

Teacher professional development: an international review of the literature

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Introduction

These are changing times in education systems around the world. With the start of the new millennium, many societies are engaging in serious and promising educational reforms. One of the key elements in most of these reforms is the professional development of teachers; societies are finally acknowledging that teachers are not only one of the ‘variables’ that need to be changed in order to improve their education systems, but they are also the most significant change agents in these reforms. This double role of teachers in educational reforms – being both subjects and objects of change – makes the field of teacher professional development a growing and challenging area, and one that has received major attention during the past few years.

This new emphasis has been welcomed by teachers and educators in general as it represents a much needed appreciation of teachers’ work, and also promotes the concept of teaching as a *profession*. Unfortunately, others have taken this new emphasis to be a sign that teachers are not providing adequate teaching standards. Guskey and Huberman (1995) reflect on this paradox and also report that their work with teachers worldwide offers little evidence to support this belief. “The vast majority of teachers and school administrators we have encountered are dedicated professionals who work hard under demanding conditions” (Guskey and Huberman, 1995, p. 1). It is for these hard-working teachers and educators that professional development opportunities are needed, not only because they promote the recognition of their work as professionals, but also because – as is the case for all professionals in any field – new opportunities for growth, exploration, learning, and development are always welcome.

In order to contribute to the knowledge base of educators, policy-makers, teacher-educators, and administrators who are engaged in the process of teacher education and development and who are committed to planning, implementing and assessing sensible educational reforms, this book presents a review of the recent international literature published on models, factors and case studies of teacher professional development.

This book supports the idea that good teaching methods have a significant positive impact on how and what students learn. Learning how to teach, and working to become an excellent teacher, is a long-term process that requires not only the development of very practical and complex skills under the guidance and supervision of experts, but also the acquisition of specific knowledge and the promotion of certain ethical values and attitudes. In the words of Calderhead and Shorrock (1997), in addition to ‘knowing what’ and ‘knowing how’, teachers must also be competent in ‘knowing why’ and ‘knowing when’.

This book also supports the idea that the professional development of teachers is a lifelong *process* which begins with the initial preparation that teachers receive (whether at an institute of teacher education or actually on the job) and continues until retirement. Therefore, the book reviews models of teachers’ initial preparation, as well as models of in-service ‘training’ and other learning experiences that enhance teachers’ practices and professionalism throughout their lives.

Because teacher professional development is changing so rapidly and so frequently all around the world, we are aware that even the ‘most recent’ literature may already present models or experiences that are no longer being implemented in a particular country. Therefore, the purpose of presenting specific examples of models in particular countries is to illustrate options that have been developed to promote teachers’ professional development, rather than to describe how the process is being realized at this particular time in a specific country in the world.

In addition, even though many models and experiences of teacher professional development are planned and implemented on a large scale in many countries (sometimes they are even national efforts), there are many experiences, also reported here, that have been implemented on a much smaller scale (e.g. in only one school or one school system). Once again, as the purpose of this presentation is to offer information on options and possibilities to those in charge of teacher education, the presentation of small-scale projects may be as valuable as that of large-scale initiatives.

Finally, the review of the literature was completed in the United States of America, and even though special emphasis was placed on searching as many international databases and publications as possible, I am aware that my geographical location may have limited the literature to which I had access. I did find an over-representation of cases, models and experiences in the USA, Canada, Australia and many European countries, compared to that which I found concerning countries in Asia, Africa, the Middle East and Latin America. I was also restricted by the language of the publications, as I was only able to review documents written in English and in Spanish.

Despite these restrictions, this book presents an informative and detailed review of the most current information on the professional development of teachers, and as such it should be a helpful guide to educational leaders at all levels and in a variety of national settings.

The book is organized in six chapters. The first is an overview of the process of teachers' professional development, its definitions and significance. The second chapter presents information on the impact of teachers' professional development on education systems and students' learning, and reflects on the relation between teachers' professional development and effective school and education-system reforms. The third chapter is devoted to reflecting on the teaching profession: when and how it begins, and how it develops throughout a person's professional career. It discusses in some detail the process of pre-

service education, and describes the traditional form of in-service education. This is followed by the fourth chapter which describes models of professional development in detail, and – whenever possible – illustrates each model with a description of experiences and initiatives that have used that particular model in a variety of countries and societies. The fifth chapter explores the factors that must be taken into account when designing and implementing models of professional development. Finally, the sixth chapter offers conclusions, policy implications and recommendations.

Chapter I

What is teacher professional development?

Background information

Professional development, in a broad sense, refers to the development of a person in his or her professional role. More specifically, “Teacher development is the professional growth a teacher achieves as a result of gaining increased experience and examining his or her teaching systematically” (Glatthorn, 1995, p. 41). Professional development includes formal experiences (such as attending workshops and professional meetings, mentoring, etc.) and informal experiences (such as reading professional publications, watching television documentaries related to an academic discipline, etc.) (Ganser, 2000). This conception of professional development is, therefore, broader than career development, which is defined as “the growth that occurs as the teacher moves through the professional career cycle” (Glatthorn, 1995, p. 41), and broader than staff development, which is “the provision of organized in-service programmes designed to foster the growth of groups of teachers; it is only one of the systematic interventions that can be used for teacher development” (Glatthorn, 1995, p. 41). When looking at professional development, one must examine the content of the experiences, the processes by which the professional development will occur, and the contexts in which it will take place (Ganser, 2000; Fielding and Schalock, 1985).

This perspective is, in a way, new to teaching. For years the only form of ‘professional development’ available to teachers was ‘staff development’ or ‘in-service training’, usually consisting of workshops or short-term courses that would offer teachers new information on a particular aspect of their work. This was often the only type of training teachers would receive and

was usually unrelated to the teachers' work. Only in the past few years has the professional development of teachers been considered *a long-term process that includes regular opportunities and experiences planned systematically to promote growth and development in the profession*. This shift has been so dramatic that many have referred to it as a 'new image' of teacher learning, a 'new model' of teacher education, a 'revolution' in education, and even a 'new paradigm' of professional development (Cochran-Smith and Lytle, 2001; Walling and Lewis, 2000).

There has recently been a significant increase in the level of interest and support that teachers throughout the world are receiving in their professional development. Evidence of this include the following:

- The extensive literature which is available; including documents, essays and research reports on models and practices of professional development. The long reference list at the end of this document is only a sample of the many studies that have been published since the beginning of the 1990s alone.
- International and national donor agencies have acknowledged the importance of teachers' professional development and have commissioned studies (many of which are reported in this document) with the purpose of learning how to support such efforts more effectively.
- Many national and international organizations have supported the implementation of initiatives which aim to improve the professional skills and knowledge of teachers. One good example is the efforts of the Asia-Pacific Economic Cooperative (APEC) to improve teacher education, as the economy of these 18 countries that border the Pacific Ocean have identified teacher education as being a key issue in economic development (Cobb, 1999).

- Most educational reforms currently being designed and/or implemented include a component of teacher professional development as one of the key elements in the change process.

This new perspective of professional development has several characteristics:

1. *It is based on constructivism* rather than on a ‘transmission-oriented model’. As a consequence, *teachers are treated as active learners* (Lieberman, 1994; McLaughlin and Zarrow, 2001) who are engaged in the concrete tasks of teaching, assessment, observation and reflection (Dadds, 2001; Darling-Hammond and McLaughlin, 1995; King and Newmann, 2000).
2. It is perceived as a *long-term process* as it acknowledges the fact that teachers learn over time. As a result, a series of related experiences (rather than one-off presentations) is seen to be the most effective as it allows teachers to relate prior knowledge to new experiences (Cohen, 1990; Ganser, 2000; Lieberman, 1994; Dudzinski *et al.*, 2000). Regular follow-up support is regarded as an “indispensable catalyst of the change process” (Schifter, Russell, and Bastable, 1999, p. 30).
3. It is perceived as *a process that takes place within a particular context*. Contrary to the traditional staff development opportunities that did not relate ‘training’ to actual classroom experiences, the most effective form of professional development is that which is based in schools and is related to the daily activities of teachers and learners (Abdal-Haqq, 1996; Aness, 2001; Baker and Smith, 1999; Darling-Hammond, 1998; Dudzinski *et al.*, 2000; Ganser, 2000; McLaughlin and Zarrow, 2001). Schools are transformed into communities of learners, communities of inquiry (McLaughlin and Zarrow, 2001), professional communities (King and Newmann, 2000) and caring communities (Jenlink and Kinnucan-

Welsch, 1999) because teachers are engaged in professional development activities (Lieberman, 1994). The most successful teacher development opportunities are ‘on-the-job learning’ activities such as study groups, action research and portfolios (Wood and McQuarrie, 1999).

4. Many identify this process as one that is *intimately linked to school reform* (Guskey, 1995b; Loucks-Horsley, 1998), as professional development is a process of culture building and not of mere skill training (Cochran-Smith and Lytle, 2001) which is affected by the coherence of the school programme (King and Newmann, 2000). In this case, teachers are empowered as professionals, and therefore should receive the same treatment that they themselves are expected to give their students (McLaughlin and Zarrow, 2001). A teacher professional development programme that is not supported by the school or curricular reform is not effective (Guzman, 1995; Schifter, Russell, and Bastable, 1999).
5. *A teacher is conceived of as a reflective practitioner*, someone who enters the profession with a certain knowledge base, and who will acquire new knowledge and experiences based on that prior knowledge (Cochran-Smith and Lytle, 2001; Jenlink and Kinnucan-Welsch, 1999; Lieberman, 1994). In so doing, the role of professional development is to aid teachers in building new pedagogical theories and practices (Darling-Hammond and McLaughlin, 1995; Schifter, Russell, and Bastable, 1999), and to help them develop their expertise in the field (Dadds, 2001).
6. Professional development is conceived of as a *collaborative process* (Darling-Hammond and McLaughlin, 1995). Even though there may be some opportunities for isolated work and reflection, most effective professional development occurs when there are meaningful interactions (Clement and Vanderberghe, 2000), not only among teachers themselves, but also between teachers, administrators, parents and other community members (Grace, 1999).

7. *Professional development may look and be very different in diverse settings*, and even within a single setting, it can have a variety of dimensions (Scribner, 1999). There is not one form or model of professional development better than all others and which can be implemented in any institution, area or context. Schools and educators must evaluate their needs, cultural beliefs and practices in order to decide which professional development model would be most beneficial to their particular situation. It is clear in the literature that different factors within a workplace (one significant variable of ‘the context’), such as school structure and school culture, can influence the teachers’ sense of efficacy and professional motivation (Scribner, 1999). Apparent contradictory results reported in the literature (such as the fact that some studies conclude that the best professional development is that designed and implemented on a smaller scale, while others say that it is more effective when implemented on a larger, system-approach scale) may be explained, not by deciding that one study is more accurate than another, but by examining the contexts in which the different studies were completed. Guskey (1995b) argues strongly the importance of paying attention to context so that the “optimal mix” (p. 3) of professional development processes can be identified and planned. In other words, professional development has to be considered within a framework of social, economic and political trends and events (Woods, 1994). “The uniqueness of the individual setting will always be a critical factor in education. What works in one situation may not work in another... Because of the enormous variability in educational contexts, there will never be ‘one right answer’. Instead, there will be a collection of answers, each specific to a context. Our search must focus, therefore, on finding the *optimal mix* – that assortment of professional development processes and technologies that work best in a particular setting” (Guskey, 1995a, p. 117).

Systems and/or models of professional development?

It is important to bear in mind the difference between a professional development system and a professional development model (Ingvarson, 1998). Models are specific processes and opportunities that are planned to provide professional development to teachers from the beginning of their preparation. (*Chapter IV* of this book describes a number of models that have been used in different parts of the world to promote the professional development of teachers, and also briefly refers to some national systems of professional development.)

However, a system requires a wider perspective that includes the interconnections between:

- the goals, objectives and purposes of professional development;
- the context in which professional development is to take place;
- the personal and professional characteristics of the participants of the system;
- the models, techniques, and procedures to be implemented;
- the costs and benefits of professional development;
- a determination of who is to make which decisions;
- a process to evaluate and assess the effectiveness of professional development on different constituencies;
- a determination of infrastructure support for professional development.

Ingvarson (1998) compares the ‘traditional system of professional development’, usually identified as ‘in-service training’ (where the employers have control; the governments establish the goals; the actors can be universities, employers or consultants; and the models used are usually short-term courses or workshops, which are not necessarily related to practical issues), with the ‘standard-base system’ (where the professional bodies have control when deciding on goals and helping to implement the models, and where the

opportunities are designed based on real needs identified by the teachers in their daily activities). He concludes that even though the traditional system is essential, it is no longer sufficient.

A similar classification is offered by Cochran-Smith and Lytle (2001). They describe three approaches, or systems of professional development, that “co-exist in the world of educational policy, research and practice and are invoked by differently positioned people in order to explain and justify quite different ideas and approaches to improving teaching and learning” (p. 47). They are:

1. **Knowledge-for-practice:** Assumes that university-based researchers generate formal knowledge and theory for teachers to use in order to improve practice.
2. **Knowledge-in-practice:** Some of the most essential knowledge for teaching is perceived as ‘practical’ knowledge, or knowledge that is embedded in practice.
3. **Knowledge-of-practice:** Knowledge is not divided into formal and practical knowledge. Teachers gain knowledge for teaching when they have the opportunity to reflect on their practice and use a process of inquiry in their own environments to learn more about effective teaching.

Variables that contribute to the success of teachers’ professional development.

According to Guskey (1995a), there are some ‘guidelines for success’ that must be followed when planning and implementing professional development opportunities for teachers. They are:

- to recognize change as being both an individual and an organizational process;
- to think big, but start small;
- to work in teams to maintain support;
- to include procedures for feedback on results;
- to provide continuous follow-up, support, and pressure;
- to integrate programmes.

Corcoran (1995) has proposed the following guiding principles for experts and organizations that are designing and implementing professional development programmes. These programmes must:

- stimulate and support site-based initiatives (schools', districts' and teachers' initiatives);
- be grounded in knowledge about teaching;
- model constructivist teaching;
- offer intellectual, social and emotional engagement with ideas, materials and colleagues;
- demonstrate respect for teachers as professionals and as adult learners;
- provide sufficient time and follow-up;
- be accessible and inclusive.

Finally, Fullan (1987) believes there are four crucial factors for successful teacher development. They are:

- redefinition of staff development as a process of learning;
- the role of leadership at the school level;
- the organizational culture at the school level; and
- the role of external agencies, especially at the local and regional level.

Many of these, and other factors that help make professional development successful, are explored and described in *Chapter V* of this book.

Chapter II

Why is teachers' professional development important?

Aside from the individual satisfaction or financial gain that teachers may obtain as a result of participating in professional-development opportunities, the process of professional development has a significant positive impact on teachers' beliefs and practices, students' learning, and on the implementation of educational reforms. These three aspects are described in this section.

Does professional development have an impact on teachers? Does it have an impact on student learning?

Successful professional-development experiences have a noticeable impact on teachers' work, both in and out of the classroom, especially considering that a significant number of teachers throughout the world are under-prepared for their profession.¹

1. For example, according to a 1996 report of the US National Commission on Teaching and America's Future, at least 25 per cent of teachers hired in the country fall under the category of under-prepared teachers. In Latin America, the numbers are much higher (Villegas-Reimers, 1998). According to Ball (2000), this percentage is even higher in countries such as South Africa. In fact, South Africans use the term 'barefoot teacher' to refer to unlicensed educational practitioners (Henning, 2000) who are of a significant number in the country. "These teachers have been performing educational 'first aid' for more than nine years in schools where masses of otherwise 'school-less' children and youth are accommodated" (Henning, 2000, p. 3).

Evidence shows that professional development has an impact on teachers' beliefs and behaviour. Evidence also indicates that the relationship between teachers' beliefs and their practice is not straightforward or simple; on the contrary, it is dialectic, "moving back and forth between change in belief and change in classroom practice" (Cobb, Wood and Yackel, 1990; Franke *et al.*, 1997; Thompson, 1992, in Nelson, 1999, p. 6). Wood and Bennett (2000) support this statement with the results of a study, in which a group of early childhood educators in England were helping to collect data concerning their own theories of play and their relationship to practice. As a result, these educators changed their own theories or teaching practices, or even both.

Similar results are reported by Kettle and Sellars (1996) in a study of the development of the 'practical theory' of student-teachers in Australia; by Kallestad and Olweus (1998) in a study involving Norwegian teachers, which shows that teachers' professional preparation and development have a large impact on defining teachers' goals for their students, and these goals in turn affect the teachers' behaviour in the classrooms and schools; and also by Youngs (2001). Following the examination of data assessing the effects of four different models of professional development (teachers' networks, the use of consultants and inter-visitations, students' assessments and school improvement plans) on teachers' professional development and school capacity in different parts of the USA, Youngs found that all models generally strengthened teachers' knowledge, skills and dispositions, and they had varied effects on other aspects of school capacity (the constructing of a community, the gradual development of coherent programmes, the quality of technical resources, etc.). Yet, there is still a need for more research to be done in this area (see Tatto, 1999).

Back in 1997, Guskey argued that more research was needed on the specific aspects of teachers' professional development that created a significant effect on teachers' practices, measured by a change in students' learning. He proposed examining multiple cases where there was a noticeable improvement

in students' performance, and to 'work backwards' to identify which specific characteristics of professional development the teachers had experienced. According to the latest literature, some studies have been carried out as a result of this initiative. For example, research reported by Baker and Smith (1999) identified the following characteristics of professional development as being the most effective in sustaining change in teachers:

- A heavy emphasis on providing concrete, realistic and challenging goals;
- Activities that include both technical and conceptual aspects of instruction;
- Support from colleagues;
- Frequent opportunities for teachers to witness the effects that their efforts have on students' learning.

With regard to the effect of teachers' professional development on students' learning, a number of studies report that the more professional knowledge teachers have, the higher the levels of student achievement (National Commission on Teaching and America's Future, 1996, 1997; Falk, 2001; Educational Testing Service, 1998; Grosso de Leon, 2001; Guzman, 1995; McGinn and Borden, 1995; Tatto, 1999). In fact, the report of the National Commission on Teaching and America's Future cites evidence that "investments in teachers' knowledge and skills net greater increases in students' achievement [in the United States] than other uses of an education dollar" (Darling-Hammond, 1999, p. 32). At the same time, many believe that student learning is not measured frequently enough when evaluating the impact of teachers' professional development (Loucks-Horsely and Matsumoto, 1999).

Borko and Putnam (1995) offer evidence to support the fact that professional development plays an important role in changing teachers' teaching methods, and that these changes have a positive impact on students' learning. Data collected during the 'Cognitively Guided Instruction Project' (CGI) – a multi-year and multi-phase programme of curriculum development, professional development and research – show "powerful evidence that experienced

teachers' pedagogical content knowledge and pedagogical content beliefs can be affected by professional-development programmes and that such changes are associated with changes in their classroom instruction and student achievement" (Borko and Putnam, 1995, p. 55). Similar results were obtained in Pakistan (Warwick and Reimers, 1995), where the formal education of teachers was closely associated with the levels of students' achievement. It is interesting to note that the same data showed that students' achievement was not significantly related to whether or not teachers had a teacher certification in that country.

Another study which supports the strong relationship that links the improvement of teachers' practices and the increasing levels of students' achievement is that reported by Cohen and Hill (1997). This large study of mathematics teachers in California (USA) discovered that: "Teachers who participated in sustained curriculum-based professional development reported changes in practice that, in turn, were associated with significantly higher student achievement scores on state assessment" (Darling-Hammond, 1999, p. 32).

Supovitz and Turner (2000) report that data from the US National Science Foundation Teacher Enhancement programme show that the degree of professional development to which teachers are exposed is strongly linked to both inquiry-based teaching practice and investigative classroom culture. Supovitz, Mayer and Kahle (2000) in a separate study involving data collected in Ohio, USA, found that as a result of teachers' involvement in intensive professional development activities: "Teachers' attitudes, preparation, and practices all showed strong, positive, and significant growth from pre-professional development to the following spring. Furthermore, these gains were sustained over several years following [the teachers'] involvement" (p. 331).

In a recent review of the few studies quoted in the literature which examine the impact of the professional development of science and mathematics teachers on students' learning, Mary Kennedy, a researcher at the US National Institute for Science Education, made the following discoveries (as reported by Baker, 1999):

- When comparing programmes focused on subject matter, or how students learn the subject, with programmes which focus on pedagogy, the former had the greatest impact on students' learning.
- In-class visitations as a variable offers diverse results. In some cases, in-class visitations (as part of professional-development opportunities) had a positive effect on students' learning, and in other cases it did not.
- When school-wide programmes were compared with teacher-specific programmes, the former had the least effect on students' learning.
- The total contact time with teachers was not an important predictor of the effect on students' achievement.
- The effect of concentrated or distributed time for professional-development experience varied according to subject matter. In most studies, concentrated time was more effective for mathematics, while distributed time was more beneficial to science teachers.

Finally, a variable that must be considered when assessing the impact of professional development on teacher practices, and thus on students' achievement, is whether teachers are teaching a subject for which they were prepared to teach. As Ingersoll (2001) reports: "Requiring teachers to teach classes for which they have not been trained or educated harms teachers and students" (p. 42). Ingersoll refers to data that show that most 'out-of-field' teachers are more commonly found among first-time teachers, in low-income schools, small schools, and lower-achieving classes. Classes with 'out-of-field' teachers usually generate lower student achievement. In the USA, for example, 56 per cent of public secondary-school students in physical sciences are taught by teachers who have received no training in that field, even when

they may be certified teachers in another field and who, more than likely, have a bachelor's or even a master's degree (Loucks-Horsley and Matsumoto, 1999).

Does professional development have an impact on the success of educational reform?

Currently in the world, most societies are engaged in some form of educational reform. Some of these reforms are at the national level (Namibia, South Africa, Australia, England, the United States, Paraguay, the Netherlands, to mention a few), while others are implemented at the local level (at state or district level, or even in only one school). Regardless of the scope of the reform, the relationship between educational reform and teachers' professional development is a two-way, or reciprocal, relationship. As will be illustrated in this section, educational reforms that do not include teachers and their professional development have not been successful. Professional-development initiatives that have not been embedded in some form of reform of structures and policies have not been successful either. There are several cases that support these findings.

For example, Morris, Chan and Ling (2000) report on the Target Oriented Curriculum (TOC), an educational reform of primary schools in Hong Kong which was introduced in the 1990s, and which the authors consider unsuccessful, even though the third stage of the reform is just beginning. According to their account, and that of Walker and Cheong (1996), the curriculum reform was designed by policy-makers with little, if any, input from the teachers. The schools and the public in general responded negatively to the proposed changes as they were complex, impractical, and not flexible to accommodate to the needs of certain schools. Even though some modifications were made in response to the requests of teachers and schools in general, the reform was clearly imposed on teachers who felt they were

being told what to do without any regard to their knowledge and day-to-day practice.

Reforms such as this are common around the world, as they are usually designed with the notion that teachers act as mere obstacles rather than being the most important agents of educational reform and, thus, their opinions are not considered when planning reforms or programmes of professional development (Villegas-Reimers and Reimers, 1996; Pierce and Hunsaker, 1996). As a result of this common predicament, the problems reported by Morris, Chang and Ling (2000) have also been reported in other countries. For example, extensive literature exists about the educational reform that took place in England and Wales in the 1990s, and still 10 years on there are research studies testifying to how teachers felt omitted from such reforms and thus resented them, as they perceived the changes as being a hindrance, creating confusion, a heavier workload and a lack of respect for their work as professionals (Day, 2000). Similar results are found among Norwegian teachers, who are reported to feel that a new policy on work-time agreement (part of a major educational reform) has become “an instrument of control which could transform Norwegian teachers into mere obedient and loyal civil servants” (Klette, 2000, p. 146). Also, in Australia, when a Federal Discussion Paper proposed the introduction of the model of teacher preparation already existing in England and Australia (Chadbourne, 1995), teachers initially felt that their work and professional preparation were under attack and that they were not included in the initial planning of such a significant reform. Chadbourne (1995) also reports that even though university programmes began to implement more school-based training on a trial basis, student- teachers were reluctant to participate as they were of the view that such programmes required more work, offering less flexibility, and limiting interactions between themselves and the university community. Van Driel *et al.* (2001) also mention that the disappointing results of some science teaching reforms in a number of countries are due to the failure to take teachers' existing knowledge, beliefs and attitudes into account when planning changes.

As mentioned previously, reforms that have centred around teachers' professional development have been extremely successful in transforming even national education systems. Such is the case in Namibia, for example, where the education system was transformed into a more democratic system after the country gained independence, and this transformation was led by a reform of its teacher preparation systems and institutions (Dahlstrom *et al.*, 1999). This reform was designed and implemented by national leaders, administrators and teachers, with some support from foreign institutions that joined a partnership of national institutions. A similar trend can currently be seen in some teacher preparation institutions in South Africa that are trying to impact educational and social reforms by transforming the programmes and practices they offer (Robinson, 1999; Samuel, 1998).

On the other hand, professional-development experiences and opportunities that are not embedded in some form of major reform of structures, policies, and organizations have not been successful, as changing teachers without changing contexts, beliefs, and structures rarely creates a significant change (Darling-Hammond and McLaughlin, 1995; Futrell *et al.*, 1995). In fact, unless there is some school-wide commitment and collaboration (or national commitment and collaboration in national reforms), most attempts at promoting true teachers' professional development are non-effective (Futrell *et al.*, 1995; Schifter, Russell, and Bastable, 1999; Wideen, 1992). In other words, educational reforms and teacher professional development must go hand in hand for either or both to work well, as they share a symbiotic relationship (McLaughlin and Oberman in Scribner, 1999).

In an attempt to understand the factors that affect the relationship between educational reform and teachers' professional development, Futrell *et al.* (1995) conducted research in nine school districts in the USA and identified the following factors:

1. **Local focus:** Truly effective reforms result from local recognition of needs and local solutions. This permits both teachers and administrators to establish a personal commitment to the reform.
2. **Significant funding:** Superintendents and principals who were interviewed agreed that if schools alone are responsible for professional development, then the latter may suffer as cuts have been known to be made at the district level in that particular line of the budget.
3. **Local leadership:** This is crucial if the reform is to gain the support of leaders both of the school and of the district.
4. **Long-range planning:** This is one of the activities most likely to promote reform initiatives that will include teachers' professional development.
5. **Including teachers and their professional development as part of the reform:** This is one of the variables that appears to predict a higher likelihood that the reform will be successful.
6. **Collegiality:** In all successful professional development and reform there is a peer component.
7. **Time:** Time for teachers' professional development. Providing a variety of opportunities for professional development is another significant factor.

Their report concludes with a number of recommendations to school district administrators, to colleges and universities, and to communities, school districts and schools.

In order to allow professional development to play an effective part in educational reform, policies must be supportive of the changes that teachers are asked to make (Darling-Hammond and McLaughlin, 1995). These policies must address, for example, the need to create new structures and institutional arrangements that support the role of teachers as lifelong learners; they must also help to create new structures and opportunities, both outside of schools (for example, teachers' networks, inter-professional partnerships, etc.) and within schools; they must also support new systems of evaluation, accountability and promotion. A good example of the positive effects of these supportive

policies is that of a reform of secondary teachers' professional development in Ireland. According to Garavan (1998), the country paid very detailed and special attention to the new policies that drove these initiatives at the local level with positive results; there was a need for a formalized policy at the national level, and at the time of his writing these national policies were already under consideration.

Unfortunately, this is not the case in most reforms. In her research, Little (2001) discovered that in restructuring schools, most of the 'official time' devoted to professional development is based on the conception that professional development is a process of inspiration and goal setting where administrators have already set goals and objectives of change, and professional-development activities are used to motivate teachers to strive to meet them.

In her research carried out in diverse school settings engaged in reform, Aness (2001) has identified nine conditions that facilitate changes which improve students' learning. Policies that support these conditions are essential. They are: incentives for teacher inquiry, opportunity for teacher inquiry, teacher capacity for leadership in innovation and inquiry, respect for teacher authority, flexible school structure, responsive and supportive administration, time, resources and regulatory flexibility.

While assessing successful reforms, Little (2001) identified at least three factors that help to explain teachers' behaviour and willingness to participate in reform efforts:

1. "Reforms have the potential to enhance or threaten the intellectual, moral and emotional satisfactions of classroom teaching" (p. 26), as they may impose additional out-of-classroom responsibilities, and yet may offer very welcome changes in the classroom.

2. “Reforms have the potential to unite or divide colleagues, or to generate or interrupt friendships and other bonds of professional community” (p. 27).
3. “Reforms have the potential to consume teachers’ private lives and strain family relationships” (p. 27) as there is an increased personal commitment of time, emotional and intellectual energy, and real work such as developing curricula, writing reports, etc.

Little (2001) reports that when teachers find a ‘happy’ fit between these variables and their own lives, they become quite enthusiastic about educational reforms. Also, according to Little (2001), when assessing a reform teachers evaluate the benefits it can offer to themselves and to their students, the scope of the reform, the feasibility of the reform and the authority behind the reform.

In summary, the professional development of teachers is a key factor in ensuring that reforms at any level are effective. Successful professional-development opportunities for teachers have a significant positive effect on students’ performance and learning. Thus, when the goal is to increase students’ learning and to improve their performance, the professional development of teachers should be considered a key factor, and this at the same time must feature as an element in a larger reform.

Chapter III

The teaching profession

The varying perceptions which societies, policy-makers, and teacher educators have of teachers is an influential factor on how teachers are prepared and how their professional development is promoted (Calderhead and Shorrock, 1997; OECD, 1990). Therefore, this chapter explores teaching and teachers in detail.

Views on the role of teachers are culturally and socially embedded, and teachers' own perspectives of their role and profession affect, and are affected by, the conception of teaching that is prevalent in their societies. Goodson (2000) has said that even the mere fact that we observe and study teachers reflects how highly we esteem them. For example, Spanish teachers who work in a 'democratic management system' in which headteachers are elected from among teachers in the schools, most often tend to think of teaching as a collaborative activity and have a greater sense of responsibility towards the local community; while French teachers tend to think of their role as relating to expertise in their subject area of specialization and do not consider their responsibility to encompass the pastoral care that English teachers value more highly (Calderhead and Shorrock, 1997).

Some of the metaphors that have been used to define the profession and the roles of teachers with their implications for professional development are presented below.

Teachers as artists

Teachers have been likened to artists, particularly when the literature refers to the process of teaching as being an art rather than a science. This idea was presented in 1891 by William James in his book *Talks to Teachers in Psychology* and still exists over a century later, despite the fact that little evidence has been gathered to support the concept of teaching being an art and that “little theoretical work [has been] devoted to analyzing what ‘art’ means in this widely used metaphor” (Delamont, 1995, p. 6). There are two points of interest raised by this metaphor: one being that it is usually employed by writers other than educational researchers (Trumbull, 1986); the other is that usually when the metaphor is used, there is no clarification as to what kind of artist the teacher is, whether he or she is executing his or her own production, or interpreting someone else’s. Jamous and Pelloille (1970), two French sociologists, carried out studies focusing on each of the professions’ location in a two-dimensional space of ‘indeterminacy’ and ‘technicality’. It appears to these authors that the origin of this metaphor of teaching being an art is related to the indeterminate skills that are usually associated with the process of teaching. Some of the research carried out to test the validity of this metaphor has focused on the indeterminate variables of the art of teaching, the hidden curriculum, and the “tacit, implicit, and unexamined facets” of the profession (Delamont, 1995, p. 7). When policy-makers think of teaching as an art, little is done to promote the professional development of teachers, as, usually, those who believe that teaching is an art also believe that people are ‘born’ teachers (as opposed to trained as teachers) and that their development as teachers is ‘natural’ (as opposed to planned and systematically promoted). Even now in the twenty-first century, when so much is known about the skills and knowledge that teachers need to learn and practise in order to be effective teachers, many, in and outside of teaching, still believe that teachers are born with a special gift, and thus professional development is not of great importance. Clement and Vanderberghe (2000) offer many examples of comments made by teachers that illustrate this point.

If not artists, workers or professionals?

There have been debates over the years and throughout nations as to whether teachers are professionals as opposed to mere ‘workers’, and whether teaching is a profession and not just an ‘occupation’ (Hoyle, 1995). In Latin America, for example, there was a transition in the 1960s and 1970s in the terms used to refer to teachers; from “profesionales de la enseñanza” [teaching professionals] the term was changed to “trabajadores de la enseñanza” [teaching workers] (Villegas-Reimers, 1998). Also, the Japanese Teachers Union defines teachers as ‘workers’ or ‘proletarians’, and, as most Unions, it has done very little to help teachers achieve professional status, as their main concern has been to increase teachers’ salaries (Sato, 1992). In addition, the Japanese Government regards teachers as ‘servants of the state’ and not as professionals (Shimahara, 1995). This debate represents more than a disagreement over semantics, as it has a number of implications for the way in which we perceive teachers and their professional development.

In 1990, the Organisation for Economic Cooperation and Development (OECD, 1990) presented an analysis of the factors that affect teachers’ professional status and discussed why teachers were more commonly identified as workers. These factors include:

- (a) Size: “In most OECD countries, there are simply too many teachers for high status to be automatically accorded in the public mind” (p. 49).
- (b) Educational qualification levels: These levels are higher than ever before, and yet the professional status is low. This paradox has created great disruptions among teachers who feel frustrated by their low status despite the fact that their preparation is similar to that of many other professionals who have a much higher status.
- (c) Feminization: “The rewards and status of teachers decline, it is commonly asserted, in direct proportion to the growing number and predominant place of women among their ranks” (OECD, 1990, p. 50). Of course it

is almost impossible to establish a causal relationship, and yet this finding has significant implications. For example, in France, a campaign created to boost the image of the teaching profession chose only men to be portrayed as teachers, as if to indicate that masculinity in a profession renders it more attractive (OECD, 1990).

Hoyle (1995) presents a helpful analysis of teaching based on five criteria used to define a 'profession'. These are: social function, knowledge, practitioner autonomy, collective autonomy and professional values. Hoyle shows that, in fact, teaching does not match all the criteria necessary to be treated as a profession, as can be seen in the following paragraphs.

From a *social function* point of view, teaching is of paramount importance to the well-being of society and of the individual, and thus receives the status of profession. On the other hand, in regard to *knowledge*, the knowledge base of a teacher is a cause for debate, as some emphasize content and others pedagogy (Jackson, 1987). In order for teaching to be considered as a profession, the fact that this knowledge is crucial and can only be acquired through specific training and education must be commonly recognized. However, if the assumption is that just about anyone can acquire this knowledge through experience, then teaching is no different from craft-oriented occupations (e.g. mechanics, gardening, etc.). Teacher educators in general have shown that practice does make a difference in the preparation of teachers, but only practice that is founded on theoretical models and reflective ideas. This is an important fact that needs to be disseminated as it is strong evidence supporting the importance of teacher professional-development programmes at any level of the system.

In regard to *practitioner autonomy*, teachers have little autonomy in their jobs, especially when compared to other professions such as medicine and law. Teachers' autonomy can be, and usually is, limited by the state, administrators and principals, local communities, etc. In countries where

teachers have more autonomy to define their jobs and their practices (such as in France, the UK and the USA), they are able to perceive their job as a profession (Hoyle, 1995). This is not the case in countries where teachers have very little or no autonomy (such as Venezuela, Paraguay, Pakistan) (Villegas-Reimers and Reimers, 1996). In these countries, principals, supervisors, inspectors and other administrators are constantly determining the role of teachers, constraining the communication between teachers and parents, and even dictating the content of day-to-day classroom activities. The state also regularizes teachers' activities by ordering teachers to follow a prescribed curriculum prepared by specific educators, known as 'experts', who are not teachers themselves. The professional development of teachers is unequivocally affected by the level of autonomy granted in the profession.

In regard to *collective autonomy*, "teaching has been less successful than the major professions achieving self-governing status and independence from the state. In perhaps the majority of countries, teachers are state employees expected to carry out the educational policies laid down by the central government. The degree to which the organized profession is consulted in the shaping of these policies varies over countries and over time" (Hoyle, 1995, p. 14). In most countries, teachers are more likely to be organized into unions rather than into professional organizations, and this, of course, has an effect on the perception of teaching as a profession.² In addition, during the late 1990s in many countries, the state has been gaining increasingly more control over teaching practices and the preparation of teachers, as can be seen in the number of countries that are now asking teachers to complete state tests in order to be certified (UK, USA etc.), and in the number of countries where the curricula of teacher-preparation programmes are dictated by the state (as is the case in most African and Latin American countries).

2. Although, as will be presented in *Chapter V*, Teacher Unions are beginning to be transformed into professional organizations that have a strong focus on the professional development of teachers.

Finally, in regard to *professional values*, it is very hard to identify any particular set of values in the teaching profession comparable to those common in professions such as medicine and law. In most professions, professional values can be derived by making the professional accountable to the client. Yet, this is nearly impossible to do with regard to teachers, as they have a multitude of clients. Also, in many professions there is a code of ethics that guides the practices of these professionals. Only a few countries have developed a code of ethics for teachers.

Given these criteria, it is clear to see why it is so often argued whether or not teaching is a profession, and whether or not teachers can do anything to improve their status in society (Bull, 1990; Burbules and Densmore, 1991). Yet, as previously discussed, most people agree that the professionalization of teachers is prerequisite to the successful improvement of the quality of education (Holmes Group, 1986; Darling-Hammond, 1999) and is, thus, of great interest to policy-makers and educators. Fortunately, the tendency over the last few years has been to begin to accept teaching as a profession and, consequently, the transformation from *teacher-training* to *teacher professional development*.

What kind of professionals? Clinicians, researchers, educators?

Even when most of the literature nowadays is focusing on the perception of teachers as professionals, there is still some disagreement as to what kind of professionals they are. In the conception of *teachers as clinicians*, teaching is regarded as a process of problem-solving and decision-making similar to the processes followed by physicians (Calderhead, 1995). Usually this body of research has led to studies of the processes that teachers follow when planning their work, and of their thinking processes while in the classroom. One of the main tributaries to this metaphor is the keen interest educators

take in understanding the process that medical students follow in their training to become physicians, and their idea that teachers must follow a similar process. Studies inspired by this metaphor have focused on how teachers make judgements and decisions about particular cases and difficult situations (see, for example, Rohrkemper and Brophy, 1983; and Morine-Dersheimer, 1989), and also on their typical classroom practices and what kind of variables they pay attention to during lessons (see for example, Bromme, 1987; and Lundgren, 1972). Teacher-education programmes and professional-development programmes inspired by this metaphor have focused on developing teachers' knowledge (of children, the curriculum, teaching strategies, school facilities and educational objectives) and of particular skills. These skills will allow teachers to construct learning activities that can be implemented within the classroom that will allow them to help each student, both individually and in a group context, and that will give them the necessary tools to make informed decisions in their practice (Yinger, 1980; McCutcheon, 1980). Other researchers in this field have focused on the differences between novice and expert teachers, particularly in the way that they plan and reflect on their work. This research has had an impact on teacher preparation and professional development, as educators have been trying to find means by which the knowledge and skills of the experienced teachers can become more accessible to the novice (Clark, 1988; McAlpine *et al.*, 1988); ways in which teachers (both pre-service and in-service) can develop the skills and abilities necessary to be reflective practitioners (Clift *et al.*, 1990); and the ways in which schools can be organized to provide time and space for teachers to be able to analyze their reflections and improve their practices as a result (Merseth, 1991). These concerns have had an impact on the professional development of teachers, particularly as it relates to in-service development both for the novice and for the mentor teacher, who can then achieve a higher level of professionalism.

Teachers have also been considered as *researchers*. According to Hollingsworth (1995), "teacher researchers are concerned simultaneously with (a) ways to improve their practices, (b) change the situations in which they

work, and (c) understand their practices within the larger society” (p. 16). The idea of regarding teachers as researchers was popularized by the curriculum reform movement in the United Kingdom in the 1980s and was soon accepted in the USA (Holligsworth, 1995). At the end of the twentieth century, learning about and developing the necessary skills and knowledge to complete teacher research is considered an important factor in the professionalization of teachers and the improvement of teaching standards. This is not the case in the USA only, but in other countries as well (Posch, 1992; Sockett, 1989), although it is still not a widespread notion. Action research is certainly gaining acceptance in classrooms and is approximating the status of teachers to the status of other educators and professionals as they do now generate knowledge. This will be discussed in more detail in the section on models, as action research has been presented as a model of professional development.

It should be noted, however, that the recognition of teachers as researchers is not supported by all educators. In fact, Goodson (2000) has said that the conceptualization of teachers as researchers has initiated a detailed examination of pedagogical practice while neglecting any reflection on teachers’ lives as professionals.

In summary, while it is accepted that good teaching reflects artistry as much as technique, the fact remains that there is little that policy can do to develop artistry. Regarding teachers as workers limits our view of the kind of educational opportunities that can encourage the development of teachers and the kind of education that they need to cater to the multiple demands of preparing the younger generations to live as contributing members of society. The language of ‘teacher training’ (as opposed to teacher education or teacher preparation) is the inevitable companion of the ‘teacher-worker’ metaphor. These metaphors are inadequate to meet the new demands which teachers are facing, the demands to make high levels of learning accessible to a diverse student body, the demands to create school learning organizations that recognize

and welcome new opportunities to develop students' judgements and abilities to deal with changes within their context. By definition, professionals can introduce highly specialized expertise to solve complex problems, and yet historically "teaching has fallen short of the status of profession" (Walling and Lewis, 2000). Professionals are at the top of a hierarchical pyramid of occupations, they are the experts in a particular field, and they rationally employ advanced knowledge for common good (Weiler, 1995). Attracting new talent to the teaching field calls, in part, for an increased status of teachers and teaching, the same status that modern societies accord to professionals, symbolic analysts, and those who are employed in the 'knowledge' sector of the service economy. In order for schools to meet the demands of our times, teachers need to be prepared, perceived and treated as professionals.

What do teachers need to know?

Different authors (for example, Grosso de Leon, 2001; Reynolds, 1992; Jegede, Taplin and Chan, 2000; Borko and Putnam, 1995; Glaser, 1987) have proposed different kinds of skills, knowledge, dispositions, and values in which effective teachers must be proficient. They include:

- General pedagogical knowledge: this includes knowledge of learning environments and instructional strategies; classroom management; and knowledge of learners and learning.
- Subject-matter knowledge: this includes knowledge of content and substantive structures; and syntactic structures (equivalent to knowledge of a discipline).
- Pedagogical content-knowledge: a conceptual map of how to teach a subject; knowledge of instructional strategies and representations; knowledge of students' understanding and potential misunderstandings; and knowledge of curriculum and curricular materials.

- Knowledge of student context and a disposition to find out more about students, their families and their schools. Knowledge and disposition towards families involved in the day-to-day work of the schools (Morales, 1998).
- A repertoire of metaphors (to be able to bridge theory and practice).
- External evaluation of learning.
- Clinical training.
- Knowledge of strategies, techniques and tools to create and sustain a learning environment/community, and the ability to use them effectively.
- Knowledge, skills and dispositions to work with children of diverse cultural, social and linguistic backgrounds (Alidou, 2000; Gay and Howard, 2000; Weisman, 2001). There is a need, particularly in societies with diverse populations and in societies where there are regular influxes of immigrants into the schools, to prepare teachers to teach each child effectively (see Norberg, 2000 for a detailed presentation of this issue as it relates to Sweden). A multicultural perspective in teacher preparation is crucial if a programme of teacher education and professional development is to be effective (Gorski *et al.*, 2000; Norberg, 2000).
- Knowledge and attitudes that support political and social justice, as social realities make teachers very important agents of social change. In some extreme situations (such as that of South Africa following the apartheid regime, and Namibia after it gained its independence), great emphasis is placed on this aspect of a teacher's professional work, and therefore institutions of teacher preparation have adopted this to be a requirement in their programmes (Samuel, 1998). Samuel (1998), and Norberg (2000), among others, argue that the development of this critical awareness should be integrated as part of teacher preparation, not only in extreme cases, but in all countries and contexts.
- Knowledge and skills on how to implement technology in the curriculum. Pianfetti (2001) lists a number of "virtual opportunities for professional development," as well as a number of web sites containing information about grant providers who support professional-development efforts to

educate teachers in the new technologies used in the classroom. (For more information on this topic, please refer to final chapter of this book.)

A candidate already having a high degree of knowledge in the subject matter will be able to spend more time performing and practising what Anne Reynolds defines as “pre-active, interactive, and post-active tasks” of teaching (Reynolds, 1992, p. 9). The pre-active tasks include creating lessons which foster greater student understanding of the subject, using curricular materials effectively, and understanding and adapting their teaching methods to students’ individual needs. Interactive tasks involve classroom management, maintaining respect for rules, and modelling appropriate behaviour. Reynolds refers to the ability to reflect on and refine their teaching practices as post-active teaching tasks.

According to Glaser (1987), the following criteria describe the characteristics of an expert teacher, and thus the elements that professional-development programmes should target are listed below:

- Domain and contexts: Experts excel mostly in their own domain of expertise and in particular contexts.
- Automaticity: Experts usually learn to respond automatically to certain incidents that are recurrent in their profession.
- Task demands and social situations: Experts are more sensitive to task demands (given who their students are and their backgrounds), and also more sensitive to the social contexts where those tasks will be carried out.
- Opportunities and flexibility: Experts use their opportunities more effectively, and are more flexible in implementing teaching strategies and responding to their students.
- Approach to problems: Experts have a qualitatively different approach to dealing with problems compared to that of novices. Experts seem to understand problems differently.

- Interpreting patterns in meaningful ways: Experts are better than novices at recognizing patterns in situations.
- Problem-solving characteristics: Experts tend to begin solving problems slower than novices do, and yet they bring in more significant and relevant information that allows them to be more effective at problem solving.

How do teachers learn to be teachers?

Teacher initial education and training as the first step in teacher professional development

The first step in any process of developing a professional in any field is the initial professional preparation of that person. In teaching, this preparation takes very different shapes and forms and varies dramatically from country to country. Yet it is agreed that learning to teach is personal (as it depends on the students' personal learning history, their pre-conceptions and beliefs about learning and teaching), complex (because of the variety of skills and competences that have to be learned) and context-specific (Hauge, 2000).

As described previously, different conceptual orientations about the role of teachers and their preparation have shaped the nature of the initial preparation of teachers. Calderhead and Shorrock (1997), for example, describe the following orientations:

- (a) The *academic orientation* emphasizes teachers' subject expertise and sees the quality of the teachers' own education as their professional strength. In this orientation, a solid liberal arts education is the key factor.
- (b) The *practical orientation*, emphasizes the artistry and classroom technique of the teacher. The key ingredient in this orientation is the practical experiences in the classroom, and the apprenticeship model of preparation.

- (c) The *technical orientation* emphasizes the knowledge and behavioural skills that teachers require. It is associated with micro-teaching and competence-based approaches, and is solidly inspired by the behaviourist model of teaching.
- (d) The *personal orientation* emphasizes the importance of interpersonal relationships in the classroom and considers learning to teach as a process of becoming inspired in the humanistic approach to psychology (represented by Carl Rogers). The key element in teaching preparation is, therefore, experimentation and discovery of personal strengths.
- (e) The *critical inquiry orientation* views schooling as a process of social reform, and the role of schools as promoting democratic values and reducing social inequities. A key element of this perspective is to promote the development of critical and reflective practices in teachers so that they can become agents of social change.

These orientations are not necessarily mutually exclusive. However, depending on the culture and values of a particular society, the historical time, and the society's perception of teachers and teaching, whichever orientation is decided upon will have a great effect on which type of education and professional-development opportunities are available to teachers.

Regardless of the prevailing orientation towards teaching which a society may choose, teacher preparation is usually separated into two very broad categories: pre-service and in-service teacher preparation. As a result of the current transition from 'teacher training' to 'teacher professional development', these two categories are adopting new meanings. Both are described below.

Pre-service education

Pre-service teacher education varies dramatically around the world in such aspects as institutional context, content areas, time allocation and forms

of practical experiences for the students (Ben-Peretz, 1995). It also varies in how societies perceive its purpose. Although many societies consider this preparation to be the only professional preparation teachers will receive throughout their careers, the current tendency is to acknowledge that this is merely the first step in a longer process of professional development. It is well-documented that “during initial training and their first few years in the classroom many teachers, perhaps even the majority, experience difficulties in learning to teach” (Calderhead and Shorrock, 1997, p. 8), and, thus, most educators are advocating for more support to expand the conception of teacher preparation and professional development, which does not necessarily imply more years of ‘pre-service’ or initial education.

Models of pre-service education

Calderhead and Shorrock (1997) present the following three models of early professional development found in different countries around the world. Each model places a different emphasis on specific aspects of learning how to teach and is based on a variety of different approaches to the learning process.

1. *The enculturation, or socialization into the professional culture, model* emphasizes the socializing processes in professional development. Teaching is perceived as a demanding task that takes place in a material and ideological context. The organization, physical resources of schools, and values embedded in institutional practices exert a powerful influence on the teachers, and may often overrule the practices acquired in the institutions of teacher preparation. This is, in fact, a complex model, as schools generally have multiple ideologies. Research has found that the pressures experienced by first-time teachers when trying to integrate a new school usually explain how they can, in a manner of speaking, abandon what they learned in their initial preparation as teachers, or their own exploration of their personal teaching style.

2. *The technical, or knowledge and skills model* emphasizes the knowledge and skills teachers need to acquire in order to contribute to classroom practices. In the 1960s and 1970s, the model focused on classroom behaviour, for example micro-teaching, questioning techniques or behaviour control during times of transition. More recently, an effort has been made to conceptualize these skills, not only in terms of behavioural practices, but also in terms of thinking processes. In addition, this model also focuses on pedagogical content knowledge; that is, the kind of knowledge that expert teachers usually have and which novice teachers need to acquire. This includes knowledge of children, teaching strategies, curricula, school rules, the availability of materials, subject matter, how to facilitate understanding in others, etc.
3. *The teaching as a moral endeavour model* focuses on a method of teaching which involves caring for young children, taking into consideration their interests, preparing them to be a part of a future society, and influencing the way in which they live and relate to each other. It has been claimed that this constitutes an important aspect of teaching, which is highly valued by teachers, parents and children, but is usually ignored in discussions on the professional development of teachers. According to Hargreaves (1995), it is the moral dimension of teaching that makes this profession unique.

After reviewing the teacher-preparation programmes existing in most Western European countries, Vonk (1995) concludes that there are two models: one is *teacher professionalism*, “which is based on the principles of mastering the academic or subject knowledge and professional competence. In this model, teacher education provides future teachers with instructional skills and knowledge of pupils’ learning processes and of child development” (p. 291). The second model, the *personal growth model*, assumes that “if teachers have greater self-understanding, are more reflective, more sensitive, more empathic, and more fully self-actualized, they would inevitably be better teachers” (p. 291).

Where does pre-service education take place?

All around the world, teacher-preparation programmes are offered in colleges or universities and in special institutions, which may or may not be connected to a university system. For example, in the United Kingdom, India and Israel there are special institutions which specifically train primary teachers (McNamara, 1990; Govinda and Buch, 1990; Ben-Peretz, 1990; Tisher and Wideen, 1990). In other countries, teacher preparation is offered in universities, some in the form of short programmes of around two years' duration, others over a period of four or five years. This is the case in Chile, Venezuela, the USA, Japan, the Netherlands, and Germany, for example (Ben-Peretz, 1995; Villegas-Reimers, 1998). Yet in other countries, teacher preparation is offered in the actual school settings (usually under the guidance of a university or college). Such is the case, for example, in the United Kingdom (MacLennan and Seadon, 1988). In some developing countries, teachers are prepared in secondary, post-primary and post-secondary education programmes that last anything between six to nine months and a few years.

In a majority of countries, the initial or pre-service preparation varies depending on what level the teacher will teach after graduation. The traditional format is to have secondary teachers be prepared in institutions of post-secondary education, while teachers being prepared for primary schools require a lower level of education. However, there is a new trend in a majority of countries to impose the same level of preparation on all teachers, regardless of the level they will teach. Recent examples are the cases of Venezuela (Villegas-Reimers, 1998) and France (Bourdoncle and Robert, 2000), where the reforms were implemented with some unrest among educators.

Length of initial preparation programmes

Despite variability, the worldwide trend seems to be to require a minimum of a bachelor's degree for entry into teacher-preparation programmes (Cobb,

1999). Ghani (1990) summarized data collected in the 1980s on teacher preparation in developing countries in four regions of the world. He found the total number of years of education (primary/elementary, secondary, post-secondary) for primary/elementary teachers in 24 countries to range from 8 in Nigeria, to 16 in Sri Lanka. For secondary teachers in these 24 countries, the total years spent in education ranged from 14 in Nepal and Afghanistan, to 18 in Malaysia (for 'upper-level secondary') (Gimmestad and Hall, 1995).

As mentioned earlier, many proposals to enhance teachers' professional development focus on extending the duration of initial education. For example, the US National Commission on Teaching and America's Future proposed an additional year of professional schooling. This kind of recommendation should be assessed critically, given that in many cases the need lies in restructuring the initial education rather than in extending the duration of a somewhat ineffective preparation programme. In addition, given the constraints to attracting a sufficient number of qualified candidates to the profession, providing longer initial education may further discourage candidates and increase the shortage of teachers, a problem which most countries in the world are facing today. The shortage of qualified teachers with specific backgrounds the world over covers the scale from a lack of female teachers in the province of Balochistan in Pakistan, to a lack of Latino-American teachers to serve the growing Hispanic population in the USA. In the USA, the growth rate in the number of Language Minority Students (LMSs) outweighs that of teachers with the necessary skills to serve them. Following studies on teacher supply carried out in the 1990s, it was noted that there was a need for an additional 170,000 LMS teachers to be recruited by 2000 (Macias, 1989). While more than 15 per cent of the teachers in the USA have one or more LMSs in their classes, only 10 per cent of all teachers are certified in bilingual education, and only 8 per cent are certified in teaching English as a second language.

Content of initial teacher-preparation programmes

In terms of the content of teacher-preparation programmes, different countries emphasize different components in the curriculum or the amount of time devoted to each one. But in general, most include courses and experiences that address subject matter, the foundation of education courses, professional studies (such as pedagogy and method courses), child development and practicum (Ben-Peretz, 1995; Cobb, 1999).

In the literature, the debate over whether to emphasize content or pedagogy is clear and abundant. The tendency in most countries in the 1990s is to emphasize the teaching of content in the initial preparation and the pedagogy in the practicum and in the induction programmes for new teachers, as well as in other professional-development opportunities. Until very recently, however, the issue of content was not addressed by the majority of professional-development experiences, as most focused exclusively or primarily on the format, structure and organizational arrangements of education and teaching (Baker, 1999). This tendency to focus more on content can be seen, for example, in the new emphasis that professional organizations in different disciplines and professional studies departments in universities are placing on joining efforts with schools of education and teacher-preparation institutions in the preparation of both new and experienced teachers. For example, the National Science Foundation in the USA has placed a new emphasis on persuading scientists, science departments, and science, mathematics and engineering schools to adopt a more active role in the preparation of future teachers and to form better partnerships with their colleagues in the colleges of education. One example of such a partnership can be seen in the Louisiana Collaborative for Excellence in the Preparation of Teachers Project.

At the same time, many countries still focus on content without pedagogy and/or practice. For example in Ethiopia, as in many other African (Bekalo and Welford, 1999) and Latin American countries (Villegas-Reimers, 1998),

many of the teacher-preparation institutions (including universities and colleges) which offer a certification programme do not offer to undergraduates the opportunity to experience a period of classroom teaching under supervision. (If they do, this period is very short.) Bekalo and Welford (1999) focused specifically on the preparation of science teachers in Africa and report that few, if any, opportunities for practical work are offered in their pre-service preparation. As a result, once these teachers are hired in schools to teach, science is taught in lecture format with little, if any, emphasis on the practical applications of such knowledge.

Another trend observed around the world is to increase the amount of time that pre-service teachers spend on practicum sites. Pre-service programmes that provide opportunities for supervised practice teaching throughout the duration of the course are the most effective (Jackson and Leroy, 1998). The length of this practical experience period varies quite dramatically in different countries throughout the world. For example, Cobb (1999) reports that among the 18 APEC countries (those in the Asian-Pacific Economic Cooperative organization), student teachers may be in practicum for as little as two weeks (e.g. in Japan for secondary-school student-teachers) or four weeks (Japan and New Zealand for elementary-school student-teachers, for example), or for as much as a full year (e.g. Belgium, France, Germany, Luxembourg, and Chinese Taipei). The trend on an international level is to increase the amount of time spent in the classroom in a formal professional practicum. This would be, in most cases, during the initial preparation. In some countries where the practicum is short, teachers are required to have extensive in-service opportunity to practise under strict supervision. Such is the case of Japan, for example, where beginning teachers must complete 90 days of in-service training where practical skills are improved; continue with professional development on an ongoing basis, and also undergo intense training after 5, 10 and 20 years of service (Hawley and Hawley, 1997). Studies assessing the effectiveness of the teaching practicum have concluded that an increase in the number of hours a student-teacher spends in the classroom is

very beneficial. Studies conducted in Japan, in which both primary and secondary teachers evaluated their pre-service and induction experiences, highlight the importance of being in the classroom for the development of teaching skills and pedagogical knowledge (San, 1999). Also, in Professional Development Schools (a model of which will be described in the following sections), student-teachers usually spend a full academic year in the classroom (see, for example, Grisham, Laguardia and Brink, 2000). This field experience, when carefully planned and supervised, is a very strong variable in the effective preparation of teachers.

Financing of initial teacher-education programmes

The financial support given to these programmes varies from country to country. In some countries the government underwrites part of, or even the entire cost of education for teacher candidates (e.g. France and Venezuela). In other countries, student-teachers must fund their preparation themselves (e.g. Canada and the United States).

Who are the teacher candidates?

In many developing countries, and in some developed countries as well, there are a number of teachers who begin to teach without having had any prior training or preparation in the field. Some have received a post-secondary education degree in a field other than teaching or education; some have only completed secondary education; others have only completed primary education (Marcondes, 1999; Villegas-Reimers, 1998). In all of these cases, the majority of the candidates entering the teaching profession are among the least qualified of all the students who are entering the professional workforce (Schiefelbein and Tedesco, 1995). One of the reasons for the poor academic preparation of candidates entering the field is that there are not enough qualified teachers in the profession to satisfy demand. In order to attract more teachers into the field, the quality of the programmes has decreased, and the criteria for selecting

candidates of teacher education are almost non-existent. For example, a few years ago in Spain, the Ministry of Education mandated the elimination of any admission requirements for teacher education (Benejam and Espinet, 1992). The same has been reported in many Latin American countries (Villegas-Reimers, 1998). Also in Malawi, with the Universalization of Primary Education, a large number of untrained teachers were hired in order to meet the large demands created by the expansion of access to schools. The same happened in Eritrea, where unqualified teachers were deployed to fill the positions of teachers needed to instruct very large classes (Andrews, Housego and Thomas, 1990). In Pakistan, in efforts to expand access to education for girls in rural areas of Balochistan, untrained local women have been hired as teachers and then trained on the job using distance-education approaches. Another major problem is that many teachers leave their jobs after only a few years. Gregorian (2001) reports that in the USA, 30 per cent of all teachers, and 50 per cent of teachers in urban communities, resign within the first five years of teaching.

This is a troubling reality, as it is known that the efficiency of teachers is related to their general education and their experiences. In many contexts, as has been described previously in this book, teachers have few years of formal education and weak academic backgrounds. As a result, in many countries, teacher education has tended to become remedial. This is an expensive way to replicate what high schools are able to do more efficiently. This is the reason why some policy advisers have suggested that a complete secondary education be required of candidates for primary-school teaching (Lockheed and Verspoor, 1991).

These unqualified teachers will receive in-service preparation (rather than pre-service), not because they want to keep themselves informed of the newest trends or techniques, but because they need to learn the most basic aspects of teaching, literally on the job. This tendency is also quite common among teachers of vocational education, and although the focus of this book

is on elementary and secondary teachers, the issues raised by those who educate vocational educators mirror those presented by other teacher educators and teachers. (See Attwell, 1997 for a review of programmes to prepare vocational-education teachers in different European countries, and also Young and Guile, 1997.)

Challenges and limitations of initial teacher-preparation programmes

Regardless of the length of a programme or the level of preparation, pre-service teacher education has received strong criticism everywhere. For example, in a review of the literature, Villegas-Reimers (1998) presents a list of problems that exist in teacher preparation in Latin America. Among these problems she includes: the less-than-ideal characteristics of most candidates who enter the profession; curricula of poor quality; too much emphasis on theory and little or none on practice; programmes that are too short; a weak relationship between programmes and school practices; the poor preparation of teacher educators; and lack of attractive characteristics of the teaching profession (such as low status and low salaries), which, in turn, affects who enters the profession, who stays and for how long.

Programmes in other parts of the world receive similar criticism. In Pakistan the quality of teacher-training programmes is low. Students and faculties are lacking motivation, the facilities are in disrepair, and there is an overall lack of leadership (Warwick and Reimers, 1995). In India, pre-service programmes are generally of one year's duration and do not adequately prepare teachers for classroom responsibilities. Most individuals leave these institutions lacking in basic knowledge of subject matter, are deficient in pedagogical training and ill-equipped to work in schools and communities (Sharma, 1992). The same findings are reported with regard to Brazilian teachers (Marcondes, 1999).

These criticisms are also found in developed countries. For example, in the USA, Goodlad (1990) identified the following problems concerning teacher preparation in a majority of the institutions throughout the country: education courses are increasingly taught by adjunct faculty, as the education faculty distance themselves from teacher education; teacher-education programmes and curricula are set by external agencies, thus not allowing any autonomy; programmes have little coherence; teacher-preparation universities and colleges have weak relations with schools and co-operating teachers in the field. He also mentions that there is little socialization of students into the teaching profession, its professional-ethical ideals, and the moral issues that teachers usually face in their jobs. This long list of problems, in a way, explains why it is believed that in-service teacher preparation does little in terms of improving education and the professional development of teachers, and why there is a call for change in teacher education. In fact, in his presidential address to the American Association of Colleges for Teacher Education, Fenstermacher (1992) urged teacher educators to reduce their involvement in pre-service teacher education and increase their involvement in in-service teacher education.

In an attempt to solve similar problems in the United Kingdom, major responsibility for teacher education has been transferred from universities to schools; and the central government has set policies and gained greater control of the curriculum (McNamara, 1993). The problem with this approach, however, is that co-operating teachers are being asked to keep the same responsibilities in regard to teaching children, while adding this new responsibility of teaching and mentoring student-teachers as mandated by the government. This has created new problems as university-based teacher educators are on the defensive, feeling that the responsibility of preparing teachers has been taken away from them, and teachers are also on the defensive as they feel they are being given too many responsibilities. In the meantime, teacher-preparation programmes continue to be a cause for concern.

The model of initial teacher preparation has also caused confusion in Australia, where “government policy initiatives are directed at transforming education and teacher education into wings of industrial training on a competency-based platform to facilitate career and award restructuring” (Nance and Fawns, 1993, p. 159). Bullough, (1997) concludes that, “There [Australia] and elsewhere, the judgement is that education cannot be left in the hands of educators” (p. 106). This idea that education reforms should be planned, led and implemented by ‘experts’ other than teachers is also presented by Villegas-Reimers and Reimers (1997) in an article entitled “Where are 60 million teachers? The missing voice in education reforms around the world.” Reforms of in-service teacher-education programmes are abundant as everyone seems to recognize the tremendous impact that this first step into the profession has on professionals in the field. Yet, more efforts need to be made to involve teachers in the planning and design stages and to promote their roles as both subjects and objects of reforms.

Trends in initial teacher education

In a study completed by The Asia-Pacific Economic Co-operation organization (APEC, 1999), which examined the teacher-preparation programmes of 12 countries (Australia, Brunei Darussalam, Canada, People’s Republic of China, Hong Kong, Japan, Korea, Malaysia, New Zealand, Singapore, Chinese Taipei and the USA), the following trends are reported:

- There is an increase in the duration of teacher-preparation programmes throughout the countries and throughout the levels that teachers are being prepared to teach. However, it is also noted that in many countries, elementary teachers trained in teacher-preparation institutions are usually expected to hold a certificate of a level below that of a bachelor’s degree, while secondary teachers are usually required to have successfully completed a college or university-level course.

- Most primary teachers are prepared as generalists (with the exception of Alberta in Canada and Chinese Taipei, where teachers are expected to have at least one specialization).
- There is an increase in the amount of time spent in a practicum, although there is also diversity in this aspect of preparation. In Chinese Taipei the practicum lasts a whole year, while other members report that a few weeks spent in the field is sufficient.
- There is an increase in the relationships established between the teacher-preparation institutions and the schools (APEC, 1999).

In-service education

The meaning of ‘in-service’ education is changing, and it varies from country to country depending on the level of preparation teachers receive prior to their entering the profession.

For most (if not all) developed countries worldwide, in-service education and training includes “those education and training activities engaged in by primary and secondary-school teachers and principals, following their initial professional certification, and intended mainly or exclusively to improve their professional knowledge, skills, and attitudes in order that they can educate children more effectively” (Bolam, 1982, p. 3). However, as mentioned above, in most developing nations and many developed countries, in-service training is the only preparation teachers receive when they are hired while not yet having qualified (or certified) teacher status. Because of this diversity, some authors have suggested making a distinction within the broad category of ‘post-appointment’ preparation. For example, Gardner (1995) has suggested a continuum. “At one end is a form of training that takes place wholly away from the school, possibly in some specifically designed training environment. At the other end of the continuum are practices where all the training takes place in the schools in which the teachers normally work. We might call the

one end ‘in-service’ (INSET) and the other, ‘on-service’ (ONSET). Between the two poles of the continuum might be a series of practices that provide training to greater or lesser degrees in or out of school” (p. 628).

Greenland (1983) has described the following four categories of in-service education and training:

- for unqualified teachers (mainly certification courses);
- to upgrade teachers;
- to prepare teachers for new roles, such as teacher educators or principals;
- curriculum related, particularly when there are curricular changes in the system, or when teachers require some form of refresher course.

A similar classification is found in most Latin American countries, where different names are given to in-service education depending on the profile of the beneficiary. When in-service training constitutes a part of some form of an initial teacher-preparation process, it is identified as ‘profesionalizacion’. If it is offering an ongoing development of the teacher who is already a ‘professional’, it is identified as ‘capacitacion’ [training], ‘perfeccionamiento’ [improvement], ‘actualizacion’ [getting up to date or updating], or ‘formacion continua’ [continuous education] (Villegas-Reimers, 1998). Similar attempts have been made in other areas of the world. For example, Edelfelt (1985), in a study of Indonesian teachers, used the term ‘on-service’ training to refer to the ‘in-service’ on-the-job preparation of unqualified teachers (although the word on-service has also been used to refer to a different, more advanced kind of in-service training for truly expert teachers [see, for example, Gardner, 1995]). It is clear that, in developing countries, pre-service teacher preparation is not universally imposed on all teachers, and in-service professional development takes on very different forms depending on the needs of the teaching ‘professionals’ in that country. In most developed countries, however, the experiences are more homogeneous and not as varied.

Despite the fact that most educators and policy-makers agree on the importance of in-service training, the motives behind their interest vary. According to Eraut (1995b), three complementary rationales have been used to explain the importance of in-service teacher training and education. One is human resource development, the second is the management of planned change, and the third is based on self-development by schools and teachers. In regard to human resource development, there are two main concerns: to have enough personnel who are adequately prepared; and to maximize the preparation of anyone working in the system. In regard to the second rationale, it is in the interest of the system to prepare the personnel who will implement any planned change. In other words, to enable education systems to be reformed, teachers act not only as subjects, but also as objects of that reform. Finally, the rationale of self-development is based on three factors: it is believed that schools and teachers will be more likely to commit themselves to change when they have initiated the change themselves; this change is more likely to become institutionalized when teachers are better prepared to plan and implement it; and needs and priorities will be identified more effectively at the local level, and thus the plan to change will respond to realistic rather than to perceived needs.

Alternative programmes of teacher education as 'in-service' training

In a number of developed and developing countries, the need for more teachers and the lack of candidates entering the profession have been fertile ground for the creation of a number of alternative teacher certification programmes. These programmes usually include a heavy component of in-service training, and usually begin with a 'crash course' on pedagogical knowledge that is completed within a very short period of time (Berry, 2001). The creation and proliferation of such programmes in countries such as the USA has generated great controversy. On the one hand, such programmes are supported as they mitigate the initial serious shortage of teachers, and usually attract professionals from other fields who are knowledgeable in a

particular content area, who are much more reflective, analytical, self-initiating and mature (Resta *et al.*, 2001; Rodriguez and Sjostrom, 1998; Wilson *et al.*, 2001). In addition, these models have been very successful in attracting people of different races, and even nationalities, to the teaching profession, as is the case particularly in the USA. Haselkorn and Fideler (1996) review a number of these programmes existing in the USA that have been quite successful as an alternative form of teacher preparation. Finn and Madigan (2001) and Miller *et al.* (1998) report the results of several studies that lend support to such alternative certification programmes, showing that teachers with alternative certification produce similar results in the classroom to those having a conventional certification (both in terms of their practice and their students' learning). Wash *et al.* (2000) report the same results with regard to technology teachers.

On the other hand, there are a number of critics that consider this model a 'short cut' to preparing teachers (Berry, 2001). They point out that effective teachers must know more than the subject matter, and these programmes do not provide sufficient time or opportunities to develop other kinds of skills, attitudes and knowledge necessary for effective teaching. They also point out that the belief that such programmes attract excellent professionals from other fields into teaching is a mere myth. A national study in the USA involving 14,000 teachers found that alternatively certified teachers had lower levels of educational accomplishment (Berry, 2001). In another study, it was also found that "more emergency permits are granted in special education than in any other area of education nationwide" (O'Shea *et al.*, 2000). This, of course, represents a problem, as students in need of special education tend to be among the most vulnerable in the population, and thus need effective teachers.

The same authors who have been critical of these alternative programmes, however, usually conclude that given the shortage of teachers and the need to prepare them effectively, alternative effective programmes should be developed. These programmes should include strong academic and pedagogical

coursework, intensive field experience, and an obligation that candidates meet state/national requirements before they are allowed to enter the classroom. A good example of such a comprehensive effort to prepare unqualified teachers in-service is under way in Dallas, Texas (USA), in which faculty from a number of national universities come to Dallas to offer intensive courses to teachers, who are employed in the system but are not certified by the state. These teachers undergo 90 hours of training per semester, obtain the certification and receive credits toward a master's degree. In addition, administrators also receive in-service training in their own schools. An informal evaluation of such efforts shows that teachers are satisfied with the education they are receiving, that they are bringing their newly acquired knowledge and skills into the classroom, and are creating supportive networks of teachers in a variety of settings (Ferguson, 2000). Another excellent example of an in-service programme of this kind was developed in South Africa in 1991 by Rand Afrikaans University in Johannesburg, and continues to be effective a decade later (Henning, 2000). This programme offers a combination of contact/presence education, distance education, school-based training, and the systematic assessment of prior learning. Teachers who graduate from this programme are given the opportunity to qualify for further-education diplomas offered by South African institutions. Based on an ethnographic study of a small group of teachers, Henning (2000) reports this programme to be successful.

Finally, an innovative programme reported in the literature (Ross, 2001) is the 'Newcomers Entering Teaching' programme. This initiative located in the State of Maine (USA) prepares and supports immigrants who wish to enter a local teacher-preparation programme. Many of those entering the programme hold university degrees in their country of origin and are teachers, principals, superintendents, etc., and yet their credentials are not recognized in the USA. This programme allows these immigrants to be prepared as teachers within a short period of time. The State of Maine evaluates this as a positive initiative, as these immigrant teachers are better prepared to respond to the

needs of many immigrant children who are now attending schools in that state (Ross, 2001).

Induction programmes as in-service education

There is another category of in-service education that is often referred to in the literature: the support that new teachers receive in the form of 'induction programmes'. Induction programmes are planned as systematic programmes of sustained assistance to beginning teachers (Jarvinen and Kohonen, 1995). New Zealand, Finland and Japan offer examples of excellent induction programmes for their beginning and recently graduated teachers (APEC, 1999; Hawley and Hawley, 1997; Jarvinen and Kohonen, 1995). In New Zealand, teachers are not fully registered until they have acquired two years of classroom experience, during which time they can participate in a programme of 'advice and guidance' which includes: mentoring; discussion groups; observation of other, more experienced teachers; and a written record of the induction programme. In addition, schools receive resources from the district in order to support not only the work of the new teacher, but also that of his or her mentor. In Japan, beginning teachers are given a lighter workload. This allows them to attend in-school training sessions twice a week, and out-of-school training once a week, and also offers them the guidance and support of 'guidance teachers'. As in New Zealand, schools which hire newly graduated teachers receive more funding to support a greater number of mentor teachers, and provide enough time for the induction activities (APEC, 1999; Hawley and Hawley, 1997). It is interesting to point out that this heavy emphasis on in-service training in Japan, which takes place in the schools and aims at strengthening the teachers' practical knowledge and teaching skills, leaves universities and other institutions of higher learning with nothing to be desired, as the in-service training is offered by the schools and not the universities. This is not the case in a majority of countries where the teacher-preparation institution is in charge of in-service courses and opportunities.

Another effective programme of induction that places heavy emphasis on mentoring is the 'Beginning Teachers' Induction Programme' in New Brunswick, Canada, which was developed by a partnership between the University of New Brunswick, the province's department of education, and the teachers' association (Holloway, 2001). In his article, Holloway reports that 96 per cent of beginning teachers, and 98 per cent of experienced teachers, felt that they had benefited from the programme. Finally, a study in Finland (Jarvinen and Kohonen, 1995) reports very positive results of an induction programme that included: workshops, homework assignments, journal writings, didactic seminars, school experiences such as observing and giving lessons, project work and assigning experienced teachers to mentor beginning teachers. In addition, the mentor teachers were also able to participate in workshops and receive other forms of support during the programme. Similar results were obtained in the USA, where first-year special-education teachers underwent an intensive induction programme in a particular district. The results proved very positive and were supported by the observation that a significant number of teachers in the same district who did not follow the programme resigned from their jobs at the end of the first year, while none resigned who had followed the programme (Whitaker, 2000).

Content of in-service programmes

The content of in-service training and education is a subject which gives rise to much debate which has been fuelled partially by the fact that more research is still needed, firstly in order to understand the nature of teachers' professional knowledge and how it is used (Eraut, 1995a) and, secondly, due to our lack of knowledge about how to provide in-service education and training in an efficient and effective way (Kieviet, 1990). In many countries, in-service education includes traditional courses on subject matter, pedagogy and teaching methods. The new trend, however, particularly in developed countries, where most teachers are certified and, thus, in-service education is additional to their initial teacher preparation, is to go beyond the static, one-

shot in-service training and offer a variety of opportunities for professional development. Thus, the dividing line between professional development and in-service training is unclear. For example, in the United Kingdom and Spain, in-service teacher preparation has begun to focus on such things as action-research, problem-solving, group interactions, etc. (Benejam and Espinet, 1992), and they are described as different models of professional development. Yet, the strong focus on ‘process’ rather than on content, which is placed on professional development versus in-service training is being questioned now, as more research shows that “when professional development activities are heavily procedural, the superficial features of instruction may change, but the fundamental character of teaching and learning is unlikely to be altered” (Baker and Smith, 1999). In fact, a meta-analysis of research concerning professional development (Showers *et al.*, 1987) found that programmes that included a cognitive-conceptual component tended to triple the effect of programmes that merely trained practitioners in new techniques. At the same time, programmes that were too theoretical or conceptual in nature, and that did not present any teaching techniques as models, were those which were least effective as they were unlikely to persuade teachers to embrace new methods.

Challenges and limitations of in-service programmes

In-service teacher preparation, in its most strict definition of courses for on-the-job learning, has also received a number of criticisms in the literature. For example, Castro (1991) and Davini (1995) have said that in Latin America, the content of in-service courses does not cater to the needs of teachers, and teachers do not have a systematic way of communicating to administrators (who are in charge of developing these courses) that which they need. Other criticisms made regarding programmes of in-service training in Latin America are that: educators in charge of in-service courses are poorly prepared (Castro, 1991); courses are theory-oriented and do not address practical concerns (Subirats and Nogales, 1989); courses are offered in locations difficult to reach, particularly by those teachers who need the courses the most (Tovar,

1989); and there are few reading materials related to the field available to teachers (Davini, 1995; Schiefelbein *et al.*, 1994). Programmes in other parts of the world also face such criticisms, be they argued to a lesser or greater extent.

In Western Europe for example, Vonk (1995) has identified the following limitations of in-service teacher-preparation programmes:

- there is a lack of clarity on the part of the participants, concerning the aims and objectives of this kind of training;
- many in-service activities do not target the main goal of improving the professional competence of teachers;
- it is too often the case that in-service training providers transmit the knowledge and skills they have, regardless of their relevance to the recipients;
- there is a “lack of insight into the processes of teachers’ professional development and of teachers’ professional learning” (p. 298).

These criticisms are also mirrored by other authors as they have completed evaluations of in-service programmes in other countries (for example, Kieviet, 1990; Sato and Ushiwata, 1990).

In most parts of the world, the majority of in-service programmes are too short, too unrelated to the needs of teachers, and too ineffective to upgrade teaching knowledge. In a survey of 700 teachers in India, 86 per cent reported that they had received professional training at a teacher-education institution. The quality of the teacher education received was not up to par. In-service training and ongoing professional development for practising teachers is minimal in India. In 1992, in-service training did not reach the majority of teachers. Only 13.6 per cent of primary-school teachers and 20 per cent of secondary-school teachers said that they had received in-service training over a period of two years; most of the teachers who attended these training programmes said that they did not learn much (Sharma, 1992).

Despite all these criticisms, it is clear that there is an increased interest in improving teacher education in most countries around the world today, for example in many European countries where the budget for in-service education has increased over recent years, as is the case in France, Italy, Spain and the United Kingdom (Vonk, 1995). However, many other countries are just beginning to offer in-service education programmes, as is the case in Portugal where, prior to the 1980s, there was no in-service programme, and when one was created it only offered a small variety of courses to a few selected teachers (Novoa, 1993).

Where does in-service education take place?

There is a recent tendency to consider the needs of schools and communities when planning in-service education programmes. For example, in many countries in-service programmes are being designed and offered by the schools (Germany, Japan, Spain, United Kingdom etc.) as a way to train their own staff and teachers. Each school can therefore decide on the content of their in-service programme (Benejam and Espinet, 1992).

In addition, in many countries new structures have been created to coordinate this kind of training, and now a variety of institutions (both new and pre-existing) offer different and improved in-service programmes. For example in Spain, in-service programmes can be offered at very different levels: university levels (either educational institutions (ICE), educational departments and teachers' colleges); institutions controlled by the state or the autonomous governments (teachers' centers, resource centers, and Ministry of Education); institutions controlled by the local administration (local education institutes and local councils); teacher-based groups (teachers' unions, teachers' associations, and pedagogical reform movements); and private institutions.

A similar level of diversity exists in Japan. In-service education is offered on a formal and on an informal level. "The formal resources comprise (1)

Ministry of Education, National Education centre: intensive in-service training courses for principals, vice-principals, and experienced teachers; (2) prefectural educational boards and local teacher-training centres: in-service training lecture courses for teachers and study meetings of each subject; and (3) universities: master's degree courses for teachers in-service and workshops. The informal resources comprise (1) teachers' union: national and local annual study meetings; (2) voluntary study groups: case-study monthly meetings and journals; (3) schools: in-house study workshops based on classroom observation; and (4) self-study: reflective report of teacher's own teaching" (Sato, 1992, p. 163).

In China, in-service education is diverse as well. It is offered by: teacher-preparation institutions at tertiary and secondary levels; educational institutes; television-universities; correspondence courses in universities; teachers' colleges and educational institutes; self-education programmes from the National Commission of Examinations of Self-Taught Students; and special institutional teams (Wu and Chang, 1990).

In France, 'missions' have been created in all administrative regions to support the work that pre-existing institutions were already doing. In Italy, institutes to improve education and teaching (Istituti Regionali per la Ricerca, la Sperimentazione e l'Aggiornamento Educativo) have been established in different regions of the country. In other countries, existing institutions have been given more responsibility and power in the development of in-service training. That is the case, for example, in the United Kingdom, where local education authorities are now responsible for co-ordinating in-service activities; and in Denmark, the Netherlands, Portugal, and Switzerland, teacher-preparation institutions have been invited to contribute significantly to in-service programmes. In Finland and Sweden, universities are in charge of in-service preparation. Schools are also responsible for developing, implementing and co-ordinating in-service preparation programmes in countries such as England and the Netherlands (particularly in the latter, where schools are

given a budget in order to develop in-service projects for their own staff and faculty. They may contract other institutions to support their efforts, but schools have the ultimate responsibility).

To summarize, in-service education plays an important role in teachers' professional development, and although its traditional conception is still necessary for those many unqualified or non-certified teachers who are in the classrooms, there is now a much broader and appropriate way to respond to the professional development needs of teachers throughout their careers. This will be discussed in the next chapter.

Chapter IV

Beyond traditional pre-service and in-service training: models and cases of teachers' professional development

With the new conception of teachers as professionals, and of their preparation as being a lifelong learning process, where they are active participants in their own growth and development as teachers, the concept of teacher 'training', whether pre-service or in-service, is no longer fitting. As mentioned previously, professional development begins at the initial preparation stage (whether pre-service or in-service), and continues throughout the professional lives of teachers; in this continuum, courses and workshops (the 'traditional in-service' perspective) are two of many elements of growth and learning. This chapter describes in depth the many alternatives that exist today in the field of education to enhance teachers' professional development.

What should teachers' professional-development programmes promote?

Promoting teachers' professional development involves enhancing teaching effectiveness (to teach all students in increasingly diverse contexts and at high levels), and supporting professional growth – that is, permitting the transition to roles of higher status and responsibility within the teaching profession (mentor teacher, experienced teacher). It is important to evaluate in each country the possibilities for promotion that exist within the teaching profession, as one of the criticisms that is usually mentioned among teachers

in different regions of the world is that the only possibility a teacher has of being promoted is to leave the classroom and move into an administrative role. This confirms, for many, the belief that classroom teaching is the first rung on the educator's career ladder (Benejam and Espinet, 1992; Villegas-Reimers, 1998).

Different authors have presented a number of criteria that should guide programmes that promote teachers' professional development. For example, according to Little (1992), teacher professional development requires growth in knowledge, skills, judgement (classroom-related), and the contribution teachers make to a professional community.

Leithwood (1992), on the other hand, recommends that programmes which promote professional development should focus on the following:

- developing survival skills;
- becoming competent in the basic skills of teaching;
- expanding one's instructional flexibility;
- acquiring instructional expertise;
- contributing to the professional growth of colleagues; and
- exercising leadership and participating in decision-making.

The models described in this chapter have been designed to address these needs, and educators are encouraged to plan their use and implementation with care. It is also important to recognize that professional development can (and usually does) occur during many activities that are not intended primarily for that purpose. However, if these opportunities are identified in advance and are consciously used for learning purposes, their use will be more effective, similar to what is known in constructivist literature as a 'teachable' moment. The following factors are necessary to help recognize these opportunities in advance (Eraut, 1995a, p. 625):

- prior recognition of a professional-development need, perhaps as a result of appraisal;
- agreement that engaging in a particular activity will provide a learning opportunity relevant to that need;
- planning for an experiential learning cycle of setting targets, providing support, self-evaluation, and feedback from others.

Professional-development opportunities can be created together by teachers and support people, either by choosing to focus on a new task which the teacher is interested in learning about, or by focusing on a practice which the teachers implement regularly but would like to change. This can be accomplished in a number of different ways using any of the models described below. All of these must be completed with appropriate support and feedback.

Models and types of teacher professional development

There are a number of models that have been developed and implemented in different countries to promote and support teachers' professional development from the beginning of their career until they retire. This chapter includes a description of each model and – whenever possible – experiences of countries where the model has been implemented. It is important to point out that the models are described separately for clarity and distinction, but that most professional-development initiatives use a combination of models simultaneously, and the combinations vary from setting to setting.

For clarity of presentation, the models are grouped in two sections. The first describes models that require and imply certain organizational or inter-institutional partnerships in order to be effective. The second group describes those that can be implemented on a smaller scale (a school, a classroom, etc.). Many of those in the second group have been identified as techniques rather than models of professional development. In fact, many of the models

in the first group use the ‘techniques’ listed in the second group. The chart below summarizes the models included in each category. The chart is followed by detailed descriptions of each model/technique.

Organizational partnership models	Small group or individual models
Professional-development schools	Supervision: traditional and clinical
Other university-school partnerships	Students’ performance assessment
Other inter-institutional collaborations	Workshops, seminars, courses, etc.
Schools’ networks	Case-based study
Teachers’ networks	Self-directed development
Distance education	Co-operative or collegial development
	Observation of excellent practice
	Teachers’ participation in new roles
	Skills-development model
	Reflective models
	Project-based models
	Portfolios
	Action research
	Use of teachers’ narratives
	Generational or cascade model
	Coaching/mentoring

First group: Organizational partnership models

Professional-Development Schools

Professional-Development Schools (or PDSs) are partnerships between teachers, administrators and university faculty members created in order to improve teaching and learning on the part of their respective students, and also in order to unite educational theory and practice.

The professional-development school model involves and requires institutional support (Wise, 2000), and it is one of the models that does work to provide opportunities for teachers' professional development from the beginning to the end of their career (Koehnecke, 2001). The model of professional-development schools varies from setting to setting. However, they all share the common goal of providing professional-development experiences for both pre-service and in-service teachers in school settings (Frankes *et al.*, 1998), and raising the standards of education and schools (see, for example, Chance, 2000; and Levine and Churins, 1999).

Professional-development schools find their origin in laboratory schools, which were common in teacher-preparation institutions in the USA during the first part of the twentieth century (Stallings, *et al.*, 1995). However, these laboratory schools began to slowly disappear following much criticism due to the atypical experiences of both the children and the teachers in these schools. There was also a need on the part of teacher-preparation institutions to make use of public schools for student-teacher practicum experiences (given the number of students in the programmes at that time). In the 1980s, however, a new call for reform generated the idea of professional-development schools. These were created on the initiatives of the Holmes Group and the Carnegie Task Force. These groups independently proposed creating partnerships between schools and universities (Cobb, 2000). Support immediately followed

from the American Federation of Teachers, John Goodlad, and other prominent groups and educators throughout the country.

There are a number of recurrent themes found in professional-development schools despite their differences in focus, goals and organization. One is the consideration of the need for dual restructuring; the school will not be transformed unless the university is also transformed. The second is that teachers both in the schools and in the university are of equal value to the partnership and to the process of professional development. In the USA, as in most societies throughout the world, university faculty members are sometimes thought of as being more important, or having higher status, than schoolteachers. In this model, both are of equal importance and play equal roles. The third theme is that of a common goal: all professional-development schools work to restructure the preparation and induction of teachers into the teaching profession, improve the teachers' working conditions, increase the quality of education for students, and offer teachers and administrators opportunities for professional development (Darling-Hammond, 1994b). Successful professional-development schools have transformed the roles of all concerned (Metcalf-Turner and Smith, 1998).

The evaluations of professional-development schools, until now, have been very positive:

The children in schools benefit from the experiences of the mentor teachers and the university faculty, as well as from the new knowledge and energy that student-teachers bring into the classrooms. For example, in a study that measured the impact of student-teachers' activities on students' learning of mathematics and writing skills, Knight *et al.* (2000) found that "elementary students increased achievement in writing and mathematics problem solving after implementation of the interventions devised by teachers in the elementary school and implemented by pre-service teachers within the PDS" (p. 35).

The *experienced teachers* keep themselves informed of the latest research and theories in teaching because of their connections with the universities. In addition, their own professional development is supported as they learn to become mentor teachers and faculty members in university-based programmes. There are also reports that teachers and administrators in professional-development schools have a very positive attitude towards the schools and their work (Cobb, 2000; Kostin, 1998; Castleman, 1996). Little research has been done to assess the effects of PDS on mentor teachers' work, but all were fairly positive (Nihlen, 1992; Wimsatt, 1996).

The *student-teachers* are introduced to the profession in the setting where they will implement their knowledge and skills, and have the support of experienced teachers and theory-based knowledge. Many authors have argued that the professional-development schools model has drastically changed the role of student-teachers as they form partnerships with teachers and faculty from the very beginning of their preparation for, and socialization into the profession (Kimball, 1999). In fact, a recent study completed by Walling and Lewis (2000) comparing the development of teacher professional identity in pre-service teachers, both in a PDS and in a different programme, found that the teachers from the PDS had a more realistic identity, a more systematic and balanced view of the realities of teaching, and a perception of teaching as a 'career' rather than just a 'job'. Many other research studies have shown that PDS interns outperform their non-PDS counterparts (Cobb, 2000; Long and Morrow, 1995; Tusin, 1992; Macy Research Associates, 1996; Hecht *et al.*, 1996; Sandholtz and Dadlez, 2000).

The *university/college faculty* also benefit from this collaborative model (see Larkin, 2000), as they develop partnerships with practitioners in the field which allow them to be more informed about the daily practices and situations encountered in classrooms, feel supported in their work with student-teachers, and also have the opportunity to link theory and practice more naturally and frequently (for a case description, see Lemlech *et al.*, 1994). There are only a

few studies in the literature that have examined the impact of professional-development schools on university faculty, and more research is clearly needed in this area.

However, not all reports have been positive. For example, Cambone *et al.* (1996) report that in one particular PDS, the mentoring and practicum components were less effective than expected; Long and Morrow (1995) found that there were no significant differences in the National Teacher Examination scores of PDS and non-PDS student-teachers. Cobb (2000) also reports that although the PDS model does have a significant effect on teachers' perceptions, beliefs, and practices, as well as on student-teachers' and students' learning, these changes take time, first and foremost to build trust and a good relationship between the faculty and the teachers, a crucial factor for the success of a PDS (Dana *et al.*, 2001). Finally, Sandholtz and Dadlez (2000) report a number of trade-offs that are necessary when using the professional-development school model. These include the fact that the student-teachers are exposed to a limited number of schools (usually just one during their initial preparation programme); that the college supervisor is not necessarily a subject specialist given that he or she must supervise student-teachers in the same school but who are of different disciplines; and, finally, that the number of co-operating teachers may be small, given that all of them must be members of the same school, and some may not be interested in supervising students.

New developments with regard to professional-development schools include the implementation of the model in its traditional form, but with the added use of technology (Burley *et al.*, 2001). This model, labelled 'ePDS', has been quite successful as it has all the advantages of the regular partnerships and professional-development schools, but with a supplementary 'cyberspace' dimension, which allows even closer and more frequent communication between all the members of the partnership. For more information about the

use of technology, see the section on technology in the next chapter, and the section on distance education in the current chapter.

Other university-school partnerships

In addition to the Professional-Development School model described earlier in this chapter, other forms of partnerships exist between universities and schools. These partnerships are like networks “in that they connect practitioners who share common interests and concerns about education” (Miller, 2001, p. 102), and are found in schools and in institutions of higher education.

According to Miller (2001, p. 105), school-university partnerships have four core aims:

- to establish firm bases in two distinct cultures, school and university;
- to cross institutional boundaries in order to respond to needs in the field;
- to ensure inclusive decision-making;
- to create new venues for educator development.

A number of university-school partnerships have been successful in promoting teachers' professional development. In most cases reported in the literature, the schools and universities that have a partnership are located in the same geographical area, but there are also some that cross national boundaries. For example, a small project in South Africa has brought together science advisers at the Western Cape Education Department, and science teacher-educators both at King's College in London, and at the Peninsula Technikon in Bellville. In this project, described in detail by Johnson *et al.* (2000), groups of science teachers in South Africa who have worked in very poor conditions for many years, have come together for different forms of professional development: coaching, group discussions, group-work based on Curriculum 2005, etc. Johnson, Monk and Hodges (2000) have described

this project as ‘small steps’ and ‘modest’, but quite effective in improving the teachers’ knowledge and skills in science teaching.

Another example is the ‘Learning Consortium’, which is a teacher-development partnership formed by four school boards in the Toronto (Canada) area, together with the faculty of education at the University of Toronto and the Ontario Institute for Studies in Education. It was established in 1988 with the aim of “improv[ing] the quality of education in schools and universities by focusing on teacher development” (Watson and Fullan, 1992, p. 222). Initially, each institution made a commitment of three years, and each contributed money, time and personnel to support the initiatives. The primary decision-making body was a planning group, which was composed of one representative from each of the six member organizations. The Chair was the Consortium co-ordinator, hired by the partnership. Among the activities offered were summer institutes on co-operative learning and peer coaching, in-service and pre-service programmes, conferences on mentoring, induction and peer coaching. In addition to these formal activities, there were also a number of less formal practices, such as networking, reflective and monitoring strategies, linking activities with schools, etc. (Watson and Fullan, 1992).

Another successful partnership is the Southern Maine Partnership (in the USA), which has worked for the past 15 years in creating changes in schools and universities in the State of Maine. It currently includes three institutions of higher education and 34 public-school districts. According to Miller (2001) the Partnership does not have a fixed vision. “Rather, its vision evolves over time, as the work evolves, responding to the emergent issues, concerns and needs of the members as well as to the demands of the context” (p. 104). When a school district or a university joins the Partnership, it makes the following commitments:

“To participate in Partnership conversations, activities and projects; to contribute to the professional knowledge of K-12 and university educators; to

share information, practices and insights about teaching, learning, assessment, schooling, and the education of educators; to contribute to and distribute Partnership communications to staff and to a broader community audience; to make appropriate financial and human resource contributions; to maintain connections to member institutions through shared work; to incorporate Partnership work into local improvement efforts and to incorporate local improvement efforts into Partnerships work” (Miller, 2001, pp. 104-105).

Another such model is the Teacher Apprenticeship Programme (TAP) that was developed by a consortium of the University of Toronto (Canada) together with a few public schools to provide necessary teaching practice for students who wanted to be admitted into a teacher-preparation programme but did not have the required years of experience (Adams *et al.*, 1996). As the programme was designed, those in charge realized that this would be an excellent model of teacher professional development, not only for those new to the field, but also for those whose role was to mentor the apprentices. Each apprentice was in a classroom on a daily basis between September and March under the supervision of a mentor teacher. Both mentors and apprentices participated in regularly scheduled workshops and discussion groups. At the end of the experience, both novices and mentors evaluated their experience as being very positive. In addition, the apprentices were identified as being among the strongest students to join the ‘regular’ teacher-preparation programme at the end of their apprenticeship experience.

Another interesting case is that of a partnership which was developed between a university in the USA, a university in Chile, and a school district in Chile (Crosby and Crosby, 1998). In this programme, university faculty from both countries prepared and implemented a course on how to improve the knowledge and skills of science teachers in Chile. All those involved (teachers and university faculty) reported the experience as successful and felt that it had effectively promoted their professional development.

Another strategy for professional development based on university-school partnerships is the practice (quite common in the USA) that some universities and colleges have of offering vouchers to co-operating or mentor teachers to come to the universities for more course work and experiences as a reward for their work with student-teachers in a particular institute. In such an arrangement, experienced teachers who are willing to participate in educating and supervising student-teachers can also attend courses and experiences in institutions of higher education, thus keeping themselves informed of the latest theories, practices and research studies in their field. University faculty also benefit from sharing their knowledge and research with experienced practitioners.

Many colleges and universities that prepare teachers in the USA and elsewhere also offer professional-development 'days' to their alumni. Teachers attend these presentations and experiences, and receive certificates and professional-development points (which may affect their salary level). In addition, alumni keep in contact with the faculty members at the university, and faculty members develop stronger relationships with schools and teachers.

Creating partnerships between schools and institutions of higher education is, at times, difficult as there seems to be a natural tension and sense of competition among members of both institutions (McBride, 1996). The key to success seems to be to find a balance where all those involved in the partnership consider their role important and their contributions relevant, and where learning is promoted in all those implicated.

Other inter-institutional collaborations

In a variety of countries around the world, many programmes of in-service education and professional development for teachers exist as a result of collaboration between different institutions (furthering the work of the previously discussed university-school partnership projects). For example, in

Canada, there are a few projects which involve school districts, universities, and ministries of education. More specifically, the University of Toronto initiated a Centre for Teacher Development which works alongside school boards to provide ongoing in-service programmes in specific target areas. In British Columbia, all universities that prepare teachers are working closely with the Ministry of Education and local school districts to deliver regionalized summer institutes and ongoing workshops focusing on curriculum implementation (Wideen and Holborn, 1990). In South Africa a programme was developed in which graduate pre-service teachers from a South African university were sent into different industrial, commercial and social enterprises as part of their one-year diploma course (Penny and Harley, 1995). The main goal was to familiarize student-teachers with the kinds of skills required in those settings so that teachers could learn which aspects they needed to develop in their own students. Penny and Harley (1995) report that the programme was only partially successful, as even though the student-teachers did develop useful insights about the specific enterprises they visited, they did not appear to have been able to theorize their experiences.

Another interesting form of inter-institutional collaboration is that between schools and other professional organizations outside of the formal system of education. Bainer, Cantrell, and Barron (2000) describe a long-term partnership (of at least one year and no more than five) between teachers/schools and natural resource professionals who usually fulfil the role of 'informal' teachers in educating the public, and yet have no formal teacher preparation. The purpose of the partnership was to help the natural resource professionals to acquire various teaching skills and practices, and for teachers to develop more skills and knowledge about science education. Even though Bainer *et al.*'s analysis focused on identifying the effect of this partnership on the natural resource professionals, the authors report that the project also had a positive impact on the teachers involved in the initiative.

School networks

There have been several projects which have included the creation of school networks to support teachers' professional development, school change, and educational reform at a higher level.

Two examples of such networks are reported by Sachs (2000) as successful innovations that are taking place in Australia. One of these innovations is the National Schools Network (NSN), whose primary purpose was to act as a tool for system reform. It was conceived as a national action research project, as policy-makers were interested in identifying the obstacles that were preventing schools from implementing their own ideas on improving teaching and learning. The NSN has provided support for over 400 Australian schools and has linked professional development with ongoing school-based research initiatives. Teachers report a positive response to the fact that their professional development is being designed and is gaining response from within the schools, rather than from external sources.

The second innovation is the Innovative Links Project. This Australian nationwide initiative complements (by design) the activities of the NSN. This project involves a formal partnership between schools and universities in an attempt to carry out research and implement practices that promote the professional development of teachers both in schools and universities. Teachers associated with this project have developed skills and competences that have enhanced their professional development, such as learning, participation, collaboration, co-operation, activism and research (Sachs, 2000).

Teachers' networks

Teachers' networks bring teachers together to address the problems which they experience in their work, and thus promote their own professional development as individuals and as groups. These networks can be created

either relatively informally, through regular meetings between teachers; or formally, by institutionalizing the relationships, communication and dialogue (Lieberman, 1999). Huberman (2001) details the importance of using teacher networks as a means of providing support. He presents a model that involves teachers, both in the same and in different schools, who share a common grade level in disciplines, subject matter or activity to be worked on. He also presents strong arguments for the importance of having these networks managed by teachers themselves, and also that the network generate a process by which teachers can communicate, address issues, observe each other's work, bring in people who are experts in other fields, etc.

Most teacher networks existing in the world today receive no funding or support from the schools or the state. However, there are some cases in the literature (see, for example, Pennell and Firestone, 1998) which report cases where the state has supported the teachers' networks, but has done so without interfering in the activities of the latter.

There are many examples of effective teacher networks in different parts of the world. Lauriala (1998) reports on new teacher groups and networks created within many Finnish schools to support the professional development of teachers. This model has also been successfully developed and implemented by Japanese teachers as an alternative to government-created and sponsored programmes of in-service development. These associations collaborate with the Japanese Teachers Union, but do not participate in Union activities. Their main purpose is to "promot[e] teaching, independent of government control, and a democratic education" (Shimahara, 1995, p. 183). The many networks that exist are co-ordinated by the Co-ordinating Council for Voluntary Educational Study Associations, which was created in 1959. These networks regularly hold conferences, publish magazines which are sold at commercial bookstores, and hold approximately 200 summer workshops every year. They also organize projects such as the 'research lesson', a model of professional development where groups of teachers work together for a period of weeks,

sometimes months, to prepare a master lesson to be presented to many other teachers in the school, or even in other schools and districts (a ‘public research lesson’) (Newcomb, 1998). These teachers’ networks may be organized by a discipline (for example, the Council of History Educators, the Association of Mathematics Education), or by schools. Almost every school has an in-house study group that organizes study activities, such as curriculum development, demonstration classes, observation and discussion of teaching, etc. (Shimahara, 1995). A system which is very similar to the Japanese teachers’ networks is that of the Colombian networks (see Schmidt, no date, for a description).

Another very impressive example of this model is a cross-national network of teachers which includes a collaboration of national networks from Spain (IRES: Investigacion y Renovacion Escolar) (Garcia *et al.*, 2001); Colombia (Red de Cualificacion de Profesores en Ejercicio de la Universidad Pedagogica Nacional de Colombia) (Unda *et al.*, 2001); and Mexico (TEBES: Transformacion de la Educacion Basica desde la Escuela) (Arias and Flores, 2001). Each of these national networks is quite active in its own country, and their members have come together in this cross-national network to share experiences, learning opportunities and work activities (Flores and Arias, 2001).

Another example of teachers’ networks is what Palincsar *et al.* (1998) describe as ‘communities of practice’. In one particular case, they tell of how 18 teachers from 14 schools came together in this community of practice to improve their science teaching by joining reflection groups, bringing together professionals with different expertise, and emphasizing the intellectual activities necessary for excellent teaching (including planning, enacting and reflecting on one’s teaching).

The creation of Inquiry Groups of Teachers, who come together regularly to critically examine their own and each others’ pedagogical knowledge, beliefs and practices as they work together to make changes, is another form of implementing this model, as illustrated by the project ‘Mathematics for

Tomorrow' (Hammerman, 1999). An Inquiry Group of Teachers has been meeting over recent years to discuss issues related to teaching mathematics; the focus has shifted over time, and so far they have discussed issues related to content knowledge, pedagogical knowledge and practice. Teachers' evaluations of this project have been positive.

A similar example is presented by Zorfass (1999) with one significant difference. The teachers' group has purposely involved teachers from multiple disciplines, as one of the main objectives of this group has been that teachers reflect on and develop a multi-disciplinary perspective of their professional role, so that they can be more helpful to students who must learn how to integrate their knowledge in different fields. Also, in this particular case, teachers used the process of developing an inter-disciplinary curriculum as a form of professional development.

Finally, there are a number of teachers' networks in the USA associated with the National Writing Project. For a description of this project, see the description of the model 'Teachers' Narratives' later in this chapter.

Distance education

Perraton (1995) defines distance education as "an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner" (p. 25). In this broad definition, the key words are 'significant proportion', as they imply that not all of the teaching will occur at a distance. However, different countries have implemented distance-education programmes to support teachers' professional development using a variety of means, such as radio, television, telephone, written and recorded material and electronic communications (Miller, Smith and Tilstone, 1998).

In Australia, distance education has allowed teachers, particularly women, to acquire further qualifications so that they can be promoted to higher levels which are, more often than not, occupied by men. In Brazil, on the other hand, both men and women have benefited from distance education in their teacher preparation in the aim of acquiring some social mobility (Perraton, 1995). The Commonwealth of Learning, an international organization of all country members of the Commonwealth, also supports distance-education projects in a number of countries. There is, for example in Jamaica, a programme to prepare primary teachers; in The Gambia, Ghana, Nigeria and Sierra Leone, a project of teacher education in collaboration with the National Teachers Institute of Nigeria; in Uganda, a B.Ed. programme using materials developed at the University of Nairobi, Kenya; and in Zimbabwe a plan is under development to support the preparation of in-service secondary-school teachers (the Commonwealth of Learning, 2001). UNESCO, another international organization, also offers a number of distance-education programmes for teachers. A programme was recently developed for special-education teachers on differentiated curricula. The programme includes six units that teachers can study individually or in groups, and it also includes activities that must be completed by groups of teachers collaboratively. Weinberger (2000) reports that more than half of the universities in the United Kingdom are involved in distance education by offering postgraduate courses in that format. After studying the process undertaken by 14 students to complete a full masters of education programme by means of distance education, Weinberger reports very positive effects of such an experience on their professional development. She also emphasizes that library accessibility has been a key factor in these programmes, which explains their success. Similar results are reported by Miller, Smith and Tilstone (1998).

Yet, the literature offers few research studies that assess the effectiveness of the use of distance education to support teachers' professional development. For example, there is very little evidence to support the claim

that teacher education at a distance leads to improved classroom practice. In England, for example, the Department of Education and Science commissioned the British Open University to provide secondary schools with training equipment, and yet no data were collected to assess the effectiveness of such an effort (Perraton, 1995). A few studies conducted in developing countries show mixed results. The general complaint is that distance education does not address practice, and that student-teachers, of course, must still complete a practicum before they can graduate. On the positive side, case studies in developed countries (see, for example, Broady, 1995) have shown that students who realize their teacher preparation at least partially at a distance develop self-confidence and the ability to learn on their own, a skill that is certainly beneficial in their roles as teachers.

Traditionally, distance education has relied on self-study guides and readings, and the use of radio and television. The use of radio as an instrument of distance education has been mostly proposed in developing countries to satisfy the need to reach a vast majority of teachers who are unprepared and/or unqualified, and to help them receive some form of training at a lower cost than most other forms of technology (television, computers, interactive video-disks, etc.). In 1990, Teas reported that “at least 20 radio-based programs provide[d] in-service training to unqualified and under-qualified teachers in 19 developing countries. The literature, however, is extremely limited in scope” (Teas, 1990, p. 2).

There are at least two types of radio instruction: traditional lecture-type instruction, and interactive radio instruction. There is significant evidence to support the idea that the latter model is as effective as conventional teaching, that the cost per person is likely to be less than that of classroom teaching, particularly in rural areas, and that teachers can continue their training during the regular school year, as they do not need to be absent from their classes to participate (Teas, 1990).

Teas (1990) reports a number of specific programmes that have been successful in developing countries in many regions of the world. For example in Korea, the national Educational Development Institute broadcast a 15-minute programme every week-day for 22 weeks during the school year. Its main purpose was to improve teaching methods. In the Philippines, the University of Mindanao 'On-the-Air' project offered radio lectures and forums to help teachers in remote areas to obtain a master's degree. These teachers had to sit the mid-term and final examinations on the university campus, but all their classes were followed by radio. There is also a university in Israel which offers radio programmes to help teachers improve their practice, knowledge and skills in different areas.

With the development of new technologies – particularly the use of computers – for educational purposes, distance education has been transformed dramatically. Computers and access to the Internet are certainly having a serious impact on the structure of teacher professional-development courses and experiences. For example, on-line professional development, the delivery of course content via the Internet or CD-ROM, is becoming more common and is having an increased impact throughout the world (Owston, 1998; Mather, 2000). In some places, this model is replacing the use of television as the most common form of distance-education learning (Killion, 2000), but not necessarily the use of the radio, as it has the distinct advantage of only requiring batteries to be operational. In most cases, the use of new technologies has created many new opportunities for teachers by offering the possibility of having on-line discussions, the use of on-line bulletin boards, frequent assessments, participation in newsgroups and teleconferencing, ongoing documentation of processes and facts, and the creation of what Owston (1998) refers to as 'virtual professional communities'.

Such models of professional development have been found to have many advantages; for example, they increase accessibility and flexibility in scheduling; they facilitate collaboration; and they are more cost-effective than a number

of alternatives (Killion, 2000). However, there are also some drawbacks: sometimes on-line programmes can lack quality of content and structure; they do not take into account the learner's prior education or background, as the programmes are designed with the 'average' educator in mind; and they can also involve some hidden costs (Killion, 2000).

There are a number of examples in many countries where teachers have created computer conferences, computer tutorial experiences, teachers' study groups, web-based professional development activities, etc. (Rodes, *et al.*, 2000; Lincoln, 2001; McKay and McGrath, 2000; Maor, 1999; and Marx *et al.*, 1998). Also, there are a number of internet-based resources easily accessible to teachers and other educators, and which offer information of all kinds: articles, activities, reading lists for particular classes, examples and suggestions on how to approach a particular topic, etc. Some good samples of such resources are given by Gorski *et al.* (2000), Mather (2000a, 2000b), Mather and Poftak (2000), and McKay and McGrath, (2000). In addition, there are also courses and workshops developed by International Agencies to support the work of teachers on-line. Such is the case, for example, of the UNESCO project "Learning and teaching for a sustainable future – a multimedia professional development programme" (UNESCO, 2001).

Jackson (1999) has noticed a change from professional-development workshops for teachers, where they can learn how to use specific soft and hardware (in the traditional format of 'in-service' training), to web-based professional development, where the computers and the programmes are mere instruments which facilitate the sharing of information and engaging in dialogue. In fact, many teacher-education institutions are regularly using computers in their classes as a way of maintaining the flow of communication between members of the group, the instructor, and even experienced teachers in the field who can comment and participate in conversations from their own workplace or from home. A good example is that reported by the *Curriculum Administrator* (2001) of a six-week on-line course for social studies teachers,

offered jointly by Social Studies School Services and Classroom Connect's Connected University. As part of the course, students complete on-line assignments and readings, have on-line discussions with colleagues and faculty, and learn how to use a number of search strategies and web sites. A similar programme of on-line professional development is being successfully implemented by the Virtual University of the Tecnologico de Monterrey in Mexico. It currently offers 18 graduate programmes, many of which are addressed particularly to teachers, educators and administrators in a number of Latin American countries (Tecnologico de Monterrey, 2001).

Another excellent example is reported by Odasz (1999) concerning the efforts that Alaskan educational institutions are making to introduce computers into the classrooms. Odasz reports on the development and implementation of three on-line graduate-level courses for teachers which allow teachers to learn at their own pace – about the creation of teachers' networks and also of students' networks where they mentor each other – and now teachers are integrating the use of the Internet and other new technologies into their daily work. Several more cases are reported by Glenn (1997), who describes a variety of continuing technology education programmes such as technology workshops, school-based technology teacher programmes (based on the idea of 'train the trainers'), district technology support (districts hire technology staff who visit schools to offer workshops and ongoing support), and district resource centres (lending materials, offering on-line access to libraries, etc.). There is no doubt that making professional development accessible on the web allows more flexibility and freedom for teachers who can access the information, participate in discussion groups and work on specific projects at their own pace and in their own time (Jackson, 1999). In fact, a study completed in Australia comparing the level of detail and reflection between a section of the course delivered in the traditional presence format and a section delivered on-line, showed that the latter produced more reflection and deeper thoughts on teaching practices and experiences on student-teachers (Rodrigues, 1999).

Aside from the use of computers, other new technologies, such as digital cameras, are also being used in the classroom as an “anytime/anywhere delivery of content without any barriers” (Patterson, 2000, p. 35). Digital cameras have had an effect on professional development, as teachers can now bring into the classroom material that was difficult to present to students previously, and also because it has transformed the way in which they assess students and their own teaching practices. Some teachers are creating electronic portfolios of themselves and of individual students, capturing images of their work on digital cameras, for example, and showing individual students’ progress over time with images of their work (Murphy, 2001).

Second group: Individual or small group models

Supervision in the classroom: traditional and clinical supervision

In its *most traditional format*, this process (the ‘inspectional’ model according to Bourke, 2001) is typically completed by an administrator who comes into a classroom, either takes notes or checks according to a list of criteria whether the teacher is achieving all the necessary requirements, and then leaves the classroom, giving no feedback (immediate or otherwise) to the teacher. Based on this brief evaluation, the teacher may receive or be denied promotion, tenure, or even a renewed contract for the following year. An example of such a process is reported by Bourke (2001) about teacher supervision in some schools in Brunei, and Villegas-Reimers (1998) about schools in Latin America. The effect of these evaluations on teachers’ professional development has been negative, as they offer no feedback or support to the teacher who is being evaluated (Wilson, 1994a). In addition, these evaluations focus exclusively on classroom practice, but show nothing about the teachers’ preparation and planning, thinking processes, interests, motivation, communication with parents, colleagues, participation in school and community activities, etc. (Hickcox and Musella, 1992; Stodolsky, 1990),

all of which are important aspects of the teaching profession. As a result, teachers develop resentment, and negative feelings and attitudes towards being observed.

Today, most professional-development programmes practise classroom evaluation as an element in the programme, but not exclusively. In this new perception, supervision is considered as a means of offering helpful feedback and suggestions on ways to improve a particular aspect of one's teaching. In many respects, the traditional method of supervision has been slowly transformed into *clinical supervision*. A case that illustrates this point well is that reported by Wang and Seth (1998), which describes the reluctance of Chinese teachers to being observed by one English and one Chinese researcher and how, with specific intervention, teachers changed their attitudes towards being supervised in the classroom. According to the study, observations were conducted in such a 'gentle' way, and feedback was given in such a respectful manner, that teachers' attitudes changed. At the end of the intervention, teachers were able to regard observations and assessment of their work as an opportunity to grow and develop in their career, rather than as something to be fearful about.

“Clinical supervision was originally conceived at the Harvard-Newton summer school as a means of fostering teacher development through discussion, observation and analysis of teaching ‘in the clinic of the classroom’” (Grimmett and Crehan, 1992, p. 68). Today, clinical supervision is perceived as an effective model of professional growth and development (Wanzare and da Costa, 2000), and it is one of the most common elements of initial teacher education.

One of the commonest ways of implementing clinical supervision is by including a pre-observation conference, an observation of classroom performance, the analysis of the data collected during the observation, and a post-observation conference. Studies which have evaluated this approach offer

contradictory results. Pavan (1983) says the impact of clinical supervision is inconclusive; while Adams and Glickman (1984) claim that the clinical model has a positive effect on teachers' performance and attitudes. This apparent contradiction may be due to the way in which the clinical supervision model is implemented. If the supervision does not differentiate between the expert teachers' and the novices' needs, and if it is applied in a superficial way, the goal of promoting professional development may not be reached. In addition, this kind of supervision requires a collaborative perspective between supervisor and teacher, which is a rare occurrence (Smyth, 1989).

There are several cases which illustrate the positive aspects of clinical supervision. For example, the field-based teacher training in Pakistan is based on on-site development with classroom evaluation. Small groups of less qualified teachers work alongside experienced teachers, who observe their teaching and work with them to improve their skills (Gardner, 1995, p. 641). In Nigeria, a site-based training programme has effectively combined individual and group instruction with evaluation in small groups of schools (Tatto, 1997). This model has also been implemented by a few institutions in the United Kingdom, primarily during an induction period designed for new teachers in schools (Shaw, 1992). In Israel, a study in 17 high schools showed supervision to be an effective tool in professional development when it was accompanied by group discussions, lectures, and individual conferences, and was also matched with the teacher's own conceptual level (Barak *et al.*, 1997). A similar finding is reported by Bourke (2001) concerning teachers in Brunei.

Performance assessment of students

With a renewed interest in, and a recent tendency to focus on, standard-based assessment and performance-based assessment, many researchers are proposing a new perception of students' assessment as a form of teachers' professional learning and development, and the creation of a new evaluation system which would contribute significantly to the quality of teaching. In

developing this new system, quality assurance would be merged with professional development (Danielson, 2001).

For example, Falk (2001, p. 120) reports that “a growing number of studies are documenting [the] relationship between teacher-learning and classroom-based performance assessments.” In the same document, she identifies three types of assessment initiatives that impact on teacher learning:

- teachers assessing students’ learning by observing, documenting, and collecting students’ work over time with classroom-based assessment frameworks;
- teachers scoring student responses according to externally administered standard-based performance tests; and
- teachers examining and validating their own practice by participating in the National Board of Professional Teaching Standards certification process.

The literature reports a few cases where assessment has been the core activity of the professional development of teachers. Driscoll (1999) describes a project where he participated with some colleagues to create a community of teachers dedicated to transforming their approaches to classroom assessment. “We saw assessment as a fertile ground for teacher development because, when structured appropriately, assessment activities can engage teachers in exactly the kind of active observation and reflection characteristics of constructivist pedagogy” (Driscoll, 1999, pp. 81-82). Driscoll argues that assessment should be perceived as “a process of gathering evidence about students’ knowledge, skills, and dispositions [...] and of making inferences based on that evidence for a variety of purposes, including better understanding of students’ needs and more appropriate instructional goals and curriculum design” (Driscoll, 1999, p. 82). The ‘Classroom Assessment in Mathematics Network Project’ required collaboration between teachers, district supervisors and staff at the Education Development Center in the USA. The project

included: coaching time, regular peer interactions, collegial networks, teachers' control of time and resources, and flexibility to allow teachers to adapt innovations to meet the characteristics of their contexts. It also included national assessment workshops and action research projects.

It is clear that in order for assessment to be used as a form of professional development, the following elements must be addressed: evaluation must be designed and implemented as a process, an ongoing system of support and feedback to the teachers (Danielson, 2001); a commitment from the management is vital to the successful implementation of such a process; a commitment from teachers' unions and other professional organizations is also needed; a significant amount of time must be allocated to the process (Annunziata, 1997); an understanding that teachers must have an active role to play in the process; and the inclusion of a variety of perspectives in the process (students, administrators and other teachers) (Beall, 1999; Danielson, 2001).

Workshops, seminars, institutes, conferences and courses

Perhaps the most traditional form of professional development is the typical 'in-service staff training' that includes the use of workshops, short seminars and courses. Major criticisms abound in the literature about offering this form of in-service education as the only form of professional development, as traditionally most of these workshops and seminars are 'one-shot' experiences, completely unrelated to the needs of teachers and providing no follow-up. As Jesness (2000), a special educator in Texas, USA, says: "Anyone who thinks education can be substantially improved with workshops probably hasn't ever attended one" (p. 37).

However, given the new understanding of professional development as an ongoing process of growth and learning, there are some cases that show that offering workshops, seminars and courses, when accompanied by other

types of professional-development opportunities, can be quite successful. An example of such an approach is that reported by Zeegers (1995), based on a series of three one-day workshops offered to teachers in New Zealand as a first phase of a professional-development programme designed to prepare teachers to teach under the new national science curriculum. These workshops were followed up by supplementary supportive and informative visits from in-service facilitators, the results of which were positive. Another example is found in the North Carolina Teacher Academy (USA) which, for many years, has offered over 40 one-week summer seminars for teachers, and has trained over 200 teachers, who have themselves become trainers. The topics of the workshops are proposed and decided upon by the teachers based on their experiences, visions and needs.

Workshops/institute training that is development-oriented can be equally as helpful as more modern forms of professional development (Tillema and Imants, 1995). Cutler and Ruopp (1999) explain how the staff at the Education Development Center in the USA designed and implemented a programme of professional development entitled 'Middle School Mathematics project'. As part of this project, 32 middle-school mathematics teachers from the Boston area in the USA came together twice a month for two years to attend half-day workshops that addressed issues related to teaching mathematics; some were content-based, others focused on pedagogical knowledge and practice. Teachers were also encouraged to do some research in their own classrooms to identify variables that could help explain the low level of achievement of some of their students. Teachers evaluated the workshops as being very valuable, and this resulted in their changing their practices in the classroom. They also appreciated the benefits both of creating of a network of colleagues, and of their newly learned skills which included time management, resource management, and risk-taking abilities. Cutler and Ruopp (1999), however, do not report whether this project had a significant effect on students' learning.

Another interesting case, although unrelated to schoolteachers, is reported by Papai *et al.* (1999). The project involved a six-day workshop developed in China with the support of the Canadian International Development Association, to help Chinese nurse-educators reflect on their practices as clinical teachers. The results of the experience were positive.

Two other cases of this type of professional development are reported by Borko and Putnam (1995). The Summer Mathematics for Teachers programme, and the Institute for Chemical Education workshop offered in-service teachers the opportunity to come together for seminars, workshops, demonstrations, lectures and discussion groups over a short period of time (four weeks during the summer months). The former focused on helping teachers to improve their mathematics teaching skills, and the latter on improving their chemistry-teaching skills. Both also offered ongoing support to participants following termination of the seminar or institute, and also provided opportunities to continue discussions and use of the materials. Both were evaluated quite positively.

A similar project is described by Eror (2001). The Chautauqua Programme included a series of workshops, courses and a hands-on laboratory, which was offered by scholars in different sciences and engineering to science teachers in colleges. The goal was “to enable undergraduate teachers in the sciences to keep their teaching current and relevant” (Eror, 2001, p. 290).

Another interesting model is reported by Allen-Chabot (2001). The Nutrition Science Institute was a nine-day programme, which was conducted with the collaboration of the public-school system, the Maryland State Department of Education (USA) and the department of Nutrition and Interior Design at Hood College. The institute included workshops, classes, laboratory time, work-group time to design curricula, discussion groups, computerized activities and training in internet usage. The evaluation of the programme was very positive, and it is now implemented in individual counties.

Many examples are found in the literature of courses specifically developed to train teachers in a particular technique or to help them acquire certain knowledge. For example, Ball (2000) describes the use of one course in particular to teach South African and American teachers how to become more aware of their discourse when teaching students of diverse cultural and linguistic backgrounds. Also, Irving *et al.* (1999) describe a successful course designed collaboratively by schools and a university to increase the scientific knowledge of secondary-school teachers, and to improve their pedagogical skills in science teaching.

Funding for this type of professional development is usually available from school districts, ministries of education, and even international agencies (see, for example, the list of UNESCO-funded workshops listed under UNESCO/PROAP activities in Asia-Pacific, Project 2000+).

Case-based professional development

This model involves using “carefully chosen, real-world examples of teaching to serve as springboards for discussions among small groups of teachers [...]. Cases can help teachers discover ambiguity, conflict, and complexity within a deceptively simple-looking teaching situation” (Barnett, 1999, p. 26). The case method is based “on the conception that knowledge is constructed, built on prior knowledge, coupled with experience, transformable, evolving, and consequential, and thereby, provides students with insight into alternative solutions rather than ‘correct’ answers” (Harrington, 1995, p. 203). Using cases for teachers’ professional development must be an ongoing process (Merseeth, 1994), where teachers have the opportunity to reflect on each aspect of the situation, and frequently meet with the same group of colleagues to discuss any issues raised.

There are several examples of the successful implementation of this form of professional development, one being the Mathematics Case Method,

which brought together between 6 and 15 teachers once a month, for a two-hour discussion on various issues (Barnett, 1998, 1999), some of which were written by the teachers themselves. The teachers' assessment of the experience was positive. Harrington (1995) also reports on a study in which dilemma-based case methods were used with the intention of measuring whether they had any effect on student-teachers' reasoning development. Findings show that some students were able to show a higher level of reasoning (although not all), and that they were able to identify and approach conflict situations appropriately. Harrington explains that the development of students' reasoning level is clearly also mediated by developmental characteristics that surpass the scope of the dilemma-based cases. Shkedi (1998) also mentions the positive results of the use of the case-based model for in-service teacher professional development in Israel, and yet adds that not all teachers were able to grasp all the reflective aspects of the cases presented. The author concludes by recommending that one does not rely exclusively on cases to promote the professional development of in-service or pre-service teachers.

Self-directed development

In this type of professional development, teachers identify one goal which they consider to be of importance to them – either individually or in small groups, list the activities that they will implement to reach that goal, the resources needed and the ways in which their progress and accomplishments will be assessed. In such a situation, teachers take responsibility for their own development, and the role of the administrators and supervisors is to facilitate, guide and support that development. Objective feedback is certainly needed if this model is to be effective.

A good example of this kind of professional development can be seen in Japan, where a survey of 3,987 teachers in 1981 indicated that more than half of them had been active in some kind of voluntary study-group, a self-directed process (Shimahara, 1995).

Another example is that of a project implemented in the late 1980s and reported by Wideen (1992). In this project, a member of school staff, supported by the school district, created a setting in which teacher development occurred naturally within the school. The project showed how the model itself developed throughout its implementation phase as it responded to external and environmental forces and to internal interests and needs identified by the teachers. The principal provided general conceptual direction, and also supported an atmosphere where trial and experimentation were allowed. Teachers and administrators came together regularly to talk, plan, discuss innovations and assess their impact. These meetings generated a high level of collegiality, communication and trust.

A specific form of self-directed professional development is what Easton (1999) describes as ‘tuning protocols’. In this model, developed by David Allen and Joseph McDonald, “a teacher presents actual work before a group of thoughtful ‘critical friends’ in a structured, reflective discourse aimed at ‘tuning’ the work to higher standards” (Allen, 1995, p. 2 in Easton, 1999, p. 54), and after discussing with the group of colleagues all the positive and challenging aspects of the work, the presenter reflects on how the work could be improved.

Another example, described by Pierce and Hunsaker (1996) as a model of “professional development for the teacher, of the teacher and by the teacher”, is the School Innovation Through Teacher Interaction (SITTI) model. The actions taken by teachers in this model are:

- to agree on how they would like the school to look and be;
- to complete a needs assessment involving administrators in the process;
- to decide on who will be the experts (from within the school) on the topics chosen to work on, and elect people as team members who will participate in peer coaching;

- the team of experts develops a module to address the needs and topics chosen by all those involved;
- to measure student outcome versus objectives.

There are no results reported concerning the implementation of this model, or its effect on teachers' professional development or on students' learning.

Co-operative or collegial development

This is a term used by Glatthorn (1987) to describe his model of collegial development. In this model, teachers develop their own plan for professional development in small groups. This kind of co-operative model makes teachers – as a group – in each school continuously responsible for quality (Wilson, 1994). This can be implemented in the following ways:

- professional dialogues to discuss professional issues of personal interest;
- curriculum development where teams of teachers develop curriculum units;
- peer supervision;
- peer coaching/peer assistance;
- action research to collaboratively inquire about a real problem in their teaching (see description of action research below).

In order for this model to be effective, the following conditions are necessary (Glatthorn, 1995):

- that there be a true collaborative school context (and thus, this is not imposed on teachers);
- that administrators support the efforts;
- that teachers have sufficient time to complete all the tasks listed above;
- that teachers receive some training on how to implement this model effectively.

Several projects have implemented the collegial model in such a way that it focuses on curriculum development (training, specialization, practice) as a form of promoting teachers' professional development. Teachers work in teams (rather than independently during their own personal time) to develop curriculum materials and to evaluate the implementation of particular curricula and curricular practices. Results show that teachers feel a sense of accomplishment in their work and in their development as teachers. See Frost (1996) for an extensive and detailed description of some projects which have used curricular development as a form of this professional-development model.

Another interesting way to implement the collegial model is through inter-disciplinary team-teaching, that is either mixing teachers and student-teachers, students-teachers alone, or teachers alone. Results of studies that evaluate these experiences are quite positive (see Sandholtz, 2000, for example).

Three other examples are found in Japan, Colombia and Spain. In Japan, teachers report to colleagues on their own personal case studies (where they are the subjects of the case) using narrative documentation or video-tape recordings of their teaching. The "cases are diagnosed, illuminated, and criticized from multiple points of view by attendant teachers. Through reflection and deliberation, teachers share their personal practical knowledge with each other and develop alternative approaches" (Sato, 1992, p. 165). This model appears to have been successfully implemented in Japan for over two decades. In 1981, 3,987 teachers were asked to name the most effective factors in developing their teaching competence. The four most common answers were: advice from colleagues, school in-house workshops, learning from students, and excellent books and case reports (Sato, 1992).

In Colombia, the Escuela Nueva programme (New School Programme), a reform to improve the quality of multi-grade teaching in rural schools in the country, is another example. This programme relies heavily on teacher education and professional development, particularly on peer-teaching, where

groups of teachers at the local level take on the responsibility to help one another learn about the new approach and come together periodically (in the 'microcentros rurales') to reflect on the results of their initial attempts to implement change in their classrooms (Rojas, 1994; Schiefelbein, 1991).

Finally, in Spain, a number of projects using this model have been created and implemented successfully. One is the School-Based In-Service Teacher Education project (FOPI) that was implemented in the early 1980s, and the other is the Education of Teacher Educators project, whose purpose was to develop staff who would work in the new teacher centres and institutes (Benejam and Espinet, 1992).

Observations of excellent practice

A number of professional-development programmes offer teachers the opportunity to observe colleagues who have been recognized for their expertise and excellence in teaching. In this way, teachers have the opportunity to learn and reflect on the knowledge, skills and attitudes that excellent teachers implement in the classroom. On many occasions, these observations constitute part of a larger professional-development effort, whereas in others, they represent the core of the professional-development opportunity. One example of this model is the Teachers International Professional Development Programme, implemented by the British Council. This programme sponsors British teachers to visit different schools in a variety of countries and settings, so that they can observe first hand aspects of teaching and teachers' work, and so that they can later share their experiences with other teachers in their schools and communities. Another programme that promotes professional development by funding teachers' visits to other countries was initiated by the Chilean Government in 1996 (Undurraga, no date). Chilean teachers usually spend a period of two months in a country that, according to a selection committee, offers an exemplary programme in the teachers' area of specialization.

A similar programme is that of the United Kingdom/Australia Fellowship Scheme for Teachers of Science. This programme, funded by the governments of both the UK and Australia, provides funding for a handful of teachers from one of these countries to spend a significant number of weeks in the other country, observing excellent practice, participating in research projects, attending workshops and joining in discussions with colleagues in the host country (Robottom and Walker, 1995). The programme has been successful in promoting teachers' professional development.

At a more 'informal' level, there are a number of programmes – both pre-service and in-service – that offer opportunities for less experienced teachers to shadow and observe master teachers doing their jobs, sometimes in the same school, sometimes in different settings.

Increasing teacher participation in new roles

This model is based on the idea that the professional development of teachers is improved by increasing the participation of teachers in, and their influence on, activities such as: management, organization, support and monitoring (Conley, 1991). When teachers are responsible for their own in-service preparation, that preparation is significantly more effective. For example, in Spain, the creation of Teachers' Centres has had a very positive impact on teachers' professional development. These centres are organized as institutions for the extension and exchange of knowledge and experiences, and for the development and diffusion of new didactic resources. They are managed as corporate bodies, with representatives elected by teachers from different educational levels, both in public and in private schools, and with delegates from the administration (Morgenstern de Finkel, 1993).

An example of the implementation of this model is a study reported by Tisher (1990) in Australia, where participating teachers were asked to model for 10 days a teacher, whose role characteristics were slightly different from

their own 'self-portraits' which had been collected prior to this request. A subsequent request for a 'self-portrait' showed that there had been some changes, for example with respect to helping students and other classroom routines, at the end of the 10-day period of modelling with discussions and reflective activities.

Skills development model

This model, described by Joyce and Showers (1988), was designed to develop new teaching techniques and skills such as higher-order questioning, inquiry teaching and group work. In order for this model to be effective, a significant amount of 'time off-the-job' is necessary. Following that time, teachers are slowly reintegrated into the classrooms with substantial coaching. The five components of their model are:

- an exploration of theory through lectures, discussions and readings;
- the demonstration of skills through videos and life training;
- practice under simulated conditions (20 or 25 trials in a period of 8 to 10 weeks);
- feedback provided by peers under guidance (audio and video recordings are encouraged);
- coaching during the transition from training to actual classroom teaching.

An effective implementation of this model is reported by Baker and Smith (1999). In their study, teachers of two kindergarten programmes in the USA underwent a programme of professional development using the skills model, in order to learn more about new instructional approaches critical to early reading success.

Reflective model: teacher as reflective practitioner

This model builds on teachers' personal classroom experiences. It requires that the teacher pay attention to daily routine and the events of a regular day, and to reflect on their meaning and effectiveness.

The major assumptions upon which this model is based include: teachers' commitment to serve the interest of students by reflecting on their well-being and on which aspects are most beneficial to them; a professional obligation to review one's practice in order to improve the quality of one's teaching; and a professional obligation to continue improving one's practical knowledge.

This model of teachers as reflective practitioners is inspired by Schon's model (see Clarke, 1995) which explains that a practitioner is reflective when he or she:

- is curious about, or intrigued by, some aspect of the practice setting;
- frames that aspect in terms of the particulars of the setting;
- reframes that aspect in the light of past knowledge or previous experience;
- develops a plan for future action.

More recently, as the implication of the teacher as researcher and as reflective practitioner has begun to appear as a 'must' in any programme of professional development for teachers, educators have identified a number of unanswered questions in relation to this model. The most common is: 'What should teachers reflect on?' Three documents have answered this question. Potter and Badiali (2001) have said that three forms of reflection should be encouraged:

- technical reflection, which refers to considering the curriculum and adjusting teaching according to the situation presented at a particular time;

- practical reflection, where teachers think and deliberate about the means and the purposes of particular actions;
- critical reflection, where teachers raise issues related to moral and ethical situations faced in the profession, and where teachers may ask the questions: “What *should* children be learning?”, and “Why *should* they be learning them?”.

Zeichner and Tabachnick (2001) have identified four ‘traditions’ of reflective thinking, each with a different focus on reflection:

- the Academic tradition focuses on the representation of subject matter to students in order to promote understanding;
- the Social Efficiency tradition focuses on the intelligent use of generic teaching strategies proposed as a result of research undertaken on teaching;
- the Developmentalist tradition focuses on the process of learning, development and understanding of the students;
- the Social Reconstructionist tradition focuses on issues of equality and justice, and the social conditions of schooling.

Finally, according to Glazer *et al.* (2000), a model which is based on the ideas of the reflective practitioner requires that teachers reflect on the daily experiences in the classroom, the changes or experiments that may be implemented in the classroom, and their effect. Once this information is collected, the following steps should be taken:

- a discussion concerning the information, possibly guided by pre-selected questions;
- action planning for a modified practice or experiment;
- readings that can contribute to reflection and discussion;
- the use of an external facilitator in the reflection process.

Results of studies show that programmes designed to promote teachers' reflection on their practices do result in teachers developing a more complex view of beliefs and teaching practices, both in in-service teachers (Adalbjarnardottir and Selman, 1997; Clarke, 1995; Geddis, Lynch and Speir, 1998) and in pre-service teachers (Freese, 1999; Robinson, 1999; Morey *et al.*, 1997), and thus they produce an improvement in their teaching. For example, Easton (1999) describes the use of 'Tuning Protocols' (described in this chapter under self-directed professional development) as a positive model, which requires that teachers reflect on their daily activities and share their reflections with colleagues who will, in turn, give them feedback.

Programmes that have been successful in promoting reflective practice among student-teachers have some common variables (Clarke, 1995):

- they offer a multiplicity of perspectives;
- they offer an intense examination of a student's practice over a number of days;
- they offer student-teachers the opportunity to theorize about practice, and encourage them to do it often;
- they offer students an opportunity to entertain uncertainty.

An example of the implementation of such a model is reported by Adalbjarnardottir and Selman (1997). They designed and implemented an intervention programme that had two goals: to promote students' interpersonal competence and skills; and to provide support for teachers' professional development by encouraging them "to reflect on their pedagogical ideas, aims, teaching practices, and professional development as they relate to the issues of children's social behaviour and development of children" (p. 413). The programme promoted two kinds of reflection: individual and group. It was observed that teachers became more reflective of their practices, and provided significant opportunities for children to do the same.

Project-based models

The primary goal of these models is “to develop the student-[teachers’ and teachers’] capacity to work independently and collaboratively as reflective professionals, a goal that is supported not only by their own project experience but by accompanying discussion, comparison, and contrast with accounts in the literature and the work of their fellow-students. A secondary goal is to make a positive contribution to students’ own institutions, which helps to sustain their support for the course” (Eraut, 1995, p. 625). These models prepare teachers for leadership roles in the classroom and the school, and improve the general quality of their professional development (Vulliamy and Webb, 1991).

An example of such a model is reported by Kieviet (1990). Secondary-school teachers in the Netherlands were involved in a project which included an in-depth service course to learn how to develop thematic learning materials. The course was offered in several formats, which varied in the amount of time that was allocated to explanation and to practice. Teachers were involved in discussions, evaluations, reflections, development of materials, etc., and then did an evaluation, together with the researcher, of the aspects of the programme that were most effective. It was noted that they learned more when a greater proportion of the course was dedicated to practical activities. This learning became more effective when they were coached by a tutor following completion of the course. These findings then influenced the teachers’ and the school-administrators’ practices.

Portfolios

A portfolio is a collection of items gathered over a certain period of time to illustrate different aspect of a person’s work, professional growth and abilities (Riggs and Sandlin, 2000). In teaching, a portfolio is usually a tool used to engage teachers and students in discussions about topics related to teaching

and learning. There are three forms of portfolios usually used by educators: an employment portfolio; an assessment portfolio (as a way of showing attainment of prescribed competences and outcomes); and a learning portfolio (a collection of items that helps teachers think about, and describe, learning outcomes) (Dietz, 1999). Teaching portfolios can accomplish formative assessment, summative assessment, and self-assessment (Riggs and Sandlin, 2000).

Several studies (for example, Bush, 1999) report the successful use of portfolios to support teachers' professional development, as they provide an opportunity for teachers to reflect on their own work, goals, activities in and out of the classroom, etc. Jarvinen and Kohonen (1995) completed a study in Finland to support first-year teachers through an induction programme, which included the use of portfolios to help the teachers to reflect and monitor their own professional development. Results show, among other things, that the level of reflectiveness was high among the teachers who had participated in the study.

Action research

Action research "is a process of investigation, reflection and action which deliberately aims to improve, or make an impact on, the quality of the real situation which forms the focus of the investigation. It is a form of inquiry which involves self-evaluation, critical awareness and contributes to the existing knowledge of the educational community" (O'Hanlon, 1996, p. 181). Three reasons explain why action research can be an effective model for teachers' professional development: it is inquiry-based, and allows teachers to investigate their own worlds; it is aimed at the improvement of teaching and learning in schools; and it leads to deliberate and planned action to improve conditions for teaching and learning (O'Hanlon, 1996).

The impact that action research has had on teacher preparation and professional development is so significant that the image of teacher-as-researcher is increasingly common in the literature. As a result, teachers are now beginning to be considered not only as professionals who consume the knowledge created by 'expert researchers', but as creators of that knowledge (Stokes, 2001). Many other models of professional development (for example, the model of professional-development schools and the many models of inter-institutional collaboration) emphasize the importance of promoting the role of teachers as researchers and reflective practitioners (Stokes, 2001).

Implementing a model of action research for professional development does not imply a process of individual inquiry or research in isolation. In fact, most initiatives that have promoted action research have used at least one of the following collaborative formats: whole-school projects; small-group action research projects; and individual reflection with small-group support. These forms of collaborative action research have been evaluated as being a very effective form of professional development (Day, 1998).

Freedman (2001) reports on three teachers' networks that have been created in the past 10 years or so to promote teacher research as a way of supporting teacher professional development. These three networks include: firstly, the Multicultural Collaborative for Literacy and Secondary Schools (M-CLASS). This included teachers (from several large cities in the USA), university-based site co-ordinators in each of the large cities, and a team from Berkeley University (in California). Its goal was "to complete a collaborative research project that would generate and synthesize knowledge from the academy and knowledge from teacher researchers" (p. 191). Secondly, The M-CLASS Site Based Network, which was an extension of the first network. This was much smaller (involving teachers from only one of the regions and a few university professors). The main goal of this network was to implement some actions on the research sites, and also to contribute by generating some knowledge about the practice of teaching. The third network was explicitly

designed as a professional-development network. It was created as Freedman, a university professor, developed a teacher research seminar for newly certified teachers who had just graduated the previous year. In addition to all the regular activities usually presented in a research seminar, it required that teachers complete a research project based on their own teaching during their first year working in a school setting. This project was designed as a teacher-as-researcher experience.

Another case of collaborative action research is described by Watt and Watt (1999). In 1986, the Logo Action Research Collaborative (LARC) was created “as an exploratory effort to support teachers using Logo (a computer language) in building professional cultures for studying and assessing Logo learning in order to deepen their understanding and improve their practice” (Watt and Watt, 1999, p. 53). It was created because teachers needed to prove to their administrators that it was logical to use Logo in the classroom. The implementation of this action-research project was a success.

Many other projects reported in the literature support action research as an effective model of professional development. For example, see Adams and Chisholm (1999) who report on action-research projects that linked not only many institutions (schools, teacher preparation, and universities), but also disciplines (arts, designers, and teachers). See also Dockendorf (1997), who reports on groups of teachers in British Columbia who formed action-research groups that lobbied the district administration and received funding to support the work of the teachers in the group. Finally, see Ebbutt and Elliott (no date) for an interesting description of a national project of action research in Namibia. These authors describe how a national plan for Teachers’ Professional Development, conceived by the Namibian Institute for Educational Development, was identified as ‘Practice-based Inquiry’, and how it followed the same principles of the teacher-as-researcher movement or classroom action research. In addition, they describe their own involvement in the development of materials to be used in educating in-service teachers for practice-based

inquiry using distance education. It is important to note that the use of this model played a major role in the national social reform that was initiated by the transformation of education after Namibia gained independence. For teachers who were used to submitting to the government, having no voice whatsoever in their daily practice, there is no doubt that learning to use action research as a model to improve their teaching required a major change in their preconceived ideas of what education, teaching and learning are about.

This difficulty encountered by teachers in Namibia has been reported in other areas as well. On some occasions, even when teachers and their societies have the intention of promoting the role of teachers as researchers, the long-existing perception of teachers as being mere interpreters of the knowledge handed down to them by experts is a tough barrier to overcome before it is possible to revolutionize the expectations and practices related to teachers and teaching. Hancock (2001) mentions that a large number of teachers in the United Kingdom “shy away from seeing themselves as researchers and they are reluctant to write about their teaching practice” (p. 119). In other countries, it goes beyond ‘shying away’ from the challenge. As a participant from an African country at a Teacher Professional Development Conference at Harvard University expressed to me so eloquently in September of 2001, “You are telling me that I must ask my teachers, who teach up to 100 students in any one class, in a room with no windows, that they must also find the time and energy to reflect on their teaching and do research in the classroom?” Clearly this model of professional development – as do almost all others – requires a particular structure and support. Hancock (2001) summarizes the areas of difficulty that prevent teachers from getting involved in action-research projects:

- “Lack of expectations that teachers should research and write about their professional practice;
- the demanding nature of teaching which leaves little time and energy for research;

- the current lack of professional confidence and marginalization of teachers from government change agendas;
- the mismatch between many available research methodologies and teachers' professional ways of working in classrooms" (p. 127).

Teachers' narratives

Some authors have reported on the tremendous impact that teachers' own narratives (or 'autobiographical research') on their experiences in the classroom can have on their professional development (Clements, 2001; Wood, 2000). As Ershler (2001) explains, one important learning model is to reflect on one's own experiences; one way of collecting 'data' about one's own experiences is by writing about daily experiences in the classroom.³ Ershler (2001) reports that using novice teachers' own stories is an 'extraordinarily powerful' (p. 163) tool to promote teachers' growth and development in their career. She describes the steps of this methodology as follows: First, the teachers write narratives that describe different events or instances of teaching practice. These are distributed to other teachers who are part of a learning group for reading and review. The narratives are discussed at length. Usually teachers focus first on the specific event that is being reported, and then go a step further and begin to establish connections and observe the isolated event within a larger context. Teachers' responses to this experience have been positive. By listening to others' narratives, teachers can live some experiences vicariously; those who are the authors of the narratives are able to 'step outside' of their own personal experiences and perceive/analyze themselves as any other teacher in a particular learning and teaching instance.

One related form of professional development is the use of journals or 'journalling' (Killion, 1999). Writing journal entries could also be classified as

3. Another is to video-tape a regular day; however, video-taping usually creates distraction and a stressful atmosphere.

a means of promoting reflective practice, as “Journal writing becomes a place for learners to record observations, toy with various perspectives, analyze their own practice, interpret their understanding of topics, keep records, make comments, or reconstruct experiences. Journals can be kept private or shared with colleagues for response, feedback, interpretation or comment” (Killion, 1999, p. 36).

A very significant case reported in the literature which focuses on writing as a tool for professional development is the US National Writing Project (Lieberman and Wood, 2001), which has been in existence since 1975 (Kelly, 1999). This project asks teachers to “articulate their own dilemmas and pursue means to resolve them” (Lieberman and Wood, 2001, p. 175) by writing about them. This project also “encourages professional collaboration to inquire into the considerable ‘inside’ knowledge that teachers have accrued from years of classroom practice. To accomplish these tasks, the National Writing Project established regional and national networks of teachers who, in the process of working on their own local problems, transcend the barriers of school walls by reaching out to other teachers – to give and receive ideas, support and critique” (Lieberman and Wood, 2001, p. 175). In this way, teachers are the actors in their own professional development.

Teachers who join the National Writing Project attend a five-week institute which is offered in different regions of the USA. This institute is described by many participants as being the ‘heart’ of the project. In addition, teachers participate in discussion groups, model lessons, writing groups, mini-lessons, workshops, etc. Many powerful teacher networks have been created and are supported by the National Writing Project throughout the USA (Kelly, 1999), and teachers have been successful in their work with very diverse students as a result of this project.

The National Writing Project is guided by a number of principles (Lieberman and Wood, 2001):

1. Teachers learn by teaching other teachers;
2. Teachers learn from making their work public and having it discussed and critiqued by a group of peers;
3. Learning to write and learning to teach have a great deal in common; in order to learn how to teach or how to write, teachers must teach/write, publicly expose their work, be critiqued and revise;
4. There are strong value commitments, but methods and means are non-ideological;
5. Teaching is accepted as being messy, uncertain and unfinished;
6. Teachers learn by taking on different roles and seeing the world from different perspectives;
7. Teachers take away with them leadership learning techniques;
8. Networks provide powerful contexts for teacher learning, community, and enhancement of teachers' confidence and self-esteem.

A similar effective project is reported by Schmidt (no date) in Colombia, where teachers are engaged in learning how to use their narratives and writings in their own professional development. In this particular case, the use of narratives is combined with the reflective model, as teachers reflect on their own and on others' practices through the use of writing.

This same model has also been used to assist the professional development of teacher educators in Europe. Kiely (1996) describes a model used in the United Kingdom and Denmark to 'train' teacher educators from Poland who work in English teacher-training institutions in Poland. These teacher-educators travelled from Poland to the UK or Denmark to take courses for a period of five weeks. During this time, they were asked to write and prepare materials that they would use in their classes on their return to Poland. The topics were selected by the teacher-educators, and usually reflected some difficulty they were having with a particular aspect of the curriculum. This description, offered by Kiely, constitutes at the same time part of two larger programmes: the 'Teacher Training' Development specialist course at Thames

Valley University in London; and TEMPUS, a larger Joint European project that aims to improve the preparation of teachers. Other partners include Warsaw University in Poland and Danmarks Laererhojskole Copenhagen.

The generational model, the cascade model, or the training-of-trainers model

In this model, a first generation of teachers is trained or educated in a particular topic or aspect of teaching or subject matter, and after a certain amount of time become the educators of a second generation (Griffin, 1999). Careful attention must be paid to the planning of such a programme and process, and to the selection of the first generation. This can continue effectively for up to three generations.

This model has been successfully implemented in a number of settings. For example, Caverly *et al.* (1997) report on its use to educate teachers in a school district of Texas (USA) in how to infuse the use of technology into the curriculum. Prescott (2000) describes the School Attuned project, in which a small number of teachers are taught, through case studies, how to identify and diagnose eight areas of brain functioning. These teachers, in turn, teach their colleagues to do the same assessment. This project showed very positive effects on the teachers, the children and the children's families.

Other successful results are reported in Chile, where Institutes of Teacher Preparation using this model have been implemented (free of cost to teachers) in 15 per cent of public schools in the poorest areas of the country. These institutes focus on improving the teachers' knowledge and skills in teaching mathematics, reading and writing to elementary-school children from poor and rural areas of the country. The first step in the process is that supervisors attend an intensive one-week institute on how to teach mathematics, reading and writing, and how to help teachers improve their teaching in these areas. Following this intensive week's training, supervisors

travel back to their home districts, where they implement weekly workshops with a small group of teachers (approximately eight) in their own schools. This project (P-900) has been successfully implemented since 1990, and has received financial support not only from the Chilean Government, but also from the Governments of Sweden and Denmark (Condemarin, no date).

Coaching/mentoring

Coaching is the process by which a colleague who is “a critical listener/observer, asks questions, makes observations and offers suggestions that help a teacher grow and reflect and produce different decisions” (Harwell-Kee, 1999, p. 28). This process provides opportunities and structures for teachers’ professional development. Mentoring is a form of coaching that tends to be short-term (for a beginning teacher or for someone new to a school or a system, for example). Other forms of coaching can be ongoing and long-term. Coaching is a learned skill, therefore coaches and mentors need training (Holloway, 2001).

“A mentor provides the newcomer with support, guidance, feedback, problem-solving guidance, and a network of colleagues who share resources, insights, practices and materials” (Robbins, 1999, p. 40). As a form of professional development, mentoring affects both the new teachers who are being mentored, and the experienced teachers who will serve as mentors (Shaw, 1992). Mentoring has become one of the most common responses of school leaders to the needs of new teachers, and research shows that as a model, it is popular with both mentors and beginning teachers (Ballantyne and Hansford, 1995). According to these authors, mentors have many roles to fulfil; sharing information, providing access to resources, role modelling, counselling, coaching, encouraging reflection, advising in career moves and supporting new teachers. In their research carried out in Australia, Ballantyne and Hansford (1995) also report that the effects of ‘buddy mentoring’ (having a companion teacher) are very positive, but not sufficient. New teachers also

need to have access to other mentoring resources, such as specialists or consultant teachers, faculty from the teacher-preparation institution where they completed their initial education, and other resources.

In an analysis of the role of mentors in both England and Germany, and based on research previously reported by Maynard and Furlong in 1993, Jones (2001, p.76) describes three possible models of mentoring:

- *The apprenticeship model*: the mentor is the master teacher to be emulated;
- *The competence model*: the mentor relates training and assessment to pre-determined standards of practice;
- *The reflective model*: the mentor adopts the role of 'critical friend' who assists in the evaluation of teaching.

Jones found that in both countries, the conception of mentoring most commonly mentioned by mentors is that of an adviser, one who offers constructive criticism. Yet, she also reports finding a tension among the English mentors, as they are also expected to be 'assessors' of the students, while this tension is less marked in German advisers, whose role is expected to be of a more collaborative nature. The existing policy in England that expects the assessment of student-teachers to be one of the main aspects of the mentor's role is certainly a variable that creates tension and, thus, affects the relationship between student and mentor, and the professional development of both parties.

There are several studies that report the effectiveness of mentoring as a form of professional development. For example, Holloway (2001) reports on two effective mentoring programmes in the USA. Also, Hawkey (1998) examined how two different mentoring styles (one that focuses on providing multiple opportunities for the student-teachers to learn from, and one that focuses on the particular teaching experience of the student-teacher in that specific place and at that particular time) affected the learning process of their

students. Both were found to be effective, and when the style matched that of the student-teacher, the experience was positive for both members involved in the relationship. At the same time, Holloway (2001) reports on some studies that show that mentors who have received some form of mentoring-training are more effective in their roles.

With the developments of new technologies, a model called ‘telementoring’ has been proposed by Eisenman and Thornton (1999) to be practised on first-year teachers. This is a model of mentoring implemented through electronic mail. In the beginning, the mentoring could be done by the same university faculty that guided the new teacher through his or her teacher-preparation programme, and a year later the teacher could become the mentor of a new first-year teacher. This type of mentoring is already taking place informally in many institutions that have access to e-mail. A more systematic and formal process could be developed in the future.

Conclusions

Given the number of models reported in the literature, and the multiple possible combinations, those interested in promoting, designing and implementing teacher professional development certainly have a large variety of options and opportunities. It is of paramount importance, however, to pay attention to the characteristics of the context in which these professional development models will be implemented, as well as other factors that may support these efforts. Some of these factors are examined in the following chapter.

Chapter V

Factors to consider when planning, implementing and assessing the professional development of teachers

There are a number of factors to consider when planning, implementing and/or assessing teachers' professional-development models and systems. The following brief presentation of each factor is not intended to be exhaustive; rather it is an initial contribution for policy-makers, administrators, and educators in general.

A culture of support: the role of school and education leaders

In order for professional development to be successful, a 'culture of support' must be established. Lieberman (1994) describes in detail five factors that are necessary to build such a culture in schools and education systems. They are:

- developing norms of collegiality, openness and trust;
- creating opportunities and time for disciplined inquiry;
- providing opportunities for teachers' learning content in context;
- re-thinking the functions of leadership, and redefining leadership in schools to include teachers;
- creating and supporting networks, collaborations and coalitions.

Bush (1999) adds a sixth factor: preparing teachers to become leaders of their own professional development. Knowing how to design, implement and assess professional-development opportunities is a learned process, and teachers need time and opportunity to learn the necessary skills and knowledge in order to become effective promoters of their own professional development.

Building an effective collaborative school culture requires the involvement of teachers, administrators and other professionals working in schools, as all merit, and can benefit from, professional-development opportunities. In the ‘Principals as Leaders in Science project’ initiated by the Education Development Center in the USA, teams of teachers and principals were created to support the school reform intended in the project. Both teachers and principals reported on how significant this collaboration had been in the success of the project and in supporting the teachers’ changes in beliefs, attitudes and practices in science teaching (Matsumoto, 1999). The NEA Foundation for the Improvement of Education (2000) goes one step further again by emphasizing the need for support. According to a report made by the Foundation, it is important to engage not only educators and administrators, but also the public in supporting professional development for teachers. This report offers a long list of actual projects implemented in different locations of the USA to engage the public and gain their support.

When focusing on the teachers’ needs alone, several studies (Bush, 1999; Clement and Vandenberghe, 2001; Fernandez, 2000; Moore, 2000; Marshall *et al.*, 2001) report that the leadership of principals is crucial to support their professional development in schools. In a study of Canadian schoolteachers and principals, Fernandez (2000) identified certain characteristics that are common in all supportive principals (even though the principals had quite different personalities and work styles). These common characteristics were “visibility, modelling, support, high expectations, and decisiveness and courage” (Fernandez, 2000, p. 241). Also, in a study involving school leaders, Clement and Vandenberghe (2001) discovered that of all actions in which

school leaders could be involved, the most effective in promoting professional development was providing working conditions that offer learning opportunities and learning spaces. If these two variables are in force, teachers can get organized, design and implement many forms of professional development.

Moore (2000) offers several suggestions for principals and directors of school programmes to support the professional development of the teachers. They include; planning ahead, starting early, establishing a routine, tapping internal resources, establishing a mentoring programme, holding staff meetings for professional development and observing and guiding change.

Aside from the leadership and support of principals, successful professional development requires a culture of support that involves not only teachers, other educators and the public, but also national and international associations, leaders in the field of education and students. The more support, the better (Burget, 2000).

The role of context: Multiple settings/multiple professional communities

The contexts wherein teachers teach and professional development occurs are usually varied, and they have a serious impact on teachers, their work and their professional development. “Multiple professional communities exist in any teachers’ professional ‘map’” (McLaughlin, 1994, p. 47). Therefore, there should be multiple strategic sites for professional growth within the education-policy system: district, department, school and professional organization. Each of these can make a particular contribution that may take different forms and involve various strategies, but all are equally as important (McLaughlin, 1994).

As discussed in *Chapter I*, it is not possible to choose one form of professional development which is better than any other, as one of the variables that may render one format more effective than the next is its compatibility with the culture, the society, and the contexts in which teachers and schools coexist. The socio-economic status of the school is a contextual element which has an impact on the kind of professional-development opportunities made available to teachers, and the kinds of practices they implement. Data collected by the National Science Foundation in the USA show that “at the school level, school socio-economic status was found to influence practice more substantially than either principal supportiveness or available resources” (Supovitz and Turner, 2000, p. 963).

Another example of the impact of context on teacher professional development is illustrated by the difficulty usually encountered when a model of professional development successful in one context, fails when transferred to another context. This is particularly evident when models of teacher professional development designed in one country have been applied in societies that have different historical, social, economic and cultural contexts. Such is the case, for example, in Brazil (Marcondes, 1999), South Africa and other African countries (Johnson, Monk and Hodges, 2000), where models developed in the USA, Australia or Europe have been introduced into the countries to help the newly democratized societies. According to Johnson, Monk and Hodges (2000) “Northern/western ideas about teacher change and development are poorly suited to modelling practices and challenges for those who were historically disadvantaged. The environments in which teachers work – physical, social and political – act to select a more limited repertoire of behaviour than those providing in-service might imagine” (p. 179). The same authors report on successful projects in South Africa and other southern African countries which are using indigenously developed models. Most of these models fall under one of the categories described in the previous chapter, such as action research, study groups and teachers’ networks, and in all cases the

models were initiated and designed by the teachers themselves rather than by an ‘international consultant’ or some other external agent.

A similar argument is presented by Johnson, Monk and Swain (2000), who extracted evidence from data concerning Egyptian in-service science teachers who received professional development in London (in the form of 12-week programmes at different universities). The programme in which these teachers had participated consisted of course work, visits to secondary schools to observe experienced teachers in the classrooms, recording their reflections in the form of a journal, study groups, discussion groups, the compilation of portfolios and assessment opportunities. Following these experiences, the teachers returned to Egypt where they were unable to implement their new and improved teaching style despite their intentions to do so. This was due to the fact that the systems, the schools, the curriculum and the expectations of colleagues, administrators and parents had not evolved to accommodate the new teaching styles and the new content of their teaching. This study certainly sheds light on the very strong influence that context has on teachers’ professional development and change, and underlines the fact that effective professional development and change can only take place when linked to a significant reform of the structures, policies and systems.

Stage of development of a school system

Another element of context is the stage of development of a school or education system. Johnson, Monk and Hodges (2000), and Johnson, Monk and Swain (2000) argue that the stage of development of a school system, or even of a national education system, must be taken into account when developing professional-development strategies and opportunities, as the two elements must be compatible with each other. Based on international studies conducted by Beeby in 1966, Verspoor and Wu (1990) (in Johnson, Monk and Hodges, 2000) describe four stages of development of education systems:

First is the ‘unskilled fashion’, where schools are staffed mainly by unprepared and/or unqualified teachers. In this stage, in-service programmes for teachers should focus on structured teachers’ guides, training in content and pedagogy, and strengthening school supervision and support. Projects have been implemented in this stage and were reported to be successful in Ghana, Kenya and Zambia.

The second stage is the mechanical stage, where most teachers have received limited training and education, and as a result they complete their work in a mechanical manner, following the textbooks and the national curriculum without giving any personal input. In this stage, the most appropriate system of professional development is one that offers teachers a diversity of guides and textbooks, information and modelling of new teaching techniques, and continuous support to improve their content knowledge through courses and workshops in schools. Administrators and heads of department should also receive professional development in this stage.

The third and fourth stages are ‘teaching in a routine way’ (teachers have repertoires to select from) and ‘professionals’ (teachers are autonomous in changing their own repertoire) respectively. In both of these stages, teachers are reflective practitioners, and this should be taken into account when designing activities to support their development. These activities may include a broader set of experiences that allow the teachers to improve their teaching knowledge, skills and practices in a variety of ways.

Professional-development activities and opportunities, which are appropriate for education systems at one stage, may not be appropriate or effective for systems at another stage. This contextual variable is crucial when planning and implementing professional development.

Time

Teachers need time both to make professional development an ongoing part of their work on a daily basis (Bush, 1999) and to see the results of their efforts (Dorph and Holtz, 2000). According to Morocco and Solomon (1999), “the National Staff Development Council (NSDC) Board has determined that adequate time for staff learning and collaborative work should be 20 per cent of an educator’s week” (p. 262). The depth of knowledge and practice expected of a teacher has increased over the past few years. Consequently, “Teachers, researchers and policy-makers consistently indicate the greatest challenge to implementing effective professional development is lack of time” (Abdal-Haqq, 1996, p. 1). This seems to be the case in a variety of societies, particularly in developing countries, where most schools do not allow sufficient time for professional development. In such cases, teachers complete workshops and seminars either during the summer or after school, providing, that is, they do not have a second, or even a third job to support themselves, as is the case in many developing countries (Villegas-Reimers, 1998). There are a number of countries (for example, China, Germany, and Japan) where teachers have a significant amount of time to engage in their professional development. In these countries, teachers teach fewer classes and spend an average of 30 to 40 per cent of their day out of the classroom, conferring with students and colleagues and engaged in other professional activities (Abdal-Haqq, 1996; Darling-Hammond, 1996). APEC (1999) also reports that Japanese schools provide teachers with 20 or more hours each week for collegial work and planning, visitations of other classrooms and schools, and other such professional-development activities. In most European and many Asian countries, “teachers spend between 15 and 20 hours per week in their classroom, and the remaining time with colleagues developing lessons, visiting parents, counselling students, pursuing research, attending study groups and seminars, and visiting other schools. By contrast most US elementary teachers have three or fewer hours for preparation activities per week (or only eight minutes for every hour in the classroom), while secondary teachers generally have

five preparation periods per week (or 13 minutes for every hour of classroom instruction)” (Darling-Hammond, 1996, p. 8).

These differences in the amount of time allotted to professional development are related to differences in salary and the hiring practices in those countries. According to Darling-Hammond (1996), fewer than half of all public education employees in the USA actually work in the classroom (the rest have administrative or support positions); in contrast, more than three-quarters of all public education employees in Australia and Japan have classroom teaching jobs, compared to 80 per cent in Belgium, Germany, the Netherlands, and Spain.

In addition to making time to participate in particular activities, teachers also need a time of ‘mental space’ for their professional development (Burget, 2000). In fact, there are several initiatives in the USA, where specific schools have re-structured the way in which teachers’ time is divided (see, for example, Troen and Bolles, 1994), and results have shown that the more time given to teachers for planning, discussions and other professional-development activities, the more effectively the teachers teach and, consequently, the more the students learn (Darling-Hammond, 1999).

Financial resources

Funding for school improvement and for teachers’ professional development is another major challenge faced by teachers and educators worldwide. It is clear that funding is essential in any reform or effective professional development, but at the same time, as reported by Bush (1999), funding alone is not enough to provide effective professional-development opportunities for teachers.

In the USA, funding for professional development is usually quite low, as it is one of the first items to be eliminated from a school or district budget when resources are scarce. However, schools and districts have been quite creative in dealing with this challenge. A successful case is that reported by Applewhite (1999) of a high school in Colorado, which set itself up as a site-based management school and created a Professional Development fund through the initiative of a group of teachers. The fund is administered by a Leadership Council, composed of staff members, parents, students and community members. This group decides which initiatives are to be funded. The fund has expanded since its creation, and many teachers who have received grants return to the school to share their learning with colleagues.

In addition, a number of professional-development projects may be funded by private institutions, donor agencies, foundations, etc. One good example is the Library Power Programme, an initiative of the DeWitt Wallace-Reader's Digest Fund, which gave \$65 million to 700 schools in 19 school districts throughout the USA in order to support school libraries (including providing more space, new collections, new librarians, and professional-development opportunities for teachers to integrate the use of the library into their curriculum) (Haycock, 1999). Another good example is the number of projects funded annually by the United States National Science Foundation (Lewis, 1998).

Also, Geiger (1996) offers a few suggestions on some forms of professional development that can help keep the cost down. He describes the following strategies: to develop research teams or study groups within the school; to have teachers teach an additional class, either in the same or in a different school; to have teachers and administrators change places for a limited amount of time; to offer lunch-box discussion groups; to ask vendors to include training with the product that they are selling; to assign teachers as coaches; to have teachers train other teachers in particular aspects of teaching; to look for competitive contracts from consultants or organizations when needed.

It is very difficult to estimate the cost of implementing a professional-development programme, and there is very little information offered in the literature concerning this issue. However, some figures have been published by *NEA Today*. According to its report (NEA, 2000), the cost of launching a PDS amounts to around \$25,000 to \$50,000 per school. Yet, the report adds, “a PDS doesn’t cost significantly more to operate than traditional teacher education programmes” (p. 10).

In the USA, “most states and districts have no idea of what they are actually spending on professional development” (Corcoran, 1995, p. 1). Districts tend to bear the cost of professional development themselves, with some supplemental funds from the state. But when there is a budget crunch, the funding for professional development is one of the first lines to be eliminated and, thus, it is up to the individual teacher to absorb the cost.

At the same time, with the increased interest in the improvement of education and, consequently, the improvement in teachers’ performance, many governments and organizations at the local, national and even international levels are providing significant amounts of funds to support initiatives in schools and other related institutions. For example, it is estimated that in the USA, the federal government spent \$ 369 million in the fiscal year 1993 on the professional development of mathematics, science and technology teachers (Corcoran, 1995), while Darling-Hammond and McLaughlin (1995) report that, when compared to other countries, “the US has invested in a smaller number of lower-paid teachers who are directed, supervised, and supplemented by larger numbers of administrative staff members and non-teaching specialists” (p. 603). In fact, according to these authors, in 1986, school systems in the USA employed one administrative staff person per two-and-a-half teachers and spent only 38 per cent of their funds on teacher salaries, and less than 1 per cent on professional development. Many corporations and schools in other countries spend many times that amount (Darling-Hammond, 1996). These statistics are improving, but the ratio of administrators to teachers remains low.

Stages in professional development

Teachers traverse different ‘stages’ of their development at different times in their career. If professional-development opportunities and systems are to be effective, these stages must be taken into consideration, as the teachers’ needs and dispositions may vary between one stage and the next. There are a number of models that describe the various stages of professional development. Huberman (1989), for example, identifies and defines five of these stages:

1. Career entry (one to three years in the profession): A time of both survival and discovery.
2. Stabilization (four to six years in the profession): Teachers usually make a commitment to teaching as a career and achieve a sense of instructional mastery.
3. Divergent period (7 to 18 years): Some teachers describe this as a period of experimentation and activism as they develop their own courses, try out new approaches to teaching, and confront institutional barriers. Yet, others see it as a period of self-doubt and reassessment; many teachers leave the profession at this stage as their level of frustration with the system reaches its peak.
4. Second divergent period (19 to 30 years): For some it is a time of self-assessment, relaxation and a new awareness of a ‘greater relational distance’ from their students. Other teachers, however, enter a stage where they criticize the system, the administration, their colleagues and even the profession.
5. Disengagement (41 to 50 years of experience): Gradual separation from the profession. For some it is a time of reflection and serenity, for others a time of bitterness.

A more detailed model is that presented by Dreyfus and Dreyfus (1986), who describe the stages that teachers traverse as they mature from being

novices to becoming experts. This is a helpful model, as it describes the professional and personal needs teachers have as they progress through this cycle. Their model is as follows:

Stage One: Novice level (student teachers and first-year teachers). In this stage, teachers feel that practical personal experience is more valuable than information transmitted verbally. Teachers in this novice stage are taught the meaning of certain common terms and concepts, the rules of the school culture, and objective facts and features of situations.

Stage Two: Advanced beginner level (second and third-year teachers). Once the novice has acquired some experience, he or she becomes an advanced beginner. Experience begins to affect behaviour in a meaningful way, as the teachers begin to combine their textbook knowledge with their experience knowledge. In this stage, however, the teachers are still submitting to hierarchical superiors and are not feeling a sense of autonomy regarding their jobs. This lack of 'personal agency' also means that teachers do not take full responsibility for their actions.

Stage Three: Competent level (third and fourth year). Most advanced beginners move into this stage once they have enough experience and motivation to succeed. However, there is evidence that shows that some teachers remain at a less-than-competent level of performance (Eisenhart and Jones, 1992). The two most important characteristics of teachers at this stage are: that they make conscious decisions about what they are going to do (plan, objectives, etc.), and that as they implement their plans, they can determine what is and is not important. In a way, teachers have much more control over the situation, as they can organize themselves their daily activities and teaching practices.

Stage Four: Proficient level (fifth year). Yet a smaller number of teachers move on to this stage, where intuition or know-how becomes prominent. Teachers begin to recognize patterns and similarities in a holistic way.

Stage Five: Expert level. Experts demonstrate fluid performance and intuitive decision-making. They perform in a qualitatively different way to other teachers. Plans usually work out, but when they do not, experts adopt a reflective method of figuring out what needs to be changed. (This reflective method is not used when practices are successful.) In the same way that the novice is teacher-centred, the expert is student-centred.

Clearly, the different stages of teachers' professional development have been well documented and studied in detail, as can be seen by the number of models that describe the process. In addition to those listed above, Fessler and Christensen (1992) have compiled a list of models presented by Burden in 1982, Feimen and Floden in 1983, Gregorc in 1973, and Unruh and Turner in 1970 which, in turn, were developed as a result of empirical studies involving teachers between 1970 and 1992. Yet, it is important to emphasize that these models are only useful to a certain extent, as each individual teacher new to the profession enters with different characteristics and may be presented with different opportunities within the first few years of working. This, indeed, would affect how they progress through these stages, whether they stay longer at one, skip another, etc. Individual differences are numerous among teachers throughout the world, and these models only represent the experiences of the majority. Their limitations are abundant (Bullough, 1997).

A good example of the implementation of teacher professional development that takes these stages into consideration is offered by Keiffer-Barone and Ware (2001), who describe a model of professional development currently being implemented in Cincinnati, Ohio (USA). In this model, the stages of development of the teachers are used as guiding principles to

determine their rank and salary. The Cincinnati Career-in-Teaching programme addresses the development of teachers as a stage process:

- Intern (usually students who are on a part-time salary).
- Apprentice (first year of full employment, receiving support from an induction programme).
- Novice (teachers take core courses and receive a pay rise when completed successfully. Teachers may be nominated for an evaluation of their third, fourth or fifth year to discern their level of teaching. If excellent, they move to the next level. If outstanding, they may skip the next level and move to the final level).
- Career (a number of professional-development opportunities are available to the student at this level).
- Advanced and accomplished (may apply to become lead teachers in the district and take on new responsibilities and leadership positions in the system).

Another interesting case that illustrates the importance of these phases of career development when planning and implementing professional-development opportunities is reported by Barak *et al.* (1997). Their study reports on the implementation of a developmental supervision model in Israel, which called for “adapting the supervision approach to each teacher’s conceptual level” (p. 367). They report that by doing so, the teachers in their study felt their supervision helped them effectively in their professional development.

Steps of professional development

The process of learning, and the transformation of teaching practices as a result of a professional-development experience, is time consuming. Mevarech (1995) presents a ‘u-shaped’ model to explain the slow and steady process

that teachers undergo between the completion of a professional-development experience (particularly a focused activity, such as a workshop, seminar, etc.) and the time when the newly learned information is incorporated into their classroom practice. The stages included in the model are:

- survival: when expert teachers become novices temporarily, as they attempt to incorporate something new into their repertoire;
- exploration and bridging;
- adaptation: from technical application to reflective implementation;
- conceptual change;
- invention and experimentation.

The use of technology for teaching purposes

The recent implementation of technology in the classroom is probably one of the most challenging innovations that many teachers are having to confront in the world today. For teachers and schools that do have access to new technology, especially computers, the challenge is to learn how to use it effectively. For schools and teachers who have no access to computers, the challenge is even greater: How can the next generation of citizens and leaders be prepared to function in a technology-driven world, when teachers have no access to that technology and the context in which the school is located is not able to provide it?

Technology is accessible almost everywhere in the world; the areas where this is not the case are becoming more isolated than ever before. However, it is beyond the scope of this study to analyze the reasons behind such isolation or to provide possible solutions to this problem. The purpose of this section is to explore new technology as a factor in developing, designing and implementing professional-development opportunities.

In societies where a majority of the population has access to computers and other technologies (such as in the USA, Canada, European countries and other developed nations), teacher-preparation institutions are lagging behind in the content and skills they are able to develop in student-teachers. In addition, a growing number of studies are discovering that both new and experienced teachers feel inadequately prepared to use computers and other forms of technology in their classrooms (Abdal-Haqq, 1995). This can be seen in the fact that relatively few teachers regularly use computer-based technology in their classrooms; when they are used, it is usually for drills and word-processing, or for ‘throwing lecture notes’ into the computer (Gallant, 2000). It can also be seen in the fact that some schools are introducing computers into their classrooms, but are offering no training to their teachers in how to use them effectively (Breuleux, *et al.*, 1998). But this scenario is becoming less common, with societies’ expectations of integrating technology into the classroom forcing many teachers to seek training in the use of specific techniques. For example, several schools and universities are establishing partnerships with a focus on technology (Breuleux, Baker and Pagliaroli, 1998). Schools have provided more equipment, and grant money has been made available to help teachers and schools to keep in step with the younger generation; for example, Microsoft Corporation launched an Academic Professional Development Center programme to enable teachers, school administrators and IT co-ordinators to be trained and become Microsoft Certified Trainers (Branch, 2000). Increasingly, teacher-preparation institutions and schools are infusing technology into the content and methods of their programmes and are offering specific training for teachers (Seamon, 2001). Also, the amount of books, articles, and web-related resources available to teachers is rapidly increasing almost from one day to the next (see Glazer *et al.*, 2000; and Owston, 1998, for specific examples).

With technology rapidly changing, teachers, administrators, educators and school communities need to focus on the following (Bybee and Loucks-Horsley, 2000):

- learning about and developing skills related to technology, and deepening their content knowledge;
- creating opportunities to learn how to teach technology;
- acquiring tools that will allow them to continue their own learning;
- being provided with long-term process-oriented opportunities, so that teachers are at ease using technology and are able to use it effectively.

As with all teacher-preparation programmes, learning about technology must be included in the teachers' *education* (not only in their training) so that, in addition to knowing how to use the tools, they also know how to integrate technology in the classroom in a thoughtful way (Caverly *et al.*, 1997). Otherwise, teachers will simply continue to use the same teaching techniques (lecturing, for example), but now with the added use of computers (e.g. teachers who, instead of distributing handouts in class, now present it on a computer screen).

Until recent years, teachers have tried to find excuses why not to incorporate the use of computers in the classroom, although this trend is rapidly becoming less common. Revenaugh (2000) encourages leaders to support this change of attitude in four simple 'steps'. They are to: put someone in charge, diversify the approach taken, demand technological proficiency, and become a model for teachers.

A successful case of such education is presented by Caverly *et al.* (1997) where a partnership between a school system and a university was created in order for teachers to learn more about computers. Using a 'generational model' (described previously), a group of teachers learned basic principles of computer usage and its integration into the curriculum; they attended an intensive summer institute to do so, and continued to receive support and attend workshops throughout the year. During that school year, they also educated a group of their colleagues (a second generation), who then became the educators of a third generation a year later. The infusion of

technology in the daily work of teachers in and out of the classroom proved to be effective. A similar case, the University of Washington Catalyst Project, is reported by Gallant (2000). This project emphasized primarily the transformation of teaching practices, followed by ways in which computers could aid in the new method adopted by the teachers.

New models of professional development that rely heavily on the use of new technology are emerging in the field as well as in the literature. One example is the ePDS, or Professional Development School, which was established to emphasize the use of technology in professional development in Texas (USA), and is reported by Burley *et al.* (2001) and described in *Chapter IV* of this book.

Another interesting case is that of the Learning Collaborative, a “technologically-based resource for advanced placement teachers around the world” (Padilla, 2000, p. 61). It includes a web site that offers teachers resources for teaching, professional development, mentoring, and establishing and maintaining standards of excellence.

The role of Unions in teachers’ professional development

Despite the common belief that Unions are more concerned with the salary, compensation and benefits of its members than with their growth in the profession, several National and Local Teachers’ Unions are working to change this perspective. For example, in Canada and the USA, many teacher unions’ professional-development strategies focus on helping teachers to respond to policy demands, especially when these demands have been given by policy-makers who do not offer specific technical explanations or support to implement them (Bascia, 2000).

Over the years, Teacher Unions have provided three different types of professional development for their members. One is traditional staff development, that is, Unions provide resources for national conferences, local speakers and workshops. The second is what Bascia (2000) identifies as ‘the new unionism’. This consists of the development and support of new initiatives in order to help teachers to cope with new social and political realities. Examples of such initiatives are projects that allow teachers to be more involved in educational decision-making, as well as in programmes of induction, mentoring and action research. New committees have been created to examine the role of the Unions in teachers’ professional development, and to help transform that role. A good example of this is the American Federation of Teachers (AFT), which recently published “a report of the AFT Task Force on Union-sponsored Professional Development” (AFT, 2001). In this report, the Union emphasizes its role of promoting all aspects of the growth and development of teachers, and their well-being as professionals. This task force was created in the summer of 2000, and was given the responsibility of responding to the growing professional needs of AFT members (*American Teacher*, 2000). The third type of professional development offered by Teacher Unions is ‘organizational involvement as professional development’. This type is more individualized and teacher initiated. Teachers who identify a need of a professional nature usually contact their Union for help and support. They tend to be informal opportunities to learn something about the administrative/political dimension of teaching and teachers and are usually of an organizational nature rather than classroom oriented (e.g. a teacher who develops a peer mediation programme in his or her school and would like to see it implemented in other schools in the district) (Bascia, 2000).

The role of teacher-educators

The professional development of teacher-educators is an aspect of professional development that has been neglected, despite many reports that

show its importance in the improvement of the professional development of all teachers (Beaty, 1998; Clarke, 2000). In fact, research involving teacher-educators is scarce, especially concerning practicum advisers who work with student-teachers in school settings. With the exception of the Professional Development Schools model, which has examined their role in detail, little is known about who they are and how they are prepared, and little, if any, attention has been paid to their professional development.

The professional development of teacher-educators and other educators in higher-education institutions does not differ greatly from that of elementary and high-school teachers. They need to acquire professional knowledge – not only of subject matter, but also of pedagogy (and it is the latter which is usually weak among higher-education teachers); they must develop skills and techniques for teaching (something that cannot be ‘taught’ directly, but that can be promoted and developed with guided practice. See Alvarez (1999) for examples); and they must develop attitudes and understanding of ethical principles that underlie teaching (Beaty, 1998). These can be accomplished with the aid of similar models to those described above, including mentoring, workshops and seminars, observation of experienced teachers, group discussions, journals, etc.

Hernandez (1998) lists a few principles that should guide the education of teacher-educators. They are:

- As the work of teacher-educators has a strong influence on the work of teachers, they should model and illustrate a variety of teaching methods, techniques, and processes; therefore, they need to be educated in pedagogy.
- Processes to prepare teacher-educators must be based on practical issues related to the day-to-day work in the classroom.
- The work of teacher-educators must include not only teaching, but also research directly related to their area of expertise.

- Teacher-educators must know and understand the institutions where they work and where their students will work.
- Teacher-educators must know the national education system in depth, and must understand the context in which it is implemented.
- Teacher-educators must know how to work in teams and collaborate in their work.
- Teacher-educators must enjoy teaching. This disposition will generate a positive attitude towards teaching in their students.

An interesting model to prepare teacher-educators who function as practicum advisers was implemented in the University of British Columbia, Canada (Clarke, 2000). For 15 years, this university has offered a course for classroom teachers who want to serve as practicum advisers. A few years ago, Clarke developed an ‘advisory practicum’ to figure as a main component of the course, and he reports on a follow-up study which assessed the impact that such a course and practicum had on the professional development of the teacher-educators. The results were very encouraging, as practicum advisers became more reflective of their work with students, began to realize the opportunities for action research they had in their daily interactions and thus produced more research, and felt that their role as practicum advisers up until that point had not been considered as a daily opportunity for professional growth and development (Clarke, 2000).

Another successful model of the education of teacher-educators is reported by Hernandez (1998). This model, developed and used in a university in Costa Rica, includes several courses of higher-education pedagogy and other topics related to education that must be completed by all newly hired faculty. In addition, the model includes ongoing support to academic departments and some projects of social action. As part of this programme, teacher-educators use reflection, study groups, discussions, and other techniques and models of professional development. The courses are offered in three formats: presence-education, distance-education, and tutorials. Hernandez (1998) does not include information about the effectiveness of this programme.

Yet another case is that reported by Pierce (1998) about a professional-development programme offered at Montclair State University in New Jersey for all new tenure-track faculty. It focuses on the development of their teaching skills, their research and scholarly work, and also orients them towards university. Assessments of the programme are positive. A similar programme of professional development for University faculty (not only teacher-educators) reported by Kreber (1999) included one course (36 hours of class time over 12 weeks) where faculty were given opportunities to acquire pedagogical, instructional and curricular knowledge. At the end of the course, participants' thinking and knowledge about teaching was transformed as they were now able to integrate their knowledge in more efficient ways, they had learned to perceive their teaching as a form of scholarship, and thus became much more reflective of their practices. Data about whether these types of knowledge affected their actual teaching practice are not provided.

In addition, a collection of chapters written by teacher-educators (and edited by Cole, Elijah and Knowles, 1998) presents significant evidence of the importance of teacher-educators' self-study (both individually and collaboratively) for the improvement of their own practice and their role in the preparation of new teachers (Chin and Russell, 1998; Cole and Knowles, 1998; Abt-Perkins *et al.*, 1998; Garcia and Litton, 1998). In the same collection, many authors also reflect on the relationships between the professional development of teacher-educators, of teachers, and of educational reforms (McCall, 1998; Chin and Russell, 1998; Arizona Group, 1998). This collection certainly underscores the importance of teacher-educators' role in the improvement of effective and successful teacher professional development.

Chapter VI

Policy implications and recommendations

There are a number of recommendations that emerge from this review of the literature.

1. Teachers' professional development must be thought of as a long-term process, which begins with initial preparation and only ends when the teacher retires from the profession. This new approach to the education and development of teachers requires a transformation of processes and policies that support teachers, their education, their work and their growth in the profession.
2. Teachers' professional development has a significant impact on the success of educational reforms and on students' learning. The more opportunities the teachers have to be both subjects and objects of educational reform, the more effective the reform and the teachers' work is.
3. Teachers' professional development must be systematically planned, supported, funded and researched to guarantee the effectiveness of this process.
4. Teachers must be encouraged to participate in programmes designed for their development. In addition, teachers must be given the time and the financial support to be active designers, implementers and participants of professional-development opportunities.
5. Teachers must be encouraged to design and implement experiences and opportunities that help in their growth as teachers and professionals.
6. The kinds of professional-development programmes and activities designed by and for teachers must respond to: their professional needs, their personal and professional interests, the stage of professional

development attained at that particular time, and the stage of the education system in force in their place of work.

7. Schools, teacher-preparation institutions, and other related institutions must work collaboratively in order to ensure the development of teachers from the very beginning of their careers.
8. External agencies can and must support teacher professional-development programmes, both financially and by offering particular activities and programmes that address the needs of teachers.
9. A variety of models and techniques of professional development must be regularly available to teachers. It is important to recognize that not all aspects of teacher professional development can be (or should be) addressed in courses. There are many other models of professional development which support teachers' development on a regular basis in the workplace.
10. Technology and distance education should be used as means of supporting teachers' professional development. However, those in charge of planning and organizing these experiences must be aware of the limitations teachers may have. For example, not all teachers have access to computers or telephone lines, not all teachers know how to use particular forms of technology, not all teachers can attend courses given in very distant locations, etc.
11. Programmes of professional development must be co-ordinated so that unnecessary repetition is avoided, and a logical sequence of experiences can be followed.
12. Proposals to expand the duration of pre-service teacher education should follow a careful examination of the structure of the programmes in force. It is often the case that the need lies in restructuring these programmes, rather than extending the duration of a currently ineffective programme. Pre-service programmes should be pedagogically and practically oriented, and should enable teachers to teach in multiple contexts and to diverse groups of children, and also help them understand how to build effective school/community partnerships.

13. The goals of a teacher professional-development programme should be in alignment with those of the curriculum. Many systemic reforms emphasize high-stake tests for students while advocating constructivist teaching approaches to develop specific skills required in particular contexts.
14. Alignment is needed also between the content of teacher professional-development programmes and their delivery. In teaching education, ‘the medium is the message’. Traditional teaching methods have been proved to be less successful in teaching children. Memorization, lectures, teacher-centred classes, etc. are less effective than teaching for understanding, focusing instruction on the students, making students learn from each other, etc. Nevertheless, most in-service teacher-training programmes are taught in a traditional way, without obliging teachers to participate in the classroom and learn through group discussions, new pedagogy, etc. “Staff development must model constructivist practices for teachers if those teachers are expected to be convinced of the validity of those practices and to understand them sufficiently well to make an integrative part of their classroom repertoires” (Sparks and Hirsh, 1997).
15. Teacher education cannot be a substitute for high-quality beginning teachers or other basic conditions for teaching in schools. It continues to be of great importance to attract talented people to the profession, and it is necessary to equip schools with resources that make high-quality instruction possible.

References

- Abdal-Haqq, I. 1995. *Infusing technology into pre-service teacher education. ERIC Digest*. Washington, DC: ERIC Clearinghouse on Teaching and Teacher Education.
- Abdal-Haqq, I. 1996. *Making time for teacher professional development. ERIC Digest*. Washington, DC: ERIC Clearinghouse on Teaching and Teacher Education.
- Abt-Perkins, D.; Dale, H.; Hauschildt, P. 1998. "Letters of intent: collaborative self-study as reform in teacher education". In: Cole, A.L.; Elijah, R.; Knowles, J.G. (Eds.), *The heart of the matter: teacher educators and teacher education reform*. San Francisco: Caddo Gap Press.
- Adalbjarnardottir, S.; Selman, R. 1997. " 'I feel I have received a new vision': An analysis of teachers' professional development as they work with students on interpersonal issues". In: *Teaching and Teacher Education*, 13(4), 409-428.
- Adams, E.; Chisholm, T. 1999. *Art, design and environment: a programme for teacher education*. NSEAD.
- Adams, A.; Glickman, C. 1984. "Does clinical supervision work? A review of research". In: *Tennessee Educational Leadership*, 11, 28-40.
- Adams, W.; Cawford, P.; Marner, D.; McNaughton, J. 1996. "A teacher apprenticeship program: a new model for teacher recruitment and pre-service training". In: *Education Canada*, 36(1), 10-16.
- Alidou, H. 2000. "Preparing teachers for the education of new immigrant students from Africa". In: *Action in Teacher Education*, 22(2), A.

- Allen-Chabot, A. 2001. "Teaching nutrition for Science credit: A professional development model". In: *Journal of Nutrition Education*, 33(1), 55-56.
- Alvarez, F. 1999. *Tendencias, criterios y orientaciones en la formacion de maestros*. Santiago: Chile: Centro de Investigacion y Desarrollo de la Educacion (CIDE).
- American Federation of Teachers. 2001. *A report of the AFT Task-Force on Union-sponsored professional development*. Washington, DC: American Federation of Teachers.
- American Teacher. 2000. "ER and D and professional development". In: *American Teacher*, 85(1), 17.
- Ancess, J. 2001. "Teacher learning at the intersection of school learning and student outcomes". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Anderson, L. 1995. *International encyclopedia of teaching and teacher education*. Oxford: Elsevier Science.
- Andrews, J.; Housego, I.; Thomas, D. 1990. "Effective in-service programs in developing countries: a study of expert opinion". In: Rust, V.; Dalin, P. (Eds.), *Teachers and teaching in the developing world* (pp. 63-82). New York: Garland Publishing, Inc.
- Annunziata, J. 1997. "Linking teacher evaluation and professional development". In: Stronge, J. (Ed.), *Evaluating teaching: a guide to current thinking and best practice*. Thousand Oaks, CA: Corwin Press.
- APEC (Asia-Pacific Economic Cooperation). 1999. *Preface and highlights of the study teacher preparation and professional development in APEC members: a comparative study*. APEC Education Forum Document, No 9, October 1999.

- APEID (Asia and the Pacific Programme of Educational Innovation for Development). 1990. *Innovations and initiatives in teacher education in Asia and the Pacific region. Volume 1: Comparative overview of fifteen countries*. Bangkok, Thailand: UNESCO Principal Regional Office for Asia and the Pacific.
- APEID (Asia and the Pacific Programme of Educational Innovation for Development). 1990. *Innovations and initiatives in teacher education in Asia and the Pacific region. Volume 2: case studies of 15 national systems*. Bangkok, Thailand: UNESCO Principal Regional Office for Asia and the Pacific.
- Applewhite, A.S. 1999. "Funding staff development for school improvement and student achievement". In: *NASSP Bulletin*, 83(610), 49-54.
- Arias, M.D.; Flores, A.; Porlan, R. (Eds.). 2001. *Redes de maestros: una alternativa para la transformación escolar*. Sevilla, Spain: Diada Editora.
- Arias, M.D.; Flores, A. 2001. "Red nacional para la transformación de la educación básica desde la escuela (Red – TEBES, Mexico)". In: Arias, M.D.; Flores, A.; Porlan, R. (Eds.), *Redes de maestros: una alternativa para la transformación escolar*. Sevilla, Spain: Diada Editora.
- Arizona Group: Guilfoyle, K.; Hamilton, M.L.; Pinnegar, S.; Placier, M. 1998. "Negotiating balance between reforming teacher education and forming self as teacher educator". In: Cole, A. L.; Elijah, R.; Knowles, J.G. (Eds.), *The heart of the matter: teacher educators and teacher education reform*. San Francisco: Caddo Gap Press.
- Attwell, G. 1997. "New roles for vocational education and training teachers and trainers in Europe: a new framework for their education". In: *Journal of European Industrial Training*, 21(6/7), 256-265.
- Bainer, D.L.; Cantrell, D.; Barron, P. 2000. "Professional development of non-formal environmental educators through school-based partnerships". In: *The Journal of Environmental Education*, 32(1), 36-45.

- Baker, P. 1999. "In-service teacher education: form vs. substance". In: *High School Magazine*, 72, 46-47.
- Baker, S.; Smith, S. 1999. "Starting off on the right foot: the influence of four principles of professional development in improving literacy instruction in two kindergarten programs". In: *Learning Disabilities Research and Practice*, 14(4), 239-253.
- Ball, A.F. 2000. "Preparing teachers for diversity: lessons learned from the U.S. and South Africa". In: *Teaching and Teacher Education*, 16, 491-509.
- Ballantyne, R.; Hansford, B. 1995. "Mentoring beginning teachers: a qualitative analysis of process and outcomes". In: *Educational Review*, 47(3), 297-308.
- Ballou, D.; Podgursky, M. 1998. "The case against teacher certification". In: *Public Interest*, 98(132), 17-29.
- Barak, M.; Pearlman-Avni, S.; Glanz, J. 1997. "Using developmental supervision to improve science and technology instruction in Israel". In: *Journal of Curriculum and Supervision*, 12(4), 367-382.
- Barnett, C. 1998. "Mathematics teaching cases as a catalyst for informed strategic inquiry". In: *Teaching and Teacher Education*, 14(1), 81-93.
- Barnett, C. 1999. "Cases". In: *Journal of Staff Development*, 20(3), 26-27.
- Bascia, N. 2000. "The other side of the equation: professional development and the organizational capacity of Teacher Unions". In: *Educational Policy*, 14(3), 385-404.
- Beall, J. 1999. "On evaluation and professional development". In: *Independent School*, 59(1), 72-79.
- Beatty, L. 1998. "The professional development of teachers in higher education: structures, methods and responsibilities". In: *Innovations in Education and Training*, 35(2), 99-107.

- Bekalo, S.A.; Welford, A.G. 1999. "Secondary pre-service teacher education in Ethiopia: its impact on teachers' competence and confidence to teach practical work in science". In: *International Journal of Science Education*, 21(12), 1293-1310.
- Benejam, P.; Espinet, M. 1992. "Spain". In: Leavitt, H.B. (Ed.), *Issues and Problems in Teacher Education: An international Handbook*. New York: Greenwood.
- Ben-Peretz, M. 1990. "Research on teacher education in Israel: topics, methods and findings". In: Tisher R.P. and Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: Falmer Press.
- Ben-Peretz, M. 1995. "Curriculum of teacher education programs". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Ben-Peretz, M.; Dror, Y. 1992. "Israel". In: Leavitt, H.B. (Ed.), *Issues and problems in teacher education: an international handbook*. New York: Greenwood.
- Berry, B. 2001. "No shortcuts to preparing good teachers". In: *Educational Leadership*, 58(8), 32-36.
- Birchak, B.; Connor, C.; Crawford, K.M.; Kahn, L.; Kaser, S.; Turner, S.; Short, K. 1998. *Teacher study groups: building community through dialogue and reflection*. Urbana, Illinois: National Council of teachers of English.
- Birman, B.F.; Desimore, L.; Porter, A.C.; Garet, M.S. 2000. "Designing professional development that works". In: *Educational Leadership*, 57(8), 28-33.
- Bodone, F.; Addie, K.L. 1999. *Teaching in a standard-base system: how teachers' voices can influence policy, preparation, and professional development*. Paper presented at the Annual Meeting of the American

- Educational Research Association, Montreal, Quebec, Canada, April 19-23, 1999.
- Bolam, R. 1982. *In-service education and training of teachers: A condition of educational change*. Final Report of CERI Project on INSET. Paris: OECD.
- Borko, H.; Putnam, R.T. 1995. "Expanding a teacher's knowledge base: a cognitive psychological perspective on professional development". In: Guskey, T.R.; Huberman, M. (Eds.), *Professional development in education: new paradigms and practices*. New York: Teachers College Press.
- Borman, K.M. 1990. "Foundations of education in teacher education". In: Houston, W.R.; Haberman, M.; Sikula, G. (Eds.), *Handbook of research on teacher education*. New York: Macmillan.
- Bourdoncle, R.; Robert, A. 2000. "Primary and secondary school teachers in France: changes in identities and professionalization". In: *Journal of Education Policy*, 15(1), 71-81.
- Bourke, J.M. 2001. "The role of the TP [Teaching Practice] TESL [teaching English as a second language] supervisor". In: *Journal of Education for Teaching*, 27(1), 63-73.
- Bradley, H. 1991. *Staff development*. London: Falmer Press.
- Branch, A. 2000. "Microsoft moves to aid in technology professional development". In: *Curriculum Administrator*, 36(1), 14-15.
- Breuleux, A.; Baker, P.; Pagliaroli, G. 1998 (July 30). *Extending the professional development of teachers in technology: a partnership approach* (www.education.mcgill.ca/olit/PartnerPdraft.html).
- British Council 2001. *Teachers International Development Programme* (www.britishcouncil.org).

- Broadfoot, P.; Osborn, M. 1987. "Teachers' conceptions of their professional responsibility: some international comparisons". In: *Comparative Education*, 23(3), 287-301.
- Broady, E. 1995. " 'You are your own best resource': Promoting confidence and autonomous learning in teacher education at a distance – a case study". In: Howard, R.; McGrath, I. (Eds.), *Distance education for language teachers: a U.K. perspective*. Clevedon, England: Multilingual Matters.
- Brody, C. 1998. "The significance of teacher beliefs for professional development and cooperative learning". In: Brody, C.; Davidson, N. (Eds.), *Professional development for cooperative learning: issues and approaches*. New York: State University of New York Press.
- Brody, C.; Davidson, N. (Eds.). 1998. *Professional development for cooperative learning: issues and approaches*. New York: State University of New York Press.
- Bromme, R. 1987. "Teachers' assessment of students' difficulties and progress in understanding in the classroom". In: Calderhead, J. (Ed.), *Exploring teachers' thinking*. London: Cassell.
- Bronfenbrenner, U. 1979. *The ecology of human development*. Cambridge: Harvard University Press.
- Bucci, J.A. 2000. "Teachers as decision-makers: do they have the skills for the task?". In: *Kappa Delta Pi Record*, 36(2), 73-75.
- Bull, B. 1990. "The limits of teacher professionalization". In: Goodlad, J.I.; Soder, R.; Sirotnik, K.P. (Eds.), *The moral dimensions of teaching*, San Francisco: Jossey Bass.
- Bullough, R. 1997. "Becoming a teacher: self and the social location of teacher education". In: Biddle, B.J.; Good, T.; Goodson, I. 1997. *International handbook of teachers and teaching*. (Vol. I). Dordrecht, The Netherlands: Kluwer Academic Publishers.

- Burbules, N.L.; Densmore, K. 1991. "The limits of making teaching a profession". In: *Educational Policy*, 5, 44-63.
- Burden, P. 1990. "Teacher development". In: Houston, W.R. (Ed.), *Handbook of research on teacher education*. New York: Macmillan.
- Burget, M.L. 2000. "Principals must demonstrate a commitment to teacher development". In: *Schools in the Middle*, 9(8), 4-8.
- Burley, H.; Yearwood, B.; Elwood-Salinas, S.; Martin, L.; Allen, D. 2001. "Partners in cyberspace: reflections on developing an ePDS". In: *The Educational Forum*, 65(2), 166-175.
- Bush, W.S. 1999. "Not for sale: why a bankroll alone cannot change teaching practice". In: *Journal of Staff Development*, 20(3), 61-64.
- Bybee, R.W.; Loucks-Horsley, S. 2000. "Advancing technology education: the role of professional development". In: *The Technology Teacher*, 60(2), 31-34.
- Calderhead, J. 1995. "Teachers as clinicians". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Calderhead, J.; Shorrock, S.B. 1997. *Understanding teacher education: case studies in the professional development of beginning teachers*. London: The Falmer Press.
- Cambone, J.; Zambone, A.; Suarez, S. 1996. *Are they learning as we expected them to learn? An evaluation of the preparation of special education teachers using a professional development school model*. Paper presented at the Annual Meeting of the American Educational Research Association. New York, April 1996.
- Carron, G.; Chau, T.N. 1996. *The quality of primary schools in different development contexts*. Paris: UNESCO.

- Castleman, J. 1996. *Improving field experiences for rural pre-service teachers through the establishment of a professional development school*. FL: Nova Southeastern University. (ERIC Document reproduction Service No. 401 067).
- Castro, E. 1991. *La formacion docente en America Latina: desafio que requiere respuesta*. Santiago, Chile: OREALC / UNESCO.
- Caverly, D.C.; Peterson, C.L.; Mandeville, T.F. 1997. "A generational model for professional development". In: *Educational Leadership*, 55(3), 56-59.
- Chadbourne, R. 1995. "Student reluctance to take up school-based teacher education: one university's experience". In: *Journal of Education for Teaching*, 21(2), 219-228.
- Chance, L. (Ed.). 2000. *Professional Development Schools: combining school improvement and teacher preparation*. Washington, DC: National Education Association of the United States.
- Chang, M.C.; Paine, L. 1992. "China". In: Leavitt, H.B. (Ed.), *Issues and problems in teacher education. An international handbook*. New York: Greenwood Press.
- Charischak, I. 2000. "A look at technology's role in professional development of Mathematics teachers at the middle school level". In: *School Science and Mathematics*, 100(7), 349-354.
- Chin, P.; Russell, T. 1998. "Reforming teacher education: making sense of our past to inform our future". In: Cole, A. L.; Elijah, R.; Knowles, J.G. (Eds.), *The heart of the matter: teacher educators and teacher education reform*. San Francisco: Caddo Gap Press.
- Clark, C.M. 1988. "Asking the right questions about teacher preparation: contributions of research on teacher thinking". In: *Educational Researcher*, 17(2), 5-12.

- Clark, C.M. 1992. "Teachers as designers in self-directed professional development". In: Hargreaves, A.; Fullan, M. (Eds.), *Understanding teacher development*. New York: Teachers' College.
- Clarke, A. 2000. "An advisory practicum for practicum advisors: a follow up study". In: *Teaching Education*, 112, 131-146.
- Clarke, A. 1995. "Professional development in practicum settings: reflective practice under scrutiny". In: *Teacher and Teacher Education*, 11(3), 243-261.
- Clement, M.; Vandenberghe, R. 2001. "How schools leaders can promote teachers' professional development: an account from the field". In: *School Leadership and Management*, 21(1), 43-57.
- Clement, M.; Vandenberghe, R. 2000. "Teachers' professional development: a solitary or collegial (ad)venture?". In: *Teaching and Teacher Education*, 16, 81-101.
- Clements, P. 2001. "Autobiographical research and the emergence of the fictive voice". In: Soler, J.; Craft, A.; Burgess, H. (Eds.), *Teacher development: exploring our own practice*. London: Paul Chapman Publishing and The Open University.
- Clift, R.T.; Houston, W.R.; Pugach, M.C. 1990. *Encouraging reflective practice in education: an analysis of issues and programs*. New York: Teachers' College Press.
- Cobb, J. 2000. "The impact of a professional development school on pre-service teacher preparation, in-service teachers' professionalism, and children's achievement: Perception of in-service teachers". In: *Action in Teacher Education*, 22(3), 64-76.
- Cobb, V. 1999. *An international comparison of teacher education*. ERIC Digest. Washington, DC: ERIC Clearinghouse on Teaching and Teacher Education.

- Cochran-Smith, M.; Lytle, S.L. 2001. "Beyond certainty: taking an inquiry stance on practice". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Cohen, D.; Hill, H. (forthcoming). "Instructional policy and classroom performance: the mathematics reform in California". In: *Teachers College Record*.
- Cohen, D.; Hill, H. 1997. *Policy, practice, and learning*. Paper presented at the Annual meeting of the American Educational Research Association, March 1997. Chicago, IL.
- Cohen, D. 1990. "A revolution in one classroom: the case of Mrs. Oublier". In: *Educational Evaluation and Policy Analysis*, 12(3), 311-329.
- Cole, A. L.; Elijah, R.; Knowles, J.G. (Eds.). 1998. *The heart of the matter: teacher educators and teacher education reform*. San Francisco: Caddo Gap Press.
- Cole, A.L.; Knowles, J.G. 1998. "Reforming teacher education through self-study". In: Cole, A.L.; Elijah, R.; Knowles, J.G. (Eds.), *The heart of the matter: teacher educators and teacher education reform*. San Francisco: Caddo Gap Press.
- Cole, M.; Cole, S. 1996. *The development of children* (third edition). New York: Freeman.
- Commonwealth of Learning. 2001. Document archives (www.col.org/teaed.html).
- Condemarin, M. (no date). *Talleres de formación de profesores en servicio pertenecientes al P-900*. Chile: Centro de Investigación y Desarrollo de la Educación (CIDE).

- Conley, S. 1991. "Review of research on teacher participation in school decision-making". In: Grant, G. (Ed.), *Review of research in education* (Vol. 17). Washington, DC: American Educational Research Association.
- Corcoran, T.B. 1995 (June). *Helping teachers teach well: transforming professional development*. Policy Briefs. Consortium for Policy Research in Education.
- Corcoran, T.B. 1990. "School work: perspectives on workplace reform". In: McLaughlin, M.W.; Talbert, J.E.; Bascia, N. (Eds.), *The contexts of teaching in secondary schools*. New York: Teachers' College Press.
- Craft, M. 1996. *Teacher education in plural societies: an international review*. London: The Falmer Press.
- Craig, H.; Kraft, R.; du Plessis, J. 1998. *Teacher development: making an impact*. Washington, DC: ABEL Clearinghouse for Basic Education. Academy for Educational Development.
- Crosby, G.A.; Crosby, J.L. 1998. "Conducting a teacher professional development program in Chile". In: *Journal of Chemical Education*, 75(7), 811-813.
- Curriculum Administrator. 2001. "Online professional development". In: *Curriculum Administrator*, 37(1), 3.
- Cutler, A.B.; Ruopp, F.N. 1999. "From expert to novice: the transformation from teacher to learner". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: Constructing new approaches to professional development*. New York: Teachers College Press.
- Dadds, M. 2001. "Continuing professional development: nurturing the expert within". In: Soler, J.; Craft, A.; Burgess, H. (Eds.), *Teacher development: exploring our own practice*. London: Paul Chapman Publishing and The Open University.

- Dahlstrom, L.; Swarts, P.; Zeichner, K. 1999. "Reconstructive education and the road to social justice: the case of post-colonial teacher education in Namibia". In: *International Journal of Leadership in Education*, 2(3), 149-164.
- Dalin, P. et al. 1994. *How schools improve. An international report*. London: Cassell.
- Dana, N.F.; Silva, D.Y.; Gimbert, B.; Nolan, J.; Zembal-Saul, C.; Tzur, R.; Mule, L.; Sanders, L. 2001. "Developing new understandings of PDS work: better problems, better questions". In: *Action in Teacher Education*, 22(4), 15-27.
- Danielson, C. 2001. "New trends in teacher evaluation". In: *Educational Leadership*, 58(5), 12-15.
- Darling-Hammond, L. (Ed.), 1994a. *Professional Development Schools: Schools to develop a profession*. New York, New York: Teachers College Press.
- Darling-Hammond, L. 1994b. "Developing Professional Development Schools: early lessons, challenge and promise". In: Darling-Hammond, L. (Ed.), *Professional Development Schools: schools to develop a profession*. New York, New York: Teachers College Press.
- Darling-Hammond, L. 1999. "Target time toward teachers". In: *Journal of Staff Development*, 20(2), 31-36.
- Darling-Hammond, L. 1998. "Policy and change: getting beyond bureaucracy". In: Hargreaves, A. et al. (Eds.), *International handbook of educational change*. UK: Kluwer Academic Press.
- Darling-Hammond, L. 1996. "The quiet revolution: rethinking teacher development". In: *Educational Leadership*, 53(6), 4-10.

- Darling-Hammond, L.; McLaughlin, M.W. 1995. "Policies that support professional development in an era of reform". In: *Phi Delta Kappan*, 76(8), 597-604.
- Davini, M.C. 1995. *La formación docente en cuestión: política y pedagogía*. Buenos Aires, Argentina: Paidós.
- Day, C. 2000. "Stories of change and professional development: the costs of commitment". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Day, C. 1998. "The role of higher education in fostering life-long learning partnerships with teachers". In: *European Journal of Education*, 33(4), 419-432.
- Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.). 2000. *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Delamont, S. 1995. "Teachers as artists". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Delors, J. 1996. *Learning: the treasure within*. Paris: UNESCO.
- Di Peta, T. 1998. "Community on line: 'New professional environments for higher education'." In: Gillespie, K.H. (Ed.), *The impact of technology on faculty development, life and work*. (New Directions for Teaching and Learning Series). San Francisco, CA: Jossey-Bass Publishers.
- Dietz, M.E. 1999. "Portfolios". In : *Journal of Staff Development*, 20(3), 45-46.
- Dilworth, M.E. 1991. *Motivation, rewards and incentives*. Washington, DC: American Association of Colleges for Teacher Education.

- Driscoll, M. 1999. "Crafting a sharper lens: classroom assessment in Mathematics". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.
- Dockendorf, M. 1997. "Teachers control professional development". In: *Teacher Newsmagazine* (British Columbia Teachers Federation), 10, 1-3.
- Dorph, G.Z.; Holtz, B.W. 2000. "Professional development for teachers: why doesn't the model change?". In: *Journal of Jewish Education*, 66(1/2), 67-76.
- Dreyfus, H.L.; Dreyfus, S.E. 1986. *Mind over machine*. New York: Free Press.
- Ducharme, E.R. 1986. "Teacher educators: what do we know". In: *ERIC Digest 15*. Washington, DC: ERIC Clearinghouse on teacher education.
- Ducharme, E.R. 1993. *The lives of Teacher Educators*. New York: Teachers College Press.
- Ducharme, E.R. 1995. "Characteristics of teacher educators". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education*. (second edition). London: Pergamon Press.
- Dudzinski, M.; Roszmann-Millican, M.; Shank, K. 2000. "Continuing professional development for special educators: reforms and implications for university programs". In: *Teacher Education and Special Education*, 23(2), 109-124.
- Easton, L.B. 1999. "Tuning protocols". In: *Journal of Staff Development*, 20(3), 54-55.
- Ebbutt, D.; Elliott, J. (no date). *Supporting teachers' professional development in a developing country through practice-based inquiry and distance learning: some key issues*. Papers written by course developers. University of East Anglia, Norwich, England.

- Edelfelt, R. 1985. *An analysis of policy needs for in-service education in Indonesia*. Oslo: The International Learning Coop.
- Educational Testing Service. 1998. *Professional development: a link to better learning*. New Jersey: ETS.
- Eisenhart, M.; Jones, D. 1992. *Developing teacher expertise: two theories and a study*. Paper presented at the meeting of the American Educational Research Association, San Francisco, California.
- Eisenman, G.; Thornton, H. 1999. "Telementoring: helping new teachers through the first year". In: *T.H.E. Journal*, 26(9), 79-82.
- Ekholm, M. 1988. *In-service teacher education and school development: overview and soliloquy*. Stockholm: Swedish National Board of Education.
- Eraut, M. 1995a. "Developing professional knowledge within a client-centered orientation". In: Guskey, T.; Huberman, M. (Eds.), *New paradigms and practices in pProfessional development*. New York: Teachers College Press.
- Eraut, M. 1995b. "In-service teacher education". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Eror, N. 2001. NSF "Chautauqua short courses: a professional development bonanza". In: *Journal of College Science Teaching*, 30(5), 290-291.
- Ershler, A.R. 2001. "The narrative as an *experience text*: Writing themselves back in". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Falk, B. 2001. "Professional learning through assessment". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.

- Farrell, J.; Oliveira, J. *Teachers in developing countries: improving effectiveness and managing costs*. Washington, DC: The World Bank.
- Fenstermacher, G.D. 1992. "The place of alternative certification in the education of teachers". In: Hawley, W. (Ed.), *The alternative certification of teachers. Teacher Education Monograph*, No 14. Washington, DC: ERIC Clearinghouse on Teacher Education.
- Ferguson, D.B. 2000. "City teachers become students, and love it". In: *Curriculum Administrator*, 36(6), 20-21.
- Fernandez, A. 2000. "Leadership in an era of change: breaking down the barriers of the culture of teaching". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Fessler, R. 1992. "The teacher career cycle". In: Fessler, R. and Christensen, J. (Eds.), *The teacher career cycle: understanding and guiding the professional development of teachers*. Boston: Allyn and Bacon.
- Fessler, R. 1995. "Dynamics of teacher career stages". In: Guskey, T.R. and Huberman, M. (Eds.), *Professional development in education: new paradigms and practices*. New York: Teachers College Press.
- Fessler, R.; Christensen, J. 1992. *The teacher career cycle: understanding and guiding the professional development of teachers*. Boston: Allyn and Bacon.
- Fielding, G.D.; Schalock, H.D. 1985. *Promoting the professional development of teachers and administrators*. Eugene, Oregon: ERIC Clearinghouse on Educational Management.
- Finn, C.; Madigan, K. 2001. "Removing the barriers for teacher candidates". In: *Educational Leadership*, 58(8), 29-31.
- Flores, A.; Arias, M.D. 2001. "Los colectivos escolares que hacen investigación desde su escuela: Informe del II encuentro Iberoamericano". In: Arias,

- M.D.; Flores, A.; Porlan, R. (Eds.), *Redes de maestros: una alternativa para la transformacion escolar*. Sevilla, Spain: Diada Editora.
- Frankes, L.; Valli, L.; Cooper, D.H. 1998. "Continuous learning for all adults in the professional development school: a review of the research". In: McIntyre, D.J.; Byrd, D.M. (Eds.), *Strategies for career-long teacher education*. Thousand Oaks, CA: Corwin Press.
- Freedman, S.W. 2001. "Teacher research and professional development: purposeful planning or serendipity". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Freese, A.R. 1999. "The role of reflection on pre-service teachers' development in the context of a professional development school". In: *Teaching and Teacher Education*, 15, 895-909.
- Frost, D. 1996. "Integrating enquiry into teachers' professional lives". In: McBride, R. (Ed.), *Teacher education policy: some issues arising from research and practice*. London: Falmer Press.
- Fullan, M.G. 1990. "Staff development, innovation, and institutional development". In: Fullan, M.G.; Joyce, B.; Bruce, B. (Eds.), *Changing school culture through staff development*. Yearbook of the ASCD. Alexandria, Virginia: Association for Supervision and Curriculum Development.
- Fullan, M. 1991. *The new meaning of educational change*. New York, New York: Teachers College Press.
- Fullan, M.; Hargreaves, A. (Eds.). 1992. *Teacher development and educational change*. London: The Falmer Press.
- Fullan, M. 1987. "Implementing the implementation plan". In: Wideen, M.; Andrews, I. (Eds.), *Staff development for school improvement*. New York: Falmer Press.

- Futrell, M.H.; Holmes, D.H.; Christie, J.L.; Cushman, E.J. 1995. *Linking education reform and teacher professional development: the efforts of nine school districts*. Occasional Paper Series. Washington, DC: Center for Policy Studies, Graduate School of Education and Human development. George Washington University.
- Gallant, G.M. 2000. "Professional development for Web-based teaching: overcoming innocence and resistance". In: *New Directions for Adult and Continuing Education*, 88, 69-78.
- Ganser, T. 2000. "An ambitious vision of professional development for teachers". In: *NASSP Bulletin*, 84(618), 6-12.
- Garavan, T.N. 1998. "In-career professional development: the case of Irish second-level teachers". In: *Journal of European Industrial Training*, 22(9), 375-387.
- Garcia, F.F.; Porlan, R.; Rivero, A.; Ballenilla, F. 2001. "Red para la investigación y renovación escolar (Red- IRES, Espana)". In: Arias, M.D.; Flores, A.; Porlan, R. (Eds.), *Redes de maestros: una alternativa para la transformación escolar*. Sevilla, Spain: Diada Editora.
- Garcia, S.; Litton, E. 1998. "Beyond burritos and lumpia: ethnic identity as a difference in pre-service teacher education". In: Cole, A. L.; Elijah, R.; Knowles, J.G. (Eds.), *The heart of the matter: teacher educators and teacher education reform*. San Francisco: Caddo Gap Press.
- Gardner, R. 1995. "On-service teacher education". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Gay, G.; Howard, T.C. 2000. "Multicultural teacher education for the 21st century". In: *The Teacher Educator*, 36(1), 1-16.

- Geddis, A.R.; Lynch, M.J.; Speir, S.B. 1998. "Bridging theory and practice: towards a professional scholarship of pedagogy". In: *Teaching and Teacher Education*, 14(1), 95-106.
- Geiger, P. 1996. "The politics of professional development". In: *American School and University*, 68, 40.
- Ghani, Z. 1990. "Pre-service teacher education in developing countries". In: Rust, V.D.; Dalin, P. (Eds.), *Teachers and teaching in the developing world*. New York: Garland.
- Gillespie, K.H. (Ed.). 1998. *The impact of technology on faculty development, life and work* (New Directions for Teaching and Learning Series). San Francisco, CA: Jossey-Bass Publishers.
- Gimmestad, M.J.; Hall, G.E. 1995. "Structure of teacher education programs". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Ginsburg, M.B.; Clift, R.T. 1990. "The hidden curriculum of pre-service teacher education". In: Houston, W.R.; Haberman, M.; Sikula, G. (Eds.), *Handbook of research on teacher education*. New York: Macmillan.
- Glaser, R. 1987. "Thoughts on expertise". In: Schooler, C.; Schaei, W. (Eds.), *Cognitive functioning and social structure over the life course*. Norwood, New Jersey: Ablex.
- Glatthorn, A. 1990. *Supervisory leadership*. Glenview, Illinois: Scott Foresman.
- Glatthorn, A. 1995. "Teacher development". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Glatthorn, A.; Fox, L.E. 1996. *Quality teaching through professional development*. Thousand Oaks, California: Corwin Press.

- Glatthorn, A. 1987. "Cooperative professional development: peer centered options for teacher growth". In: *Education Leadership*, 45(3), 31-35.
- Glazer, C.; Abbott, L.; Harris, J. 2000. *Overview: the process for collaborative reflection among teachers*, 28 June 2000 (<http://ccwf.cc.utexas.edu/~cglazer/reflection-process.html>).
- Glenn, A.D. 1997. "Technology and the continuing education of classroom teachers". In: *Peabody Journal of Education*. 72(1), 122-128.
- Glickman, C.D. 1991. "Pretending not to know what we know". In: *Educational Leadership*, 48(8), 4-10.
- Goodlad, J. 1990. *Teachers for our nation's schools*. San Francisco: Jossey-Bass.
- Goodson, I. 2000. "Professional knowledge and the teachers' life and work". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Gorski, P.; Shin, G.T.; Green, M. (Eds.). 2000. *Professional development guide for educators*. (The Multicultural Resource Series, Volume 1). Washington, DC: National Education Association of the United States.
- Govinda, R.; Buch, M.B. 1990. "Indian research in teacher education: a review". In: Tisher R.P.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: Falmer Press.
- Grace, D. 1999. "Paradigm lost (and regained)". In: *Independent School*, 59(1), 54-57.
- Gran, B. 1990. "Research in Swedish teacher training". In: Tisher, R.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: The Falmer Press.

- Greenland, J. (Ed.). 1983. *The in-service training of primary school teachers in English-speaking Africa: a report*. London: Macmillan.
- Gregorian, V. 2001 (July 6). "How to train – and retain – teachers". In: *The New York Times*, A-19.
- Griffin, M. 1999. "Training of trainers". In: *Journal of Staff Development*, 20(3), 52-53.
- Grimmett, P.P.; Crehan, P. 1992. "The nature of collegiality in teacher development: The case of clinical supervision". In: Fullan, M.; Hargreaves, A. (Eds.), *Teacher development and educational change*. London: The Falmer Press.
- Grimmett, P.P.; Neufeld, J. (Ed.). 1994. *Teacher development and the struggle for authenticity: professional growth and restructuring in the context of change*. New York: Teachers College Press.
- Grisham, D.L.; Laguardia, A.; Brink, B. 2000. "Partners in professionalism: creating a quality field experience for pre-service teachers". In: *Action in Teacher Education*, 21(4), 27-40.
- Grosso de Leon, A. 2001. *Higher education's challenge: new teacher education models for a new century*. New York: Carnegie Corporation of New York.
- Guzman, J.L. 1995. *Formando los maestros y maestras de educación básica del siglo XXI*. San Salvador, El Salvador: Universidad Centroamericana Jose Simeon Canas.
- Guskey, T.R. 1995a. "Professional development in education: in search of the optimal mix". In: Guskey, T.R.; Huberman, M. (Eds.), *Professional development in education: new paradigms and practices*. New York: Teachers College Press.
- Guskey, T.R. 1995b. *Results-oriented professional development: in search of an optimal mix of effective practices*. North Central Region

- Educational Laboratory (NCREL) [www.ncrel.org/sdrs/areas/rpl_esys/pdlitrev.html].
- Guskey, T.R. 1997 (Spring). "Research needs to link professional development and student learning". In: *Journal of Staff Development*, 18, 36-40.
- Guskey, T.R.; Huberman, M. (Eds.). 1995. *Professional development in education: new paradigms and practices*. New York: Teachers College Press.
- Guthrie, G. 1990. "In defense of traditional teaching". In: Rust, V.; Dalin, P. (Eds.), *Teachers and teaching in the developing world*. (pp. 219-234). New York: Garland Publishing, Inc.
- Hallak, J. 1990. *Investing in the future: setting educational priorities in the developing world*. New York: Pergamon Press.
- Hammerman, J.K. 1999. "Teacher inquiry groups: collaborative explorations of changing practice". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.
- Hancock, R. 2001. "Why are class teachers reluctant to become researchers?". In: Soler, J.; Craft, A.; Burgess, H. (Eds.), *Teacher development: exploring our own practice*. London: Paul Chapman Publishing and The Open University.
- Handle, C. 1992. "Germany". In: Leavitt, H.B. (Ed.), *Issues and problems in teacher education. an international handbook*. New York: Greenwood Press.
- Hanushek, E.; Pace, R. 1995. "Who chooses to teach and why?". In: *Economics of Education Review*, 14(2), 101-117.
- Hargreaves, A. 1995. "Development and desire: a postmodern perspective". In: Guskey, T.R.; Huberman, M. (Eds.), *Professional development in education: new paradigms and practices*. New York: Teachers College Press.

- Hargreaves, A.; Fullan, M. (Eds.). 1992. *Understanding teacher development*. New York, New York: Teachers' College.
- Harrington, H.L. 1995. "Fostering reasoned decisions: case-based pedagogy and the professional development of teachers". In: *Teaching and Teacher Education*, 11(3), 203-214.
- Harwell-Kee, K. 1999. "Coaching". In: *Journal of Staff Development*, 20(3), 28-29.
- Haselkorn, D.; Fideler, E. 1996. *Breaking the class ceiling: paraeducators pathways to teaching*. New York: Recruiting New Teachers, Inc.
- Hauge, T.E. 2000. "Student teachers' struggle in becoming professionals: hopes and dilemmas in teacher education". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Hawkey, K. 1998. "Mentor pedagogy and student-teacher professional development: a study of two mentoring relationships". In: *Teaching and Teacher Education*, 14(6), 657-670.
- Hawley, C.A.; Hawley, W.D. 1997. "The role of universities in the education of Japanese teachers: a distant perspective". In: *Peabody Journal of Education*, 72(1), 233-244.
- Haycock, K. 1999. "The National Library Power Project". In: *Teacher Librarian*, 27(2), 34.
- Hecht, J.; Bland, S.; Schoon, P.; Bschart, K. 1996. *Professional Development School 1995-1996*. A research Report. Normal, IL: College of Education (ERIC Document Reproduction Service No. ED 404 306).
- Helsby, G. 2000. "Multiple truths and contested realities: the changing faces of teachers professionalism in England". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.

- Henning, E. 2000. "Walking with barefoot teachers: an ethnographically fashioned casebook". In: *Teaching and Teacher Education*, 16, 3-20.
- Hernandez, A.C. 1998. *La preparación de los formadores de profesores*. Madrid: OEI.
- Hickcox, E.S.; Musella, D.F. 1992. "Teacher performance appraisal and staff development". In: Fullan, M.; Hargreaves, A. (Eds.), *Teacher development and educational change*. London: The Falmer Press.
- Hollingsworth, S. 1995. "Teachers as researchers". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Holloway, J.H. 2001. "The benefits of mentoring". In: *Educational Leadership*, 58(8), 85-86.
- Holly, P. 1991. "Action research: the missing link in the creation of schools as centers of inquiry". In: Lieberman, A; Miller, L. (Eds.), *Staff development for education in the 90s*. New York, New York: Teachers' College.
- Holmes Group. 1986. *Tomorrow's teachers: a report of the Holmes group*. East Lansing, Michigan: Holmes Group Inc.
- Holowinsky, I.Z. 1995. "Ukraine's reconstructive process in education: school reform, teacher education, and school psychology". In: Shimahara, N.K.; Holowinsky, I.Z. (Eds.), *Teacher education in industrialized nations*. (Reference Books in International Education, Vol. 30), New York: Garland Publishing.
- Hoyle, E. 1995. "Teachers as professionals". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Huberman, M. 2001. "Networks that alter teaching: conceptualisations, exchanges, and experiments". In: Soler, J.; Craft, A.; Burgess, H. (Eds.), *Teacher development: exploring our own practice*. London: Paul Chapman Publishing and The Open University.

- Huberman, M.; Miles, M. 1984. *Innovation up close: how school improvement works*. New York: Plenum Press.
- Huberman, M. 1989. "The professional life cycle of teachers". In: *Teachers College Record*, 91(1), 31-57.
- Huberman, M. 1995. "Professional careers and professional development". In: Guskey, T.R.; Huberman, M. (Eds.), *Professional development in education: new paradigms and practices*. New York: Teachers College Press.
- Ingersoll, R.M. 2001. "The realities of out-of-field teaching". In: *Educational Leadership*, 58(8), 42-45.
- Ingvarson, L. 1998. "Professional development as the pursuit of professional standards: The standard-based professional development system". In: *Teaching and Teacher Education*, 14(1), 127-140.
- Irving, M.M.; Dickson, L.A.; Keyser, J. 1999. "Retraining public secondary science teachers by upgrading their content knowledge and pedagogical skills". In: *Journal of Negro Education*, 68(3), 409-418.
- Jackson, P. 1987. "Facing our ignorance". In: *Teachers College Record*, 88, 384-389.
- Jackson, R. 1999. "Just in time: Web delivered professional development". In: *T.H.E. Journal*, 26(8), 26-27.
- Jackson, R.K.; Leroy, C.A. 1998. "Eminent teachers' views on teacher education and development". In: *Action in Teacher Education*, 20(3), 15-29.
- James, W. 1983, first edition 1891. *Talks to teachers on psychology*. Cambridge, MA: Harvard University Press.
- Jamous, H.; Pelloille, B. 1970. "Professions or self-perpetuating systems". In: Jackson, A. (Ed.), *Professions and professionalization*. Cambridge: Cambridge University Press.

- Jarvinen, A.; Kohonen, V. 1995. "Promoting professional development in higher education through portfolio assessment". In: *Assessment and Evaluation in Higher Education*, 20(1), 25-36.
- Jegede, O.; Taplin, M.; Chan, S. 2000. "Trainee teachers' perception of their knowledge about expert teaching". In: *Educational Research*, 42(3), 287-308.
- Jenlink, P.M.; Kinnucan-Welsch, K. 1999. "Learning ways of caring, learning ways of knowing through communities of professional development". In: *Journal for a Just and Caring Education*, 5(4), 367-385.
- Jesness, J. 2000. "Workshop wonderland. Who's teaching the teachers?". In: *Reason*, Aug/Sept 2000, 37-39.
- Johnson, S.M. 1990. "The primacy and potential of high school departments". In: McLaughlin, M.W.; Talbert, J.E.; Bascia, N. (Eds.), *The contexts of teaching in secondary schools*. New York: Teachers' College Press.
- Johnson, S.; Monk, M.; Hodges, M. 2000. "Teacher development and change in South Africa: a critique of the appropriateness of transfer of northern/western practice". In: *Compare*, 30(2), 179-192.
- Johnson, S.; Monk, M.; Swain, J. 2000. "Constraints on development and change to science teachers' practice in Egyptian classrooms". In: *Journal of Education for Teaching*, 26(1), 9-24.
- Jones, M. 2001. "Mentors' perceptions of their roles in school-based teacher training in England and Germany". In: *Journal of Education for Teaching*, 27(1), 75-94.
- Joyce, B.; Showers, B. 1988. *Student achievement through staff development*. New York: Longman.
- Judge, H. 1992. "England and Wales". In: Leavitt, H.B. (Ed.), *Issues and problems in teacher education. An international handbook*. New York: Greenwood Press.

- Judge, H.; Lemosse, M.; Paine, L.; Sedlak, M. 1994. *The university and the teachers: France, the United States, England*. [Oxford Studies in Comparative Education, 4, (1/2)]. Oxfordshire, United Kingdom: Triangle Journals.
- Kallestad, J.H.; Olweus, D. 1998. "Teachers' emphases on general educational goals: a study of Norwegian teachers". In: *Scandinavian Journal of Educational Research*, 42(3), 257-279.
- Kam, M.W. 1990. "Research on teacher education in Singapore 1968-1988". In: Tisher, R.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: The Falmer Press.
- Keiffer-Barone, S.; Ware, K. 2001. "Growing great teachers in Cincinnati". In: *Educational Leadership*, 58(8), 56-59.
- Kelly, J.M. 1999. "Free to teach, free to learn: a model of collaborative professional development that empowers teachers to reach diverse student populations". In: *Journal of Negro Education*, 68(3), 426-432.
- Kettle, B.; Sellars, N. 1996. "The development of student teachers' practical theory of teaching". In: *Teaching and Teacher Education*, 12(1), 1-24.
- Kiely, R. 1996. "Professional development for teacher trainers: a materials writing approach". In: *ELT Journal*, 50(1), 59-66.
- Kieviet, F.K. 1990. "A decade of research on teacher education in the Netherlands". In: Tisher, R.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: The Falmer Press.
- Killion, J. 2000. "Online staff development: promise or peril?". In: *NASSP Bulletin*, 84(618), 38-46.
- Killion, J. 1999. "Journaling". In: *Journal of Staff Development*, 20(3), 36-37.
- Kimball, W.H. 1999. "Changing roles of teacher education students". In: *Peabody Journal of Education*, 74(3/4), 95-108.

- King, M.B.; Newmann, F.M. 2000 (April). "Will teacher learning advance school goals?". In: *Phi Delta Kappan*, pp. 576-580.
- Klette, K. 2000. "Working-time blues: how Norwegian teachers experience restructuring in education". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Klinzing, H.G. 1990. "Research on teacher education in West Germany". In: Tisher, R. and Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: The Falmer Press.
- Knight, S.L.; Wiseman, D.L.; Cooner, D. 2000. "Using collaborative teacher research to determine the impact of professional development school activities on elementary students' math and writing outcomes". In: *Journal of Teacher Education*, 51(1), 26-38.
- Koehnecke, D.S. 2001. "Professional development schools provide effective theory and practice". In: *Education*, 121(3), 589-591.
- Kostin, M. 1998. *Multiple perspectives and their influence on the development of an assessment process for an emerging professional development school*. Paper presented at the Annual meeting of the American Association of Colleges for Teacher Education, February 1998. New Orleans, LA.
- Kreber, C. 1999. "A course-based approach to the development of teaching scholarship: a case study". In: *Teaching in Higher Education*, 4(3), 309-325.
- Kunje, D.; Stuart, J. 1999. "Supporting untrained teachers in Malawi". In: *International Journal of Educational Development*, 19, 157-166.
- Lacey, C. "Professional socialization of teachers". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.

- Lanier, J.; Little, J. 1986. "Research on teacher education". In: Wittrock, M.C. (Ed.), *Handbook of research on teaching* (third edition). New York: Macmillan.
- Larkin, E. 2000. "Teacher research: An ethnography of changing practice". *Teaching and change*, 7(4), 347-362.
- Lauriala, A. 1998. "Reformative in-service education for teachers (RINSET) as a collaborative action and learning enterprise: experiences from a Finnish context". In: *Teaching and Teacher Education*, 14(1), 53-66.
- Leithwood, K.A. 1992. "The principal's role in teachers' development". In: Fullan, M.; Hargreaves, A. (Eds.), *Teacher Development and Educational Change*. London: Falmer Press.
- Lemlech, J.K.; Hertzog-Foliart, H.; Hackl, A. 1994. "The Los Angeles Professional Practice School: a study of mutual impact". In: Darling-Hammond, L. (Ed.), *Professional Development Schools: schools to develop a profession*. New York, New York: Teachers College Press.
- Leskiw, R.J.; Girhiny, V.D.R. 1992. "Canada". In: Leavitt, H.B. (Ed.), *Issues and problems in teacher education. An international handbook*. New York: Greenwood Press.
- Levine, M.; Churins, E. 1999. "Designing standards that empower professional development schools". In: *Peabody Journal of Education*, 73(3/4), 178-208.
- Lewis, A.C. 1998. "Teacher development". In: *Education Digest*, 63(6), 70-71.
- Lieberman, A. 1994. "Teacher development: commitment and challenge". In: Grimmett, P.P.; Neufeld, J. (Ed.), *Teacher development and the struggle for authenticity: Professional growth and restructuring in the context of change*. New York: Teachers College Press.
- Lieberman, A. 1999. "Networks". In: *Journal of Staff Development*, 20(3), 43-44.

- Lieberman, A.; Miller, L. (Eds.), 2001. *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Lieberman, A.; Miller, L. (Eds.), 1991. *Staff development for education in the 90s*. New York: New York: Teachers' College.
- Lieberman, A.; Wood, D. 2001. "When teachers write: of networks and learning". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Lieberman, A.; Miller, L. 1992. "Teacher development in professional practice schools". In: Levine, M. 1992. *Professional practice schools*. New York: teachers College press.
- Lincoln, M. 2001. "Internet in-service: the unit design approach". In: *Book report, 19(4)*, 37-39.
- Little, J.W. 1990. "Condition of professional development in secondary schools". In: McLaughlin, M.W.; Talbert, J.E.; Bascia, N. (Eds.), *The contexts of teaching in secondary schools*. New York: Teachers' College Press.
- Little, J.W. 1990. "The persistency of privacy: autonomy and initiative in teachers' professional relations". In: *Teachers College Record, 91(4)*, 509-536.
- Little, J.W. 1992. "Teacher development and educational policy". In: Fullan, M.; Hargreaves, A. (Eds.), *Teacher development and educational change*. London: Falmer Press.
- Little, J.W. 2001. "Professional development in pursuit of school reform". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: Professional development that matters*. New York: Teachers College Press.

- Lockheed, M.; A. Verspoor. 1991. *Improving primary education in developing countries*. Washington, DC: The World Bank.
- Long, D.H.; Long, R. 1999. *Education of teachers in Russia*. Westport, CT: Greenwood Press.
- Long, J.; Morrow, J. 1995 (February). *Research analysis of a professional development school graduates and traditional phase I and phase II graduates*. Paper presented at the meeting of the Association of Teacher Educators, February 1995. Detroit, MI.
- Loucks-Horsley, S.; Harding, C.; Arbuckle, M.; Murray, L.; Dubea, C.; Williams, M. 1987. *Continuing to learn: a guidebook for teacher development*. Andover, MA: The regional Laboratory for Educational Improvement of the Northeast and Islands.
- Loucks-Horsley, S.; Matsumoto, C. 1999. "Research on professional development for teachers of Mathematics and Science: the state of the scene". In: *School Science and Mathematics*, 99(5), 258-271.
- Loucks-Horsley, S. 1998. "The role of teacher and learning in systemic reform: a focus on professional development". In: *Science Educator*, 7(1), 1-6.
- Louis, K.S. 1990. "School and community values and the quality of teachers work life". In: McLaughlin, M.W.; Talbert, J.E.; Bascia, N. (Eds.), *The contexts of teaching in secondary schools*. New York: Teachers' College Press.
- Lourdusamy, A.; Tan, S.K. 1992. "Malaysia". In: Leavitt, H.B. (Ed.), *Issues and problems in teacher education. An international handbook*. New York: Greenwood.
- Lundgren, U.P. 1972. *Frame factors and the teaching process: a contribution to curriculum theory and theory on teaching*. Stockholm: Almqvist and Wiksell.

- Macias, R. 1989. *Bilingual teacher supply and demand in the United States*. Claremont, CA: The Tomas Rivera Center.
- MacLennan, S.; Seadon, T. 1988. "What price school-based work? Reflections on a school-sited PGCE method course". In: *Cambridge Journal of Education*, 18(3), 387-403.
- Macy Research Associates. 1996. *Centers for Professional Development and Technology (CPDT) state-wide evaluation study*. Austin, TX: Texas State Board of Educator Certification (ERIC Reproduction Service No. ED 409 287).
- Maguire, M.; Ball, S. 1995. "Teacher education and education policy in England". In: Shimahara, N.; Holowinsky, I. (Eds.), *Teacher education in industrialized nations* (Reference Books in International Education, Vol. 30). New York: Garland Publishing.
- Maor, D. 1999. "Teachers-as-learners: the role of a multimedia professional development program in changing classroom practice". In: *Australian Science Teachers Journal*, 45(3), 45-50.
- Marcondes, M.I. 1999. "Teacher education in Brazil". In: *Journal of Education for Teaching*, 25(3), 203-213.
- Marshall, J.C.; Pritchard, R.J.; Gunderson, B.H. 2001. "Professional development: what works and what doesn't?". In: *Principal Leadership*, 1(6), 64-68.
- Marx, R.W.; Blumenfeld, P.C.; Krajcik, J.; Solloway, E. 1998. "New technologies for teacher professional development". In: *Teaching and Teacher Education*, 14(1), 33-52.
- Mather, M.A. 2000a. "In-service to go: professional development online". In: *Technology and Learning*, 20(6), 18-24.
- Mather, M.A. 2000b. "Paying attention to professional development". In: *Curriculum Administrator*, 36(2), 50-55.

- Mather, M.A.; Poftak, A. 2000. "Having it your way: a directory of online professional development options". In: *Technology and Learning*, 20(6), 25-28.
- Matsumoto, C. 1999. "Principals as colleagues in the reshaping of science teaching and learning". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.
- McAlpine, A.; Brown, S.; McIntyre, D.; Hagger, H. 1988. *Student teachers learning from experienced teachers*. Edinburgh: Scottish Council for Research in Education.
- McBride, R. 1996. *Teacher education policy: some issues arising from research and practice*. London: The Falmer Press.
- McCall, A.L. 1998. "Teaching by the rules, changing the rules in teacher education". In: Cole, A. L.; Elijah, R.; Knowles, J.G. (Eds.), *The heart of the matter: teacher educators and teacher education reform*. San Francisco: Caddo Gap Press.
- McCutcheon, G. 1980. "How do elementary school teachers plan? The nature of planning and influence on it". In: *The Elementary School Journal*, 81(1), 4-23.
- McGinn, N.; Borden, A. 1995. *Framing questions, constructing answers: linking research with education policy for developing countries*. Cambridge, MA: Harvard University Press.
- McKay, M.; McGrath, B. 2000. "Created internet-based curriculum projects: a model for teacher professional development". In: *T.H.E. Journal*, 27(11), 114-124.
- McLaughlin, M.W. 1994. "Strategic sites for teachers' professional development". In: Grimmett, P.P.; Neufeld, J. (Ed.), *Teacher development and the struggle for authenticity: professional growth and*

- restructuring in the context of change*. New York: Teachers College Press.
- McLaughlin, M.W.; Talbert, J.E. 1990. "The contexts in question: the secondary school workplace". In: McLaughlin, M.W.; Talbert, J.E.; Bascia, N. (Eds.), *The contexts of teaching in secondary schools*. New York: Teachers' College Press.
- McLaughlin, M.W.; Zarrow, J. 2001. "Teachers engages in evidence-based reform: trajectories of teachers' inquiry, analysis, and action". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- McNamara, D. 1990. "Research on teacher training in a changing society: the case of Britain in the late 1980s". In: Tisher R.P.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: Falmer Press.
- McNamara, D. 1993. "Towards reestablishing the professional authority and expertise of teacher educators and teachers". In: *Journal of Education for Teaching*, 19(4/5), 277-291.
- Merseth, K.K. 1991. "The early history of case-base instruction: insights for teacher education today". In: *Journal of Teacher Education*, 42(4), 243-249.
- Merseth, K.K. 1994. *Cases, case methods, and the professional development of educators*. Washington, DC: ERIC Digests.
- Metcalf-Turner, P.; Smith, J.L. 1998. "Reflections: redefining the roles in school-university collaboratives in teacher preparation". In: *Contemporary Education*, 70(1), 51-54.
- Mevarech, Z.R. 1995. "Teachers' paths on the way to and from the professional development forum". In: Guskey, T.R.; Huberman, M.

- (Eds.), *Professional development in education: new paradigms and practices*. New York: Teachers College Press.
- Miles, K.M.; Darling-Hammond, L. 1998. "Rethinking the allocation of teaching resources: some lessons from high schools". In: *Educational Evaluation and Policy Analysis*, 20(1), 9-30.
- Miller, C.; Smith, C.; Tilstone, C. 1998. "Professional development by distance education: does distance lend enhancement?". In: *Cambridge Journal of Education*, 28(2), 221-230.
- Miller, J.; McKenna, M.; McKenna, B. 1998. "A comparison of alternatively and traditionally prepared teachers". In: *Journal of Teacher Education*, 49(3), 165-176.
- Miller, L. 1992. "Curriculum work as staff development". In: Pink, W.; Hyde, A. (Eds.), *Effective staff development for school change*. Norwood, N.J.: Ablex Publishing Company.
- Miller, L. 2001. "School-university partnership as a venue for professional development". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Moore, K.B. 2000. "Successful and effective professional development". In: *Early Childhood Today*, 15(3), 14-15.
- Morales, F. 1998. *Participación de padres en la escuela: component para la formación de profesores*. Santiago, Chile: CIDE.
- Morey, A.I.; Nakazawa, K.; Colvin, C. 1997. "Japanese and American student teacher voices: a comparative study of critical incidents". In: *Peabody Journal of Education*, 72(1), 203-214.
- Morgenstern de Finkel, S. 1993. "Teacher education in Spain: a postponed reform". In: Popkewitz, T.S. (Ed.), *Changing patterns of power: social regulation and teacher education reforms*. Albany, New York: State University of New York Press.

- Morine-Dershimer, G. 1989. "Pre-service teachers' conceptions of content and pedagogy: measuring growth in reflective, pedagogical decision-making". In: *Journal of Teacher Education*, 40(5), 46-52.
- Morris, P.; Chan, K.K.; Ling, L.M. 2000. "Changing primary schools in Hong Kong: perspectives on policy and its impact". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Murnane, R.; Singer, J.; Willett, J. 1991. *Who will teach? Policies that matter*. Cambridge, MA: Harvard University Press.
- Murphy, K. 2001 (May). *The use of digital cameras in the classroom*. Presentation at the Wheelock College Technology Workshop. Boston, MA.
- Namibia. Ministry of Education and Culture. 1993. *Toward Education for All: a development brief for education, culture and training*. Namibia: Ministry of Education and Culture.
- Nance, D.; Fawns, R. 1993. "Teachers' working knowledge and training: the Australian agenda for reform of teacher education". In: *Journal of Education for Teaching*, 19(2), 159-173.
- National Commission on Teaching and America's Future. 1996. *What matters most: teaching for America's future*. New York: Author.
- National Commission on Teaching and America's Future. 1997. *Doing what matters most: investing in quality teaching*. New York: Author.
- NEA (National Education Association). 2000. "Rx for teacher isolation: the professional development school". In: *NEA Today*, 18(6), 10.
- NEA (National Education Association). 2001. "Putting teachers in charge of training". In: *NEA Today*, 19(6), 22.

- NEA Foundation for the Improvement of Education. 2000. "Engaging public support for teachers' professional development". In: *News and Publications*. Washington, DC: NEA.
- Nelson, B.S. 1999. "Reconstructing teaching. Interactions among changing beliefs, subject-matter knowledge, instructional repertoire, and professional culture in the process of transforming one's teaching". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.
- Newcomb, A. 1998. "Lessons from Japan". *Christian Science Monitor*, 90(155), B1.
- Nielson, H.D. 1990. "Development agency support for the improvement of teaching in Asia". In: Rust V.; Dalin, P. (Eds.), *Teachers and teaching in the developing world* (pp. 257-280). New York: Garland Publishing.
- Nihlen, A. 1992 (April). *Schools as centers for reflection and inquiry: research for teacher empowerment*. Paper presented at the Annual meeting of the American Educational Research Association, San Francisco, CA.
- Norberg, K. 2000. "Intercultural education and teacher education in Sweden". In: *Teaching and Teacher Education*, 16, 511-519.
- Novoa, A. 1993. The Portuguese state and teacher educational reform: a socio-historical perspective to changing patterns of control. In: Popkewitz, T.S. (Ed.), *Changing patterns of power: social regulation and teacher education reforms*. Albany, New York: State University of New York Press.
- O'Hanlon, C. 1996. "Why is action research a valid basis for professional development?". In: McBride, R. 1996. *Teacher education policy: some issues arising from research and practice*. London: The Falmer Press.
- Odasz, F. 1999. "Alaskan professional development: lone eagles learn to 'teach from any beach!'" *T.H.E. Journal*, 27(4), 90-96.

- OECD (Organisation for Economic Cooperation and Development). 1990. *The teacher today: tasks, conditions, policies*. Paris, France: OECD.
- O'Shea, D.J.; Hammitte, D.; Mainzer, R.; Crutchfield, M.D. 2000. "From teacher preparation to continuing professional development". In: *Teacher Education and Special Education*, 23(2), 71-77.
- Owston, R. 1998. *Making the link: teacher professional development on the Internet*. Portsmouth, New Hampshire: Heinemann.
- Palincsar, A.S.; Magnusson, S.J.; Marano, N.; Ford, D.; Brown, N. 1998. "Designing a community of practice: principles and practices of the GisML community". In: *Teaching and Teacher Education*, 14(1), 5-19.
- Padilla, A.H. 2000. "Linking up advanced placement teachers". In: *The Clearing House*, 74(2), 61.
- Pajares, M.F. 1992. "Teachers' beliefs and educational research: cleaning up a messy construct". In: *Review of Educational Research*, 62(3), 307-332.
- Papai, P.; Bourbonnais, F.F.; Chevrier, J. 1999. "Transcultural reflection on clinical teaching using an experiential teaching-learning model". In: *The Journal of Continuing Education in Nursing*, 30(6), 260-266.
- Patterson, J.C. 2000. "How digital video is changing education". In: *Curriculum Administrator*, 36(6), 34-36.
- Pavan, B.N. 1983. *Clinical supervision: does it make a difference*. Paper presented at the Annual Meeting of the Council of Professors of Instructional Supervision. Dekalb, Illinois.
- Payne, D.; Wolfson, T. 2000. "Teacher professional development – the principal's critical role". In: *NASSP Bulletin*, 84(618), 13-21.
- Pennell, J.; Firestone, W.A. 1998. "State-sponsored teacher-to-teacher professional development". In: *Education Digest*, 63(7), 62-68.

- Penny, A.J.; Harley, K. 1995. "Broadening the experiences of teachers in training: a South African study". In: *Journal of Education for Teaching*, 21(2), 163-175.
- Perraton, H. 1995. "Distance education for teacher training: international experience". In: Howard, R.; McGrath, I. (Eds.), *Distance Education for Language Teachers: A U.K. Perspective*. Clevedon, England: Multilingual Matters.
- Pianfetti, E.S. 2001. "Teachers and technology: digital literacy through professional development". In: *Language Arts*, 78(3), 255-262.
- Pierce, D.; Hunsanker, W. 1996. "Professional development for the teacher, of the teacher, and by the teacher". In: *Education* (Chula Vista, California), 117, 101-105.
- Pierce, G. 1998. "Teaching teachers: a model for the professional development of new faculty". In: *Adult Learning*, 9(3), 17-20.
- Posch, P. 1992. *Teacher research and teacher professionalism*. Paper presented at the International on Teacher Research. California: Stanford University.
- Potter, T.S.; Badiali, B.J. 2001. *Teacher leader*. Larchmont, New York: Eye on Education.
- Prescott, J.O. 2000. "All kinds of minds". In: *Instructor*, 109(7), 17-20.
- Reed, P. 2000. "Introduction to the special section. Professional Development II: faculty and staff". In: *NASSP Bulletin*, 84(618), 3-5.
- Resta, V.; Huling, L.; Rainwater, N. 2001. "Preparing second-career teachers". In: *Educational Leadership*, 58(8), 60-63.
- Revenaugh, M. 2000. "No more excuses". In: *Curriculum Administrator*, 36(4), 25.

- Reynolds, A. 1992. "What is competent beginning teaching? A review of the literature". In: *Review of Educational Research*, 62(1), 1-35.
- Riggs, I.M.; Sandlin, R.A. 2000. "Teaching portfolios for support of teachers' professional growth". In: *NASSP Bulletin*, 84(618), 22-27.
- Robbins, P. 1999. "Mentoring". In: *Journal of Staff Development*, 20(3), 40-42.
- Robinson, M. 1999. "Initial teacher education in a changing South Africa: experiences, reflections and challenges". In: *Journal of Education for Teaching*, 25(3), 191-201.
- Robottom, I.; Walker, R. 1995. "The UK/Australia science teacher fellowship program: a journey in professional development". In: *School Science Review*, 77(278), 21-29.
- Rodes, P.; Knapczyk, D.; Chapman, C.; Chung, H. 2000. "Involving teachers in Web-based professional development". In: *T.H.E. Journal*, 27(10), 94-98.
- Rodrigues, S. 1999. "Evaluation of an online masters course in Science teacher education". In: *Journal of Education for Teaching*, 25(3), 263-270.
- Rodriguez, Y.E.; Sjostrom, B. 1998. "Critical reflection for professional development: a comparative study of non-traditional adult and traditional student-teachers". In: *Journal of Teacher Education*, 49(3), 177-186.
- Rohrkemper, M.M.; Brophy, J.E. 1983. "Teachers' thinking about problem students". In: Levine, J.M.; Wang, M.C. (Eds.), *Teacher and student-perceptions: implications for learning*. Hillsdale, N.J.: Lawrence Earlbaum Associates.
- Rojas, C. 1994. "The escuela nueva school programme in Colombia". In: Dalin, P. (Ed.), *How schools improve*. London: Cassell Publishing.

- Rosenholtz, S.J. 1989. *Teachers' workplace: the social organization of schools*. New York: Logman.
- Ross, F. 2001. "Helping immigrants become teachers". In: *Educational Leadership*, 58(8), 68-71.
- Rutter, R.A. 1987. *Facilitating teacher engagement*. Madison, Wisconsin: National Center on Effective Secondary Schools.
- Sachs, J. 2000. "Rethinking the practice of teacher professionalism". In: Day, C.; Fernandez, A.; Hauge, T.E.; Moller, J. (Eds.), *The life and work of teachers: international perspectives in changing times*. London: Falmer Press.
- Samuel, M. 1998. "Changing lives in changing times: pre-service teacher education in post-apartheid South Africa". In: *Tesol Quarterly*, 32(3), 576-585.
- San, M.M. 1999. "Japanese beginning teachers' perceptions of their preparation and professional development". In: *Journal of Education for Teaching*, 25(1), 17-29.
- Sandholtz, J.H. 2000. "Interdisciplinary team teaching as a form of professional development". In: *Teacher Education Quarterly*, 27(3), 39-54.
- Sandholtz, J.H.; Dadlez, S.H. 2000. "Professional Development School trade-off in teacher preparation and renewal". In: *Teacher Education Quarterly*, 27(1), 7-27.
- Sato, M. 1992. "Japan". In: Leavitt, H.B. (Ed.), *Issues and problems in teacher education. An international handbook*. New York: Greenwood Press.
- Sato, M.; Ushiwata, J. 1990. "Research on teacher education in Japan". In: Tisher, R.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: The Falmer Press.

- Schiefelbein, E.; Tedesco, J.C. 1995. *Una nueva oportunidad: el rol de la educación en el desarrollo de América Latina*. Santiago, Chile: Santillana.
- Schiefelbein, E. 1991. *In search of the school of the XXI century: is the Colombian "Escuela Nueva" the right pathfinder?* Santiago, Chile: UNESCO/UNICEF
- Schiefelbein, E.; Bravslasky, C.; Gatti, B.; Farres, P. 1994. "Las características de la profesión maestro y la calidad de la educación en América Latina". In: *Boletín Proyecto Principal de Educación en América Latina y el Caribe*, 34, 3-18.
- Schifter, D.; Russell, S.J.; Bastable, V. 1999. "Teaching to the big ideas". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.
- Schmidt, M. (no date). *La escritura, una herramienta clara en la formación de maestros*. Santiago, Chile: CIDE.
- Scribner, J. 1999. "Professional development: untangling the influence of work context in teacher learning". In: *Educational Administration Quarterly*, 35(2), 238-266.
- Seamon, M. 2001. "Changing instructional practices through technology training". In: *Book Report*, 19(4), 44-48.
- Shah, S. 1995. "Planning teacher education". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Sharma, S.R. 1992. *Teacher education in India*. New Delhi: Anmol Publications.
- Shaw, R. 1992. *Teacher training in secondary schools*. London: Kogan Page.

- Shimahara, N.K. 1995. "Teacher education reform in Japan: ideological and control issues". In: Shimahara, N.B.; Holowinsky, I.Z. (Eds.), *Teacher education in industrialized nations* (Reference Books in International Education, Vol. 3). New York: Garland Publishing.
- Shkedi, A. 1998. "Experienced teachers react to a case". In: *Teacher Educator*, 34(2), 116-133.
- Showers, B.; Joyce, B.; Bennett, B. 1987. "Synthesis of research on staff development: a framework for future study and state of the art analysis". In: *Educational Leadership*, 45(3), 77-87.
- Sirotnik, K.E. 1990. "On the eroding foundations of teacher education". In: *Phi Delta Kappan*, 71(9), 710-716.
- Slavin, R. 1998. "Sands, bricks, and seeds: school change strategies and readiness for reform". In: Hargreaves, A. *et al.* (Eds.), *International handbook of educational change*. Great Britain: Kluwer Academic Press.
- Smith, H.; Wigginton, E.; Hocking, K.; Jones, R.E. 1991. "Foxfire Teacher Networks". In: Lieberman, A.; Miller, L. (Eds.), *Staff development for education in the 90s*. New York: New York: Teachers' College.
- Smyth, J. 1989. *Problematizing teaching through a "critical" perspective on clinical supervision*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, California.
- Socket, H. 1989. "Practical professionalism". In: Cass, W. (Ed.), *Quality in teaching*. New York: Falmer Press.
- Soler, J.; Craft, A.; Burgess, H. (Eds.) 2001. *Teacher development: exploring our own practice*. London: Paul Chapman Publishing and The Open University.
- Solomon, M.Z. (Ed.) 1999. *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.

- Solomon, M.Z.; Morocco, C.C. 1999. "The diagnostic teacher". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.
- Sparks, D.; Hirsh, S. 1997. *A new vision for staff development*. Association for Supervision and Curriculum Development. Alexandria, Virginia.
- Sprinthall, N.A.; Thies-Sprinthall, L. 1983. "The teacher as adult-learner: A cognitive developmental view". In: Griffin, G. (Ed.), *Staff development* (82nd Yearbook for the National Society for the Study of Education). Chicago: University of Chicago Press.
- Stallings, J.A.; Knight, S.L.; Wiseman, D.L. 1995. "Laboratory and professional development schools". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon Press.
- Stodolsky, S. 1990. "Classroom observation". In: Millman, J.; Darling-Hammond, L. (Eds.), *The new handbook of teacher evaluation: assessing elementary and secondary school teachers*. Newbury Park, California: Sage Publications.
- Stokes, L. 2001. "Lessons from an inquiring school: forms of inquiry and conditions for teacher learning". In: Lieberman, A.; Miller, L. (Eds.), *Teachers caught in the action: professional development that matters*. New York: Teachers College Press.
- Stoll, L. 1992. "Teacher growth in the effective school". In: Fullan, M.; Hargreaves, A. (Eds.), *Teacher development and educational change*. London: The Falmer Press.
- Stuart, J. 1991. "Classroom action research in Africa: Lesotho case study of curriculum and professional development". In: Lewin, K. and Stuart, J. (Eds.), *Educational innovations in developing countries: case-studies of changemakers* (pp. 127-152). Hampshire, England: Macmillan.

- Subirats, J.; Nogales, I. 1989. *Maestros, escuelas, crisis educativa: condiciones del trabajo docente en Bolivia*. Santiago, Chile: OREALC/UNESCO.
- Supovitz, J.A.; Mayer, D.P.; Kahle, J.B. 2000. "Promoting inquiry-based instructional practice: the longitudinal impact of professional development in the context of systemic reform". In: *Educational Policy*, 14(3), 331-356.
- Supovitz, J.A.; Turner, H.M. 2000. "The effects of professional development on science teaching practices and classroom culture". In: *Journal of Research in Science Teaching*, 37(9), 963-980.
- Tatto, M.T. 1997. "Limits and constraints to effective teacher education". In: Cummings, W.K. and McGinn, N. (Eds.), *International handbook of education and development: preparing schools, students and nations for the twenty-first century*. United Kingdom: Elsevier Science.
- Tatto, M.T. 1999. *Conceptualizing and studying teacher education across world regions: an overview*. A background paper prepared for the Conference on teachers in Latin America: new perspectives on their development and performance. San Juan, Costa Rica.
- Teas, M. 1990. *The use of radio for teacher training in developing countries*. Qualifying paper submitted to the Harvard Graduate School of Education, Cambridge, MA.
- Tecnológico de Monterrey 2001. Brochure.
- Tillema, H.H.; Imants, J.G.M. 1995. "Training for the professional development of teachers". In: Guskey, T.R.; Huberman, M. (Eds.), *Professional development in education: new paradigms and practices*. New York: Teachers College Press.

- Tisher, R.P. 1990. "One and a half decades of research on teacher education in Australia". In: Tisher, R.P.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: Falmer Press.
- Tisher, R.P.; Wideen, M.F. (Eds.), 1990. *Research in teacher education: international perspectives*. London: Falmer Press.
- Tovar, T. 1989. *Ser maestro: condiciones del trabajo docente en el Perú*. Santiago, Chile: OREALC/UNESCO.
- Traill, R.D. 1992. "Australia". In: Leavitt, H.B. (Eds.), *Issues and problems in teacher education. An international handbook*. New York: Greenwood Press.
- Troen, V.; Bolles, K. 1994. "Two teachers examine the power of teacher leadership". In: D.R. Walling (Ed.), *Teachers as leaders: perspectives on the professional development of teachers* (pp. 275-286). Bloomington, In: Phi Delta Kappa Educational Foundation.
- Trumbull, D. 1986. "Teachers' envisioning: a foundation for artistry". In: *Teaching and Teacher Education*, 22, 139-144.
- Tsan, M. 1996. "Financial reform of basic education in China". In: *Economics of Education Review*, 15(4), pp. 423-444.
- Tusin, L. 1992. *The satellite program: a collaboration for clinical experiences in teacher education*. Paper presented at the Annual meeting of the Mid-Western Educational Research Association, October 1992. Chicago.
- Unda, M.P.; Chaparro, C.; Espinosa, H.F. 2001. "Red de cualificación de educadores en ejercicio (Red- CEE, Colombia)". In: Arias, M.D.; Flores, A.; and Porlan, R. (Eds.), *Redes de maestros: una alternativa para la transformación escolar*. Sevilla, Spain: Diada Editora.
- Undurraga, G. (no date). *Programa de perfeccionamiento de los profesores en servicio*. Santiago, Chile: CIDE.

- UNESCO. 1998. *World Education Report 1998: teachers and teaching in a changing world*. Paris: UNESCO.
- UNESCO. 2001a. *Activities current and coming*, 25 May 2001 (www.unesco.org).
- UNESCO. 2001b. *News in brief: teaching to preserve the future*, June 2001 (www.unesco.org).
- UNESCO. 2001c. *UNESCO/PROAP activities in Asia-Pacific: Project 2000+* (www.unesco.org).
- Van Driel, J.H.; Beijjard, D.; Verloop, N. 2001. "Professional development and reform in science education: the role of teachers' practical knowledge". In: *Journal of Research in Science Teaching*, 38(2), 137-158.
- Villegas-Reimers, E.; Reimers, F. 1996. "Where are 60 million teachers? The missing voice in educational reforms around the world". In: *Prospects*, 26(3), 469-492.
- Villegas-Reimers, E. 1998. *The preparation of teachers in Latin America: challenges and trends*. Washington, DC: Latin America and the Caribbean Regional Office, The World Bank.
- Vonk, J.H.C. 1994. "Teacher induction: the great omission in education". In: Galton, M.; Moon, B. (Eds.), *Handbook of teacher training in Europe*. London: David Fulton Publishers.
- Vonk, J.H.C. 1995. "Teacher education and reform in Western Europe: sociopolitical contexts and actual reform". In: Shimahara, N.K.; Holowinsky, I.Z. (Eds.), *Teacher Education in Industrialized Nations*. New York: Garland Publishing.
- Vulliamy, G.; Webb, R. 1991. "Teacher research and educational change: an empirical study". In: *British Education Research Journal*, 17(3), 219-236.

- Walker, A.; Cheong, C.Y. 1996. "Professional development in Hong Kong primary schools: beliefs, practices and change". In: *Journal of Education for Teaching*, 22(2), 197-212.
- Walling, B.; Lewis, M. 2000. "Development of professional identity among professional development school pre-service teachers: longitudinal and comparative analysis". In: *Action in Teacher Education*, 22(2A), 63-72.
- Wang, Q.; Seth, N. 1998. Self-development through classroom observation: Changing perceptions in China. *ELT Journal*, 52(3), 205-213.
- Wanzare, Z.; da Costa, J.L. 2000. "Supervision and staff development: overview of the literature". In: *NASSP Bulletin*, 84(618), 47-54.
- Warwick, D.; Reimers, F. 1995. *Hope or despair. Learning in Pakistan's primary schools*. Westport, Connecticut: Praeger.
- Wash, S.L.; Lovedahl, G.G.; Paige, W.D. 2000. "A comparison of traditionally and alternatively certified technology education teachers' professional development and receptivity to change". In: *Journal of Industrial Teacher Education*, 37(2), 31-46.
- Watson, N.; Fullan, M. 1992. "Beyond school district-university partnerships". In: Fullan, M.; Hargreaves, A. (Eds.), *Teacher development and educational change*. London: The Falmer Press.
- Watt, M.L.; Watt, D.L. 1999. Doing research, taking action, and changing practice with collaborative support. In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.
- Weiler, K.A. 1995. "Women and the professionalization of teaching". In: Anderson, L. (Ed.), *International encyclopedia of teaching and teacher education* (second edition). London: Pergamon.
- Weinberger, J. 2000. "Students' experience of a distance learning professional development course in literacy education". In: *Reading*, 34(2), 90-94.

- Weisman, E.M. 2001. Bicultural identity and language attitudes: perspectives of four Latina teachers. *Urban Education*, 36(2), 203-225.
- Whitaker, S. 2000. "First-year teachers and retention". In: *Teaching Exceptional Children*, 33(1), 28-36.
- Wideen, M.F. 1992. "School-based teacher development". In: Fullan, M.; Hargreaves, A. (Eds.), *Teacher development and educational change*. London: The Falmer Press.
- Wideen, M.F.; Holborn, P. 1990. "Teacher education in Canada: a research review". In: Tisher R.P.; Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: Falmer Press.
- Wise, A. 2000. "Creating a high quality teaching force". In: *Educational Leadership*, 58(4), 18-21.
- Wilson, J.D. 1994a. "Appraisal of teachers". In: Galton, M.; Moon, B. (Eds.), *Handbook of teacher training in Europe*. London: David Fulton Publishers.
- Wilson, J.D. 1994b. "Selecting and training the teacher trainers". In: Galton, M.; Moon, B. (Eds.), *Handbook of teacher training in Europe*. London: David Fulton Publishers
- Wilson, S.; Floden, R.E.; Ferrini-Mundy, J. 2001. *Teacher preparation research: current knowledge, gaps, and recommendations*. University of Washington: Center for the Study of Teaching and Policy.
- Wimsatt, J. 1996. "Perceptions of the impact of a PDS on practices within a mentoring school". In: *Texas teacher Education Forum*, 21, 43-51.
- Wood, D. 2000. "Narrating professional development: teachers' stories as texts for improving practice". In: *Anthropology and Education Quarterly*, 31(4), 426-448.

- Wood, D.; Bennett, N. 2000. "Changing theories, changing practices: exploring early childhood teachers' professional learning". In: *Teaching and Teacher Education*, 16, 635-647.
- Wood, F.; McQuarrie, F. 1999. "On-the-job learning". In: *Journal of Staff Development*, 20(3), 10-13.
- Woods, P. 1994. "The conditions for teacher development". In: Grimmett, P.P.; Neufeld, J. (Ed.), *Teacher development and the struggle for authenticity: professional growth and restructuring in the context of change*. New York: Teachers College Press.
- Wu, Z.; Chang, J. 1990. "Education reform and research in teacher education in China". In: Tisher, R.P. and Wideen, M.F. (Eds.), *Research in teacher education: international perspectives*. London: Falmer Press.
- Yinger, R.J. 1980. "A study of teacher planning: description and a model of pre-active decision-making". In: *Elementary School Journal*, 80(3), 107-127.
- Young, M.; Guile, D. 1997. "New possibilities for the professionalization of UK VET professionals". In: *Journal of European Industrial Training*, 21(6/7), 203-212.
- Young, P. 2001. "District and state policy influences on professional development and school capacity". In: *Educational Policy*, 15(2), 278-301.
- Zeegers, Y. 1995. "Supporting teachers to implement the national curriculum: a New Zealand perspective". In: *Australian Science Teachers Journal*, 41(4), 45-48.
- Zeichner, K.M.; Dahlstrom, L. (Eds.), 1999. *Democratic teacher education reform in Africa: the case of Namibia*. Boulder, Colorado: Westview Press.

- Zeichner, K.M.; Tabachnick, B.R. 1999. "Participatory development and teacher education reform in Namibia". In: Zeichner, K.M. and Dahlstrom, L. (Eds.), *Democratic teacher education reform in Africa: the case of Namibia*. Boulder, Colorado: Westview Press.
- Zeichner, K.M.; Tabachnick, B.R. 2001. "Reflections on reflective teaching". In: Soler, J.; Craft, A.; Burgess, H. (Eds.), *Teacher development: exploring our own practice*. London: Paul Chapman Publishing and The Open University.
- Zorfazz, J.M. 1999. "Professional development through interdisciplinary curriculum design". In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York: Teachers College Press.

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