Buchberger, F., Campos, B. P., Kallos, D., & Stephenson, J. (2000), *Green Paper on Teacher Education in Europe*, Umea: Fakultetsnamnden for lararubidning.

Chan Lai, K., & Grossman, D. (2008), Alternate routes in initial education, *Journal of Education for Teaching*, pp. 261-275.

Clotfelte, C. T., Ladd, H. F., & Vigdor, J. L. (2008), Teacher Credentials and Student Achievement in High School: A Cross-Subject Analysis with Student Fixed Effects, *NBER Working Paper n° 13617* .

Cuadra, E., & Moreno, J. M. (2005), Responding to the Twin Challenges : Teachers, Teaching and Technology, in E. Cuadra, & J. M. Moreno, *Expanding Opportunities and Building Competencies for Young People : A New Agenda for Secondary Education*, Washington DC: The World Bank .

Darling-Hammond, L.(1994), Developing professional development schools: Early lessons, challenge, and promise, in L. Darling-Hammond (Ed.), *Professional development schools: Schools for developing a profession* (pp. 1-27), New York: Teachers College Press.

Darling-Hammond, L. (1999), *Teacher Quality and Student Achievement: A Review of State Policy Evidence*, Washington : Center for the Study of Teaching and Policy - University of Washington.

Darling-Hammond, L. (2000), How Teacher Education matters, *Journal of Teacher Education*, pp. 166-173.

Decker, P. T., Mayer, D. P., & Glazerman, S. (2004), The Effects of Teach For America on Students: Findings from a National Evaluation, *Mathematica Policy Research, Inc.*

Eurydice. (2004), *The teaching profession in Europe : Profile, trends and concerns. Report IV : Keeping teaching attractive for the 21st century,* Brussels : Eurydice.

Feiman-Nemser, S. (2001), From Preparation to Practice : Designing a Continuum to Strengthen and Sustain Teaching. *Teachers College Record*.

Feiman-Nemser, S. (1990), Teacher preparation: Structural and conceptual alternatives. In W. R. Houston, *Handbook of research on teacher education,* New York: Macmillan.

Fleener, C. (1999, February), "Teacher attrition: Do PDS programmes make a difference?" Paper presented at the Distinguished Dissertation in Education Award Winner, Association of Teacher Educators Annual Conference, Chicago.

Furlong, J. B. (2008), Changing models of partnerships in initial education: the English experience, *Paper presented at the Asia Deans of Education Forum, Perth, Australia* .

Garet, M., Porter, A. Desimone, L., Birman, B. & Suk Yoon, K. (2001), What Makes Professional Development Effective? Results From a National Sample of Teachers, *American Educational Research Journal.* 915–945

Good, T., Grouws, D., & Ebmeier, H. (1983), *Active Mathematics Teaching.* New York: Longman.

Gustafsson, J.-E. (2003), What Do We Know About Effects of School Ressources on Educationnal Results?, *Swedish Economic Policy Review*, 77-110.

Hallinan, M., & Khmelkiv, V. (2001), Recent Developments in Teacher Education in the United States of

America, *Journal of Education for Teaching*, 175-186

Hustler, D., McNamara, O., Jarvis, J., Londra, M., & Campbell, A. (2003), Teachers' *Perceptions of Continuing Professional Development.* London: Department of Education and Skills

Ingvarson, L. (2002), Development of a national standards framework for the teaching profession. *Paper prepared for MCEETYA Taskforce on Teacher Quality and Educational Leadership* .

Ingvarson, L., Meiers, M., & Beavis, A. (2005), Factors affecting the impact of professional development programmes on teachers' knowledge, practice, student outcomes & efficacy. *Australian Council for Educational Research* .

International Alliance of Leading Education Institutes (2008), *Transforming Teacher Education : Redefined Professionals for 21st Century Schools.* Singapore: National Institute of Education.

Jasman, A. (2002), Initial teacher education: Changing curriculum, pedagogies and assessment. *University of New England, Armidale, Australia. Paper presented at 'Challenging Futures Conference',* , 1-18.

Kennedy, A. (2005), Models of Continuing Professional Development: a framework for analysis . *Journal of In-service Education* , 235-250.

Korthagen, F. A., & Kessels, J. P. (1999), Linking Theory and Practice : Changing the Pedagogy of Teacher Education. *Educational Researcher* .

Korthagen, F. A., Loughran, J., & Russell, T. (2006), Developing fundamental principles for teacher education programmes and practices .*Teaching and Teacher Education*. 1020–1041

Lapostolle, G., & Chevaillier, T. (2008), Between Necessity and Constraints: The Reform of Teacher Training in France (1990-2007). *Higher Education in Europe* , 457 — 470.

Lewin, K. M. (2002), The costs of supply and demand for teacher education: dilemmas for development. *International Journal of International Development* , 221-242.

Lewin, K. M., & Stuart, J. M. (2003), Insights into the policy and practice of teacher education in low-income. *British Educational Research Journal* , 691-710.

Macdonald, D. (1999), Teacher attrition: a review of literature. *Teaching and Teacher Education* , 835-848.

McCutchen, D. E. (2002), Beginning Literacy: Links among Teacher Knowledge, Teacher Practice, and Student Learning. *Journal of Learning Disabilities* , 69-86 .

OECD. (1998), *Staying Ahead : In-service Training and Teacher Professional Development.* Paris: OECD Publishing.

OECD. (2005), *Teachers matter : attracting, developping and retaining effective teachers.* Paris: OECD Publishing.

OECD. (2009), *Creating Effective Teaching and Learning Environments : first results from TALIS.* Paris: OECD Publishing.

Ornelas, C. (2004), The Politics of Privatisation, Decentralisation and Education reform in Mexico . *International Review of Education* , 397-418.

Perrenoud, P. (1993), Formation initiale des maîtres et professionalisation du metier . *Revue des Sciences de l'éducation* , p. 59 à 76.

Poppleton, P. (1990), Leading from Behind: a comparative view of the proposed reform of teacher training. *Journal of Education for Teaching.* 233-247

Price, M. (2004), Promoting Linkages: Partnerships Between Schools and Higher Education. In T. S. York, *Keeping Quality Teachers : the Art of Retaining General and Special Education Teachers.* New York : University of the State of New York .

Reinhartz, J., & Stetson, R. (1999), Teachers as leaders: A question or an expectation? In D. B. McIntyre, *Research on professional development schools. Teacher education yearbook Vol. VII.* Thousand Oaks: Corwin Press.

Rockoff J., Jacob B., Kane T., & Staiger, D. (2008), Can You Recognize an Effective Teacher When You Recruit One? *National Bureau of Economic Research: Working Paper*. 1-56

Schneider, M., & Stern, E. (2009), The Cognitive Perspective on Learning : Ten Cornerstone Findings. *Paper prepared for the International Seminar on Innovative Learning Environments, Centre for Educational Research and Innovation (CERI), OECD* .

Schwille, J., & Dembélé, M. (2007), *Global Perspective on teacher learning: improving policy and practice.* Paris: UNESCO : International Institue for Educationnal Planning .

Stuart, J., & Tatto, M. T. (2000), Designs for initial teacher preparation programmes : an international view. *International Journal of Educational Research* , 493-514.

Tatto, M. (2002), The value and feasibility of evaluation research on teacher development: contrasting experiences in Sri Lanka and Mexico. *International Journal of Educationnal Development* , 637-657.

Timperley, H. (2008), *Teacher Professional Learning and Development* . Paris : UNESCO .

Villegas-Reimers, E. (2003), *Teacher professional development : an international review of literature* . Pariss: UNESCO.

Wayne, A. J., & Youngs, P. (2003), Teacher Characteristics and Student Achievement Gains: A Review. *Review of Educational Research* , 73-89.

Wenglinsky, H. (2002), How schools matter: The link between teacher classroom practices and student academic performance. *Education Policy Analysis Archives* .

Wilson, S., Floden, R. and Ferrini-Mundy, J. (2002), Teacher preparation research : Current knowledge, gaps and recommendations. Center for the Study of Teaching and Policy, University of Washington.

Xu, Z., Hannaway, J., & Taylor, C. (2007), Making a Difference? The Effects of Teach for America in High School. *National Center for Analysis of Longitudinal Data in Education Research* , 1-45.

Zeichner, K. M. and Conklin, H. G. (2005), Teacher education programmes. In M. Cochran-Smith & K. M. Zeicher (Eds.), Studying teacher education: The report of the AERA Panel on Research and Teacher Education. (pp. 645-735). Washington, DC: AERA; Mahwah, NJ: Lawrence Erlbaum.