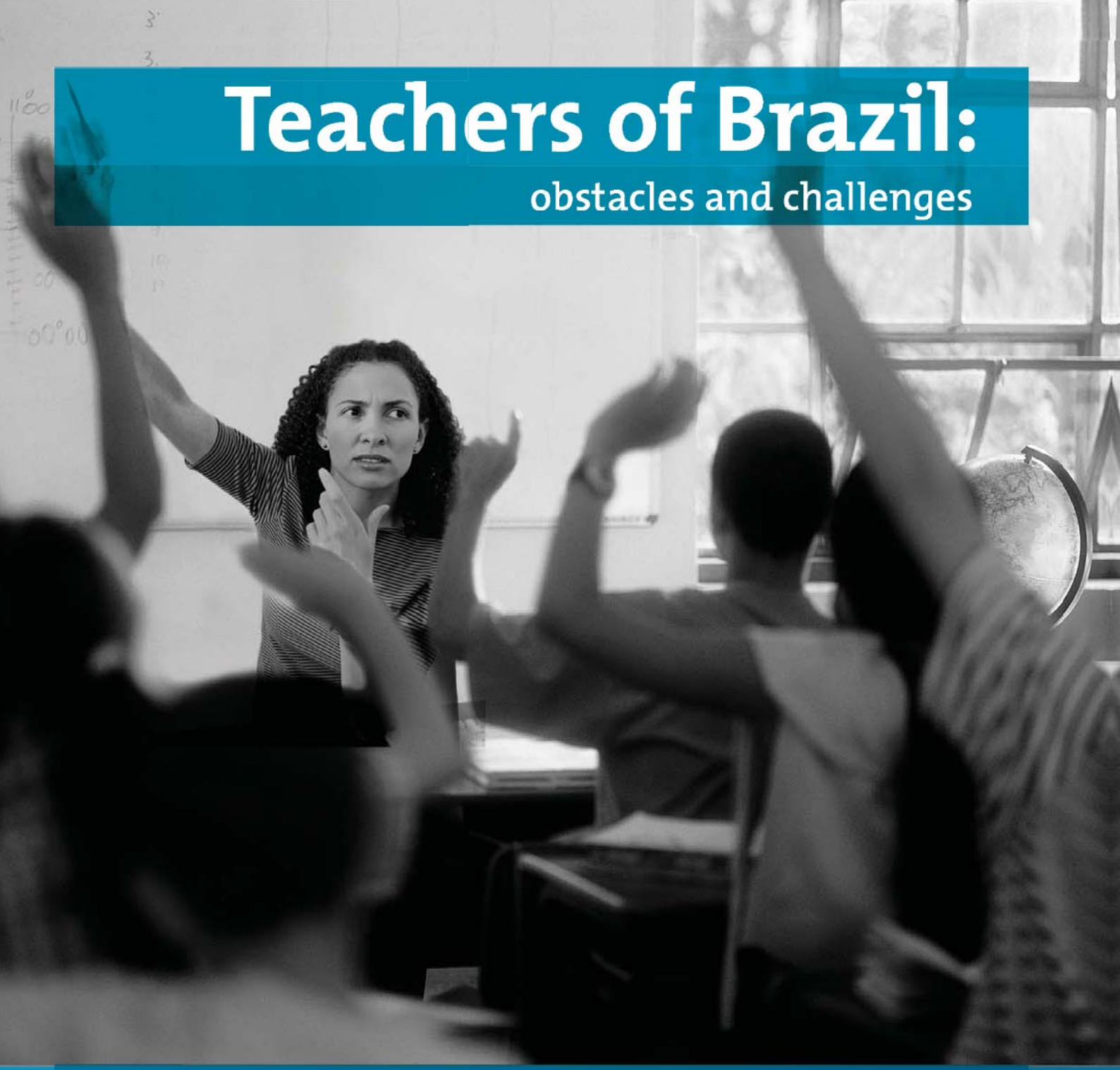
Teachers of Brazil:
obstacles and challenges



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UNESCO
United Nations
Educational, Scientific and
Cultural Organization

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FOREWORD

Since the creation of UNESCO in 1945, the challenge of professionalizing teachers, especially those in primary and secondary schools, has become one of the most important on the Organization's global priority agenda. This is a result of the importance of teachers in assuring quality education for all, both in cognitive terms and the profession's humanistic and ethical aspects. Both dimensions are part of the subjective right to education consecrated by the Universal Declaration of Human Rights in 1948 as a prerequisite for the reconstruction of societies towards a culture of peace.

Without a doubt, if the first paragraph of UNESCO's constitution, which was conceived and written in an atmosphere of profound apprehension at the end of the Second World War, recognized that people's minds harboured hope for the advent of greater democratic plenitude and citizenship, then education and, consequently, teachers, would have to become a priority in the educational policy of all nations.

It was from the perspective of this commitment of considerable moral and ethical importance that UNESCO and the ILO (International Labour Organization) decided to join forces with the ambitious aim of producing a benchmark document on the issue of teaching more than 40 years ago. Therefore, these organizations approved a communal text entitled "Recommendations Concerning the Status of Teachers" during an Intergovernmental Conference in 1966, organized by UNESCO. To this day the document is one of the most comprehensive on the teaching profession, as it encompasses the different aspects of teaching, including pre-service and in-service training, working conditions for quality teaching, remuneration, organizational and teaching policy, access, careers and promotion, evaluation, stability, discipline, health, rights, duties and supplementary teaching materials.

Despite the efforts of many countries in recent decades, which sought to organize and structure teaching careers with a view to bringing them closer to what had been established in the ILO-UNESCO Recommendation in 1966, the fact remains that the vast majority of countries have still not been able to meet the minimum standards necessary to place the teaching professional on a par with its public responsibility for millions of students.

Brazil is no exception. Notwithstanding several attempts to value teachers undertaken in recent years by the Federal Government and States, municipalities and Federal District, most notably the recent law which instituted a minimum salary and the decree on a National Policy for Teacher Training in Primary and Secondary School Education led by the Coordination Department for the Development of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* – CAPES), the current situation is quite critical. This is certainly due to omissions that have accumulated and become progressively worse over the course of history. Successive evaluations of Brazilian education in the national or international arena indicate that poor school performance continues and demonstrate the magnitude and complexity of the problem.

UNESCO, through its mission to cooperate with governments' educational policies and with support from the Brazilian Ministry of Education, conceived a project to undertake a broad-reaching study on pre-service and in-service training and teachers' careers in Brazil. The view was to offer a critical examination of the *status quo* to the several levels of educational administration in the country, followed by guidelines and recommendations, which would serve as the foundation for effectively increasing teacher status. The proposal was based on the premise that what mattered in the current phase of Brazilian education was no longer an exposure of poor results but the design of possible and necessary solutions.

In order to meet this objective, UNESCO invited two specialists in education from the Carlos Chagas Foundation who had recognized

merit and high credibility: Bernadete Gatti (study coordinator) and Elba de Sá Barretto. Using a robust analysis of the main variables involved, their conclusions are set out in this publication, which UNESCO is making available to all those who have direct or indirect responsibility for formulating and implementing educational policy.

As stated by the authors themselves in the final chapter on reflections and considerations, there are plenty of challenges to overcome in the direction indicated by the analyses. However, such challenges are increasingly urgent as, without valued teachers who undergo continuous training, the right to quality education for all will not become a reality in our country and this may delay reaching the goals for quality in education, which are indispensable for the development of Brazil.

Vincent Defourny
UNESCO Representative in Brazil

INTRODUCTION

When discussing teacher training in Brazil, one cannot disregard the fact that the expansion process of basic education only began in the middle of the 20th century. Real growth, in terms of the public school network, only occurred towards the late 1970s and early 80s, if one considers the number of students enrolled in proportion to the number of children and adolescents in the corresponding or approximate age group.

Education in Brazil was the privilege of the elites for centuries, despite the existence of educational proposals in documents and studies, debates amongst theoreticians, philosophers, politicians and the clergy and at a few schools, yet there was no corresponding educational policy to include the whole population. There were hardly any public schools at that time, when one considers the growth of the Brazilian population. Therefore, the main discussion amongst critical educators in the 1960s and 70s was the issue of the enormous illiterate or semi-illiterate segment of the population in Brazil who had very few chances to effectively take part in society or in the employment market, which was becoming more sophisticated. Secondary school students and university undergraduates formed only a tiny percentage of the Brazilian population.

With popular pressure and the demands of industrial and capital expansion, public investments in secondary education started to grow, as did the need for teachers. Teacher supply in schools adapted accordingly with the expansion of technical colleges for teachers, short teacher training courses, post-graduate certificates for those with diverse academic backgrounds, special authorizations to teach for those without a degree and the admission of lay teachers, etc.

Teacher training in Brazil still suffers from the impact of a recent and rapid growth of the public and private school system and the improvisations that were necessary for schools to function. It was a recent and vertiginous growth covering just over 40 years, when compared to the history of education in other countries, and considering educational demographic data in Brazil. Without a doubt, this growth

in the school system was of great value, and arose from considerable social, political and administrative efforts. However, the time has come to ensure this system offers a higher quality for administrative processes, professionals' performance and the learning they are responsible for. One of the aspects to be considered is teacher training, their careers and professional prospects.

Several factors interact in the composition of challenges to teacher development, an analysis of which reveals the complexity of the issue. On one hand, we have an expansion of primary and secondary education and efforts for social inclusion, with coverage of segments of society who were barely represented by school services in several regions of Brazil until recently and therefore generating a demand for a larger number of teachers at all levels of the education process. On the other, is the urgency imposed by social transformations which affect the various spheres of human activity and penetrate school walls, pressured by educational concepts and practices that can significantly contribute to the construction of a fairer, more democratic and modern society. In the background is a country of enormous regional and local heterogeneity, which today has legislation that establishes further education as a condition for teachers and in a context where the quality of higher education is also brought into question.

This complexity is exacerbated as a result of cultural, political, economic, scientific and subjective ramifications related to these factors, and also due to the diverse interpretations and responses that this analysis raises. The issue can be examined from any angle: whether from the point of view of those who nurture the ideals of education to construct a fair society in terms of distribution of wealth and preserving values of solidarity and social cohesion, or by those concerned with the internal efficiency of education processes and the effective preparation of students to be part of transformations taking place in the world today, teacher training stands out as a relevant factor. Teachers certainly cannot be seen as sole agents, independent from their working conditions, labour contracts, incentives and social recognition, in order to carry out their professional responsibilities.

In view of these statements, this research seeks to offer an overview of the situation relating to training primary and secondary school teachers in Brazil. A panorama is outlined on teachers in the classroom and current issues, examining legislation and its oscillations and conjunctural completion, the capacity of training courses and its students, special training models to meet the demands of the rise to higher education, and continuous teacher development. Issues relating to teachers' careers and salaries are also covered. The aim is to attempt to reflect on teaching and teacher training, so that it may be practiced at a broader and more comprehensive level, in the quest to overcome casuistry. Finally, some proposals are made for discussion, based on the analyses undertaken.

1. THE CONTEXT OF THE TEACHING PROFESSION

To characterize the field of teaching, we shall initially analyze the thesis of Tardif and Lessard (2005), for whom teaching, far from being a secondary occupation, is the nerve centre of contemporary societies and one of the keys to understanding their transformation. In developed countries, as well as emerging economies like Brazil, the service sector and the groups of professionals, scientists and technicians within it, continue to grow and occupy key roles, compared with workers who produce materials goods, whose numeric presence and relative importance are in decline.

Growth of the aforementioned professions is linked to a rapid increase in information and its means of circulation, brought about by technological advances, as well as the enormous growth of systematized and complex knowledge, which requires ongoing, advanced training in order to be understood and mastered.

In addition to its economic importance, the work of teachers also plays a central role from a political and cultural point of view. For over two centuries teaching has been the dominant form of socializing and training in modern societies and continues to expand.

According to Tardif and Lessard (2005), for this reason, and as a result of their numbers and the role they play, teachers constitute important occupational groups and are one of the key components of the economy in modern societies. Alongside health professionals, they represent the main beneficiaries of Brazilian State budgets.

As mentioned by these authors, amongst the group of countries belonging to the Organization for Economic Cooperation and Development (OECD), on average primary and secondary school teachers comprise 5.5% of the active population. These countries jointly committed an average of 4% of their GDP and 8.3% of public spending to primary and secondary schools. The percentage of GDP invested rises to 10% in the European Union and 14% in North America. Over 80% of the amount invested in primary and secondary schooling was destined for remuneration of school staff and three quarters of this amount was for teachers.

1. THE PLACE OF TEACHERS IN THE EMPLOYMENT STRUCTURE IN BRAZIL

Before embarking on an analysis of Brazilian data *per se*, it is important to clarify several points. At the time of this research, the multiple bodies that collect systematic data on teachers (Ministry of Labour and Employment – MTE, Ministry of Education – MEC, and the Brazilian Institute of Geography and Statistics – IBGE) did this using a range of standards, so that irrespective of which source of data is used, it was impossible to arrive at a precise number of teachers in Brazil. This is a situation which is changing due to the Basic Education Census but the micro-data from this is not yet available. Such imprecise results provoke important implications for the formulation of policies in the sector, making it hard to establish relations between specific characteristics of teachers and their choices in the context of training, career and professional performance.[1]

1 The Annual Report on Social Information (RAIS), a Ministry of Work and Employment database, calculates the number of formal employment transactions – jobs or work posts – in existence on December 31 each year in all establishments countrywide. RAIS calculates only one job per establishment, although a teacher may work at more than one level or type of class in the same school. In the Ministry of Education census, teaching jobs performed by a single teacher in more than one level or type of class are counted. If a teacher teachers upper secondary and lower secondary or primary levels in the same establishment, two different teaching jobs will be counted. However, if a teacher works in two levels of education in two different schools in the school census, four teaching jobs will be counted and only two in RAIS. The number of subjects is lost in both sources. In the National Study by Home Sampling (PNAD), or demographic census, which are both performed by IBGE, informants and not the establishments are the subjects, as in the other sources. Therefore, the data referring to more than one of the subjects' occupations may lead to including them more than once.

Information from the sources mentioned in this study was used in this research because together with complementary data, this contributed to examining the issue of teaching. Nevertheless, for the reasons given, data from one source does not coincide with that from others, although it does point to trends in the same direction.

In a general calculation of formal jobs in Brazil, the importance of teachers is no less than in advanced countries. As informed by RAIS, 8.4% of the total number of jobs registered in 2006 related to teaching posts. However, with regard to job volume, teachers were found to be in third place in the ranking of occupation subgroups[2], preceded only by two categories recognized as being responsible for absorbing much of the workforce: administrative assistants and service sector workers (15.2% and 14.9% respectively). In comparative terms, it was found that civil construction and extractive industries (e.g. mining) contribute with only 4% of jobs in Brazil (or 1,439,404), even though they are considered indicators of variation in job supply, given their importance for absorbing labour.

According to RAIS, in 2006 there were 2,949,428 jobs for teachers and other education professionals[3], with 82.6% of them in public establishments. This enormous concentration of jobs in the public sector, which is probably one of the largest in the world, has obvious implications in terms of financing the educational sector and teachers' salaries, careers and working conditions, as well as having repercussions for the quality of teaching on offer.

Amongst the jobs registered by MTE for teaching professionals, 77% were filled by women. Therefore, teaching continues as a good employment opportunity (15.9% of female jobs), at the same level as the largest and most traditional female labour force in the market: providing services of all kinds. This is superseded only by administrative support functions, grouped under the generic denomination of administrative assistants (19.2%).

2 Jobs are coded in accordance with the main sub-groups according to the Brazilian Classification of Occupations, which is also used by IBGE.

3 Teaching supervisors, school psychologists, pedagogical coordinators, educational counsellors, educationalists and similar.

Compared to service sector and office workers, most teachers'[4] education levels tend to be higher, with the majority having a university degree. In other words, teachers are a more homogeneous professional category with regard to education levels, which is one of the requirements that contribute to its legal and corporate organization, alongside the considerable regulatory guidelines that surround the teaching profession and afford the profession a socially recognized status.

The importance of teaching professionals is also revealed by the fact that they comprise the largest subgroup amongst science and arts occupations (53%) with a high level of education (upper secondary and higher), shared with other professions such as engineers, doctors, dentists, journalists and lawyers.

In 2006, RAIS registered 2,803,761 jobs for teachers at all levels of education in Brazil. No less than 77% of these jobs (2,159,269) belong to primary or lower secondary school teachers, which includes nursery, primary and lower secondary education (table 1.1). Yet, it is primary and lower secondary schooling which provides almost three quarters of the jobs (1,551,160) for teachers at these levels, given the compulsory nature of this level of schooling and its universal availability in Brazil. The upper secondary level in turn contributes with 14.1% and nursery school jobs with only 7.65%. The other 23% (644,492 jobs) is in higher education (16.8%), vocational training (5.6%) and special needs education (0.6%), with the latter primarily serving children and adolescents in primary and lower secondary schools.

The concentration of jobs for teachers in primary and secondary education, with primary and lower secondary within that category, is justified by the total number of enrolments registered by the 2006 School Census: with a total of just over 60 million enrolments at all school levels, 91% corresponded to primary and secondary, 62% of which are at the primary and lower secondary level. Higher education accounts for 7.7% of enrolments and vocational training 1.3% (BRAZIL. MEC/The

4 Although the majority of teachers are women, we have opted to use the generic male form to facilitate reading this report.

Anísio Teixeira National Institute for Educational Studies and Research – *Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira* – INEP, 2006b).

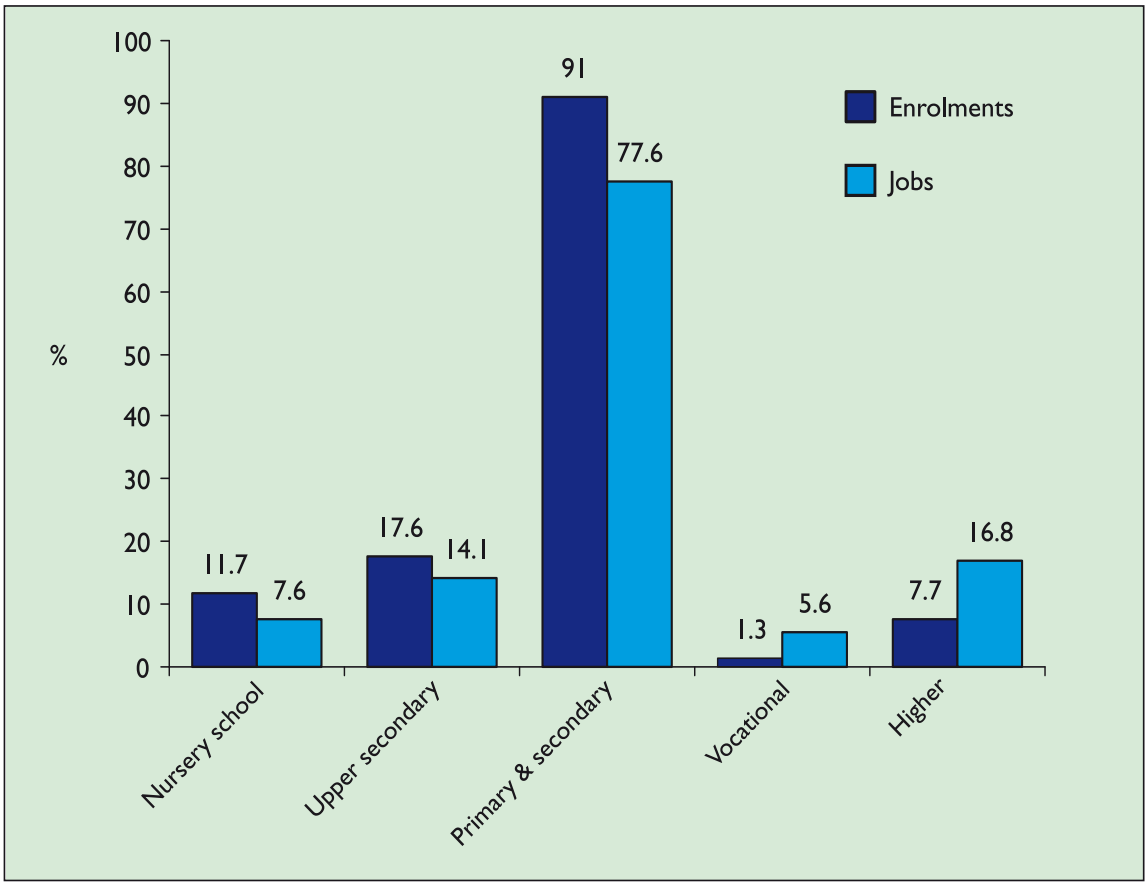
TABLE 1.1 – Jobs for teachers by level and type of teaching and regions – Brazil, 2006

Education Levels	Total	
	N	%
TOTAL	2,803,761	100.0
Basic Education	2,159,269	77.0
Nursery School	212,501	7.6
Primary & Lower Secondary	1,551,160	55.3
Upper Secondary	395,608	14.1
Vocational Training	158,221	5.6
Special Needs	16,363	0.6
Higher Education	469,908	16.8
Regions		
Southeast	1,146,894	40.9
Northeast	765,859	27.3
South	505,090	18.0
Midwest	203,799	7.3
North	181,368	6.5

Source: Ministry of Labour and Employment/MTE-RAIS.

In regional terms, the greatest provision of jobs is in the more populated areas, with 41% being located in the Southeast, 27% in the Northeast and 18% in the South. In turn, the smallest labour markets for teachers are located in the Midwest and North of Brazil (7.3% and 6.5%, respectively).

FIGURE 1 – Enrolments and jobs for teachers at all Education levels – Brazil, 2006



Source: MEC/INEP, School Census, MTE, Rais

The percentage of GDP set aside for education is around 4% and the relationship between investment in primary and lower secondary education and higher education is approximately four to one (BRAZIL. MEC/National Council for Education – *Conselho Nacional de Educação* – CNE, 2007). However, as will be seen throughout this study, there is a lot of ground to be covered to adequately meet sectorial demands, especially those of primary and lower secondary education.

2. DEMOGRAPHIC CHARACTERISTICS AND TEACHERS' EDUCATION LEVELS AND SOCIO-ECONOMIC STATUS

As indicated above, National Research by Household Sampling (PNAD) was used in order to analyze teachers' profiles, as this is the source which enables the closest approximation to their exact number, although there is also risk of inflating this total.

Starting by identifying category size, 2,866,514 individuals declared that they worked exclusively as teachers in one of the levels of education, as their main and/or secondary job in the year 2006[5].

Of this group, 92.8% performed a teaching role as a principal and second job and 7.2% as a second job only. This high proportion corroborates the centrality of teaching in the life of these individuals, who mainly perform this role as their main job and chosen profession for inclusion in the workplace. For this majority, therefore, teaching is not seen as a complementary job, to be performed alongside a professional occupation, a "gap-filler" or activity which allows an increase in family income. As shall also be seen by the number of hours demanded from most teachers, teaching does not facilitate reconciliation between domestic and professional life any more than other professions. This is one of the reasons which is still indicated as explaining the predominance of women in this category.

From table 1.2, where the distribution of teachers as a main and secondary job by different levels of education can be noted, two important observations can be made. The first corroborates what has been described this far, by showing that 88% of teachers do not have a secondary job as a teacher, exclusively dedicating their time to this role. According to the levels or types of teaching they are in, the same trend is repeated, expressed by high proportions (between a minimum of 82% in upper secondary and maximum of 95% in higher education) of teachers who have no other secondary job, whether linked to teaching or otherwise.

The second observation is that those who have a secondary job as a teacher tend to teach classes at the same level as their main job. That is, those who teach at nursery school as a main job and have another position as a teacher, mainly teach at this level (3.1%) and in primary or lower

5 According to the IBGE, the first criterion for defining a main job is the number of hours worked on that activity in the week covered by the research; in the event of a tie in terms of time, the activity with higher pay is selected. The same procedures are used to define the secondary job of an individual who works in three or more enterprises in the week of the study, having excluded the principal job.

secondary school (3.1%). Primary teachers tend to have a secondary job at the same level (8.9%) and those in secondary, at primary/lower secondary (8.1%) and upper secondary (8%). Vocational trainers or special needs teachers equally tend to find their second occupation in these same segments (7.9% and 10.2% respectively). According to PNAD, it is only in higher education that this trend inverted, as teachers with one or more secondary jobs are generally located in primary education. It should be noted, however, that there was a low number of teachers with two teaching jobs, which may generate some distortion of the results.

TABLE 1.2 – Teachers in primary and secondary jobs, by Education level – Brazil, 2006

Teachers in main job	Teachers in secondary job							Total
	No secondary employment*	Nursery School	Primary & Lower Secondary	Upper Secondary	Higher Education	Vocational Training	Special Education	
Nursery school	285,498	9,583	9,632		478		2,435	307,626
	(92.8)	(3.1)	(3.1)		(0.2)		(0.8)	(100.0)
Primary & lower secondary	1,492,573	10,436	150,739	33,635		8,364	4,626	1,700,373
	(87.8)	(0.6)	(8.9)	(2.0)		(0.5)	(0.3)	(100.0)
Upper secondary	311,254	898	30,895	30,368		5,672		379,087
	(82.1)	(0.2)	(8.1)	(8.0)		(1.5)		(100.0)
Higher education	32,511		1,175		596			34,282
	(94.8)		(3.4)		(1.7)			(100.0)
Vocational training	190,417		1,608	2,392		16,741		211,158
	(90.2)		(0.8)	(1.1)		(7.9)		(100.0)
Special Education	24,448		886				2,882	28,216
	(86.6)		(3.1)				(10.2)	(100.0)
Total	2,336,701	20,917	194,935	66,395	1,074	30,777	9,943	2,660,724
	(87.8)	(0.8)	(7.3)	(2.5)	(0.1)	(1.1)	(0.4)	(100.0)

Source: IBGE-PNAD, Micro-data.

* A very small proportion (~6.1%) complements teaching with a secondary job in another profession.

Finally are those who were only teachers in their secondary job, predominantly in primary or lower secondary (41%), vocational training (34.7%) and upper secondary education (16.6%), as shown in table 1.3.

TABLE 1.3 – Teachers only in a secondary job, by Education level – Brazil, 2006

	N	%
Nursery school	7,147	3.5
Primary & lower secondary	83,967	40.9
Upper secondary	34,029	16.6
Higher education	7,840	3.8
Vocational training	71,361	34.6
Special education	1,170	0.6
Total	205,514	100

Source: IBGE-PNAD, Micro-data.

Based on preliminary data from the School Census of Primary and Secondary Education 2007 (BRAZIL. MEC/INEP, 2009, p. 24), in which individual teachers were calculated and not teaching jobs, it was found that most teachers work in only one school (80.9%), and 16% work in two schools, with 3.1% in more than two.

2.1. Teachers in Primary and Secondary Education: demographic, employment and educational profile

After describing this general panorama for teachers, in any of their jobs and at all levels of education, we turn our attention to those who stated that they were teachers in their main job and that they taught in primary or secondary education. Analysis of the socio-economics profile of teachers will be undertaken for those who work in teaching as their main and secondary employment because they constitute the absolute majority in the category (92.8%) and this allows for statements about the whole category with a high degree of statistical reliability. Furthermore, in addition to being small (7.2%), the group of individuals who opted for teaching as secondary employment suggests that the profession is

not central in their lives, possibly also reflecting their socio-economic profile. Based on these considerations, we opted to analyze the category of teachers who exercise the profession as their main employment, thus including those with only one job (their main job) as a teacher and those who, in addition to being primarily teachers, also teach as a secondary job

With regard to the sex of this group, as known, the teaching profession is mostly female (according to PNAD in 2006, 83.1% versus 16.9% male), presenting some internal variations in teaching levels. Almost all teachers in nursery schools (98%) are women, falling to 88.3% in primary and lower secondary schools as a whole but reaching 93% amongst primary school teachers[6]. Higher proportions of male teachers are found amongst the other levels of primary and secondary education: 33% versus 67% female.

In terms of race/colour, most teachers (61.3%) classified themselves as white and 38.7% as non-white[7], which is a group where mixed races predominate. Table 1.4 shows indicators of the importance of the teaching profession for the professional inclusion of black and brown Brazilians, particularly through nursery, primary and lower secondary schooling, as 42% of teachers of each of these levels classified themselves as non-white. It is also important to note that within primary & lower secondary teaching, non-whites form the majority of teachers with upper secondary education (53%) and amongst lay teachers (53%). However, amongst those who teach lower secondary and hold a degree, non-whites represent only 31%. It should be noted that in nursery schooling, 9% of those who classified themselves as non-white called

6 Primary and lower secondary education is usually informally divided into two stages: the 1st to 4th grades (or years), with a single teacher per class, and the 5th to 8th grades (or years), with specific teachers for each subject. In 2006, Law No. 11.274/06 modified the Law of Directives and Foundations for Brazilian Education (LDB/96) expanding the duration of primary & lower secondary schooling to 9 years, with the inclusion of children aged 6 and stipulating a deadline for full implementation as 2010. As we are in a transition period, we shall maintain the traditional nomenclature, 1st to 4th and 5th to 9th grades, to designate these stages, as many schools have not yet adapted to the new legal requirements. As a result, primary schooling now runs from 0 to 5 years.

7 This is an aggregation of black, brown and indigenous peoples, as whites were considered those who declared themselves as being white or yellow.

themselves black, but only 5% did so in primary and lower secondary education. At the other extreme, the level of education in which whites predominate (67.85%) was upper secondary.

TABLE 1.4 – Primary and Secondary Education: teachers in their main job by level taught, education level*, sex and colour/race – Brazil, 2006

Level taught in the main job and teachers' education levels	Sex			Colour / race		Total
	Male	Female	Total	White	Non-white	
Nursery school	6,108	30,1518	307,626	178,851	128,775	307,626
	(2.0)	(98.0)	(100.0)	(58.1)	(41.9)	(100.0)
Teachers with a degree		73,781	73,781	53,248	20,533	73,781
		(100.0)	(100.0)	(72.2)	(27.8)	(100.0)
Teachers with upper secondary level	6,108	227,737	233,845	125,603	108,242	233,845
	(2.6)	(97.4)	(100.0)	(53.7)	(46.3)	(100.0)
Primary & lower secondary	199,420	1,500,953	1,700,373	985,903	714,470	1,700,373
	(11.7)	(88.3)	(100.0)	(58.0)	(42.0)	(100.0)
Primary teachers with a degree	15,411	204,697	220,108	131,117	88,991	220,108
	(7.0)	(93.0)	(100.0)	(59.6)	(40.4)	(100.0)
Lower secondary teachers with a degree	87,249	634,865	722,114	497,740	224,374	722,114
	(12.1)	(87.9)	(100.0)	(68.9)	(31.1)	(100.0)
Teachers with upper secondary level	76,317	540,719	617,036	289,403	327,633	617,036
	(12.4)	(87.6)	(100.0)	(46.9)	(53.1)	(100.0)
Lay teachers	20,443	120,672	141,115	67,643	73,472	141,115
	(14.5)	(85.5)	(100.0)	(47.9)	(52.1)	(100.0)
Upper secondary level (Upper secondary teachers)	125,000	254,087	379,087	257,436	121,651	379,087
	(33.0)	(67.0)	(100.0)	(67.9)	(32.1)	(100.0)
Total	330,528	2,056,558	2,387,086	1,422,190	964,896	2,387,086
	(33.0)	(67.0)	(100.0)	(67.9)	(32.1)	(100.0)

Source: IBGE-PNAD, Micro-data.
NB: White = White & Yellow; Non-white = Black, brown and indigenous.
* Excluding special education.

NB: Lay teachers in nursery schools, i.e. those with lower secondary education only, and upper secondary teachers with a background other than a university degree are not included in the PNAD sample.

This ethnic/racial profile can be understood by observing the education levels of teachers in primary and secondary education, measured by the number of years of study (table 1.5). The average is lower at 13 years in nursery schools, followed by primary and lower secondary: 14 years. The upper secondary level shows an average of 16 years of study amongst teachers and, more importantly, minimum schooling of 12 years, which is significantly higher when compared to the minimum education of nursery and primary/lower secondary school teachers (one year of study, stated by lay teachers). Considering the enormous disparity in schooling levels for black and brown Brazilians, compared to whites, it is easy to understand why entering the teaching profession tends to be facilitated for non-whites, focusing on nursery education and primary/lower secondary levels in particular. It should also be noted that more widespread access by non-white Brazilians to the various education levels, including university, is a fairly recent phenomena.

TABLE 1.5 – Primary and Secondary Education: education levels of teachers in their main job, by level of education* – Brazil, 2006

Level of education	Years of study					Attend school		Courses they take (%)			
	Minimum	Maximum	Average	Standard deviation	Total	No	%	Upper secondary or lower level	First degree	Masters or doctorate	Total
Nursery school	1	16	13	2	307,626	74,642	24.3	3.2	94.9	1.9	100.0
Primary & lower secondary	1	17	14	2	1,700,373	391,167	23.0	11.5	81.4	7.1	100.0
Upper secondary	12	16	16	1	379,087	50,465	13.3	-	62.2	37.8	100.0
Total	1	17	14	2	2,387,086	516,274	21.6	9.2	81.5	9.3	100.0

Source: IBGE-PNAD, Micro-data.
* Excluding special education.

The age profile of teachers may also contribute to a greater understanding of their education levels, as the highest percentage of young teachers is in nursery school teaching (41% with a maximum age of 29). The distribution by age group appears to be more balanced in primary and lower secondary education, with approximately one quarter of teachers in each level, while the upper secondary has a predominance of teachers over 30 (80.7%), around 30% over 46 (table 1.6). The higher

percentage of 'students' found amongst nursery school teachers should not, therefore, be surprising: 24.3% stated they still go to school, followed by 23% of primary or lower secondary school teachers and 13.3% of upper secondary school teachers. The proportion of primary and secondary school teachers (21.6%) who are still studying is not, therefore, insignificant, the highest percentage being that of nursery school teachers, who are also younger and mostly black and brown.

What courses do these professionals take? The majority (81.5%) of nursery, primary and lower secondary teachers take university courses but it should also be noted that 9.3% are taking Masters qualifications and Doctorate degrees, highlighting upper secondary teachers (37.8% of teachers at this level state they are students) and, at the other extreme, a further 9.2% who are studying at upper secondary level or below. Primary and lower secondary teachers are prominent in this group, with 11.5% studying at upper secondary level or below.

TABLE 1.6 – Primary and Secondary Education: distribution of teachers in a primary job, by age group and education level* – Brazil, 2006

Education Level	Age group								Total	
	Maximum age 29		30 to 37		38 to 45		46 +			
Nursery school	125,221	40.7%	79,178	25.7%	61,751	20.1%	41,476	13.5%	307,626	100.0%
Primary & lower secondary	433,204	25.5%	420,451	24.7%	438,716	25.8%	408,002	24.0%	1,700,373	100.0%
Upper secondary	72,984	19.3%	99,738	26.3%	93,350	24.6%	113,015	29.8%	379,087	100.0%
Total	631,409	26.5%	599,367	25.1%	593,817	24.9%	562,493	23.6%	2,387,086	100.0%

Source: IBGE-PNAD, Micro-data.
* Excluding special education.

2.2 The socio-economic status of teachers

An individual's role within the family is one of the indicators that help to explain their socioeconomic status. In the case of primary and secondary teachers, it was found that 28.5% were the head of their families; another 48.2% were spouses, which in most cases reflected the female majority and, probably, the cultural trait that attributes family leadership to men even if they are not the only or most important income generator. Around 20% stated they were sons/daughters, indicating the significant number of young people who opt for teaching in these

families and 2.9% described themselves as other relatives or who lived in the household (table 1.7). When cross-referencing a family role with the teacher's sex, females are prevalent in all roles, although the importance of women as the reference point in families of primary and secondary school teachers should be noted (69% were women and 31% men), indicating an important segment of heads of families amongst teachers. When such statistics are examined by level of education, it is found that teachers who are heads of families are concentrated mainly in nursery, primary and lower secondary education (95% and 74.5% respectively). These are levels which also have significant proportions of non-whites in the same family role. Male heads of family and whites (55% of family heads are men and 60%, white) prevail in upper secondary education.

Studies have shown that female heads of households are usually accompanied by lower levels of schooling for women and her children, accompanied by a lower family income and specific ethnicity, being black or brown (SEADE FOUNDATION, 2006).

TABLE 1.7 – Primary and Secondary School: teachers in a main job, by level they teach* and role in family by sex and race/colour – Brazil, 2006

Level taught and role in family		Sex		Colour/race		Total
		Male	Female	White	Non-white	
Nursery school		2.0%	98.0%	58.1%	41.9%	307.626
	Head of family	5.2%	94.8%	53.8%	46.2%	59.555
	Spouse	0.0%	100.0%	65.0%	35.0%	156.125
	Son/Daughter	3.4%	96.6%	49.3%	50.7%	82.118
	Others	2.2%	97.8%	49.6%	50.4%	9.828
Primary & lower secondary		11.7%	88.3%	58.0%	42.0%	1.700.373
	Head of family	25.5%	74.5%	53.3%	46.7%	462.273
	Spouse	1.1%	98.9%	60.9%	39.1%	853.539
	Son/Daughter	18.8%	81.2%	57.5%	42.5%	337.718
	Others	18.4%	81.6%	54.2%	45.8%	46.843
Upper secondary		33.0%	67.0%	67.9%	32.1%	379.087
	Head of family	55.1%	44.9%	60.4%	39.6%	159.629
	Spouse	5.9%	94.1%	73.5%	26.5%	140.896
	Son/Daughter	37.4%	62.6%	73.0%	27.0%	66.804
	Others	31.6%	68.4%	74.2%	25.8%	11.758
General (Primary and lower secondary)		13.8%	86.2%	59.6%	40.4%	2.387.086
	Head of family	30.7%	69.3%	55.0%	45.0%	681.457
	Spouse	1.5%	98.5%	63.0%	37.0%	1.150.560
	Son/Daughter	18.8%	81.2%	58.2%	41.8%	486.640
	Others	18.3%	81.7%	57.0%	43.0%	68.429

Source: IBGE-PNAD, Micro-data.
NB: White = white and yellow; Non-white = black, brown and indigenous.
* Excluding special education.

3. SOME CHARACTERISTICS OF TEACHING

Corroborating what has been shown, the vast majority of teachers (81.7%) stated that they had only one job, i.e. teaching as their main activity; another 16.8% had two jobs and 1.5%, three or more. By level of education, the largest percentage of those with two or more jobs is found amongst upper secondary school teachers, at approximately one quarter (table 1.8). The absolute majority of teachers (97.7%), in all levels of primary and secondary education were linked to schools in which they worked as employees, mainly in the public sector (79.1%), but also in the private sector (20.9%). Primary and secondary schools are, for the most part, served by the public sector (83.8% and 76.1% respectively), whilst, in nursery schools, the private sector is more significant when compared to other levels (42.9%) (table 1.9). As a result, the lowest proportion of statutory teachers was found in nursery schools, that is, those covered by the Statute for public servants: 59.4%, whilst this is the relationship that predominates amongst teachers in primary and secondary schools (67% and 80%, respectively).

Nursery school, primary and lower secondary education are mostly provided by the local municipal government, which is the administrative sphere in which 86% of nursery school teachers and 61% of primary and lower secondary teachers work. Although the intense municipalization process of primary and lower secondary schooling over the past decade has led to municipal administrations taking on larger proportions of enrolments, 37% of teachers at this level work in State schools, as the States are co-responsible for providing compulsory schooling. Equally, 83% of upper secondary school teachers work in State schools, responsible for offering this level of education.

TABLE 1.8 – Basic Education: teachers with teaching as their main job, by number of jobs per week and levels of schooling* – Brazil, 2006

Level of Schooling	Number of jobs in the week studied						Total	
	1		2		3			
Nursery school	271,971	88.4%	33,873	11.0%	1,782	0.6%	307,626	100.0%
Primary & lower secondary school	1,393,793	82.0%	286,583	16.9%	19,997	1.2%	1,700,373	100.0%
Upper secondary school	284,013	74.9%	81,360	21.5%	13,714	3.6%	379,087	100.0%
General	1,949,777	81.7%	401,816	16.8%	35,493	1.5%	2,387,086	100.0%

Source: IBGE, PNUD, Micro-data
*Except special needs education

TABLE 1.9 – Primary and Secondary Education: sector and area in which teachers work in their main job, by level of education* – Brazil, 2006

Level of Education	Sector of employment			Public employment				And statutory public servant		
	Private	Public	Total	Federal	State	Municipal	Total	Yes	No	Total
Nursery School	129,217	171,885	301,102	2,579	21,251	148,055	171,885	102,081	69,804	171,885
	(42.9)	(57.1)	(100.0)	(1.5)	(12.4)	(86.1)	(100.0)	(59.4)	(40.6)	(100.0)
Primary & lower secondary	268,717	1,391,443	1,660,160	20,321	518,234	852,888	1,391,443	931,779	459,664	1,391,443
	(16.2)	(83.8)	(100.0)	(1.5)	(37.2)	(61.3)	(100.0)	(67.0)	(33.0)	(100.0)
Upper secondary	88,201	281,557	369,758	10,089	232,799	38,669	281,557	226,013	55,544	281,557
	(23.9)	(76.1)	(100.0)	(3.6)	(82.7)	(13.7)	(100.0)	(80.3)	(19.7)	(100.0)
Total	486,135	1,844,885	2,331,020	32,989	772,284	1,039,612	1,844,885	1,259,873	585,012	1,844,885
	(20.9)	(79.1)	(100.0)	(1.8)	(41.9)	(56.4)	(100.0)	(68.3)	(31.7)	(100.0)

Source: IBGE-PNAD, Micro-data.
* Excluding Special Education.

The length of the working day which was provided to IBGE by teachers at the primary and secondary level indicates that teaching tends to be performed for about 30 hours per week (average and median), with men and women showing very similar figures (table 1.10). Nevertheless, it should be considered that, in the case of teachers, the number of hours effectively worked usually exceeds the number of classroom hours informed.

There is a difference between time spent teaching and working time, the latter being greater as it also encompasses the time spent preparing classes, correcting tests and papers, which are all outside of school hours, and which should be added to teaching time so as to better calculate teachers' weekly workload (SOUZA, 2008).

Another differential relates to variations in levels of schooling and sex, which is lay teachers of both sexes who teach at primary and lower secondary schools have the lowest median workloads of 20 hours, and upper secondary teachers the highest, at 32 hours[8]. In this case, however, there are gender differences, after schools with men working more than women (36 and 30 hours, respectively). As upper secondary school teachers stated that they had two or more jobs to a greater extent than other teachers, it is now possible to assert that this tends to be more common amongst male teachers.

8 It is estimated that the small proportion of male teachers (2%) in nursery schools introduced a bias in the results, which show a greater workload for men than for women.

TABLE 1.10 – Primary and secondary school: average and median weekly workload, by level of education in main job, sex and segment of main job – Brazil, 2006

Level of Education in main job and teacher's schooling	Sex				Segment of main job				Total	
	Male		Female		Private		Public			
	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median
Nursery school										
Teachers with degree			31	30	31	30	31	30	31	30
Teachers with upper secondary level education	32	40	30	30	31	30	28	25	30	30
Primary school										
Teachers with a degree	28	25	31	30	28	24	31	30	31	30
Lower secondary school teachers with a degree	30	30	30	30	29	30	31	30	30	30
Teachers with upper secondary level education	30	30	28	24	27	24	28	25	28	25
Lay teachers	26	20	26	20	30	25	26	20	26	20
Upper secondary (teachers)	32	36	31	30	28	26	33	40	32	32
Total	31	30	30	28	29	25	30	30	30	30

Source: IBGE-PNAD, Micro-data.
* Excluding special education.

When considering the relationship between the education level of primary and lower secondary school teachers and gender, a greater balance was found between men and women's workloads: teachers of both sexes who had a degree (lower secondary) worked the same number of hours per week (median 30); female primary school teachers with a degree worked more than their male peers (median 30 and 25 respectively) and female teachers with upper secondary education only in turn, tended to have the smallest weekly workload when compared with male colleagues, with the same education level (24 and 30 respectively).

In the public sector, primary and secondary school teachers had longer working hours than in the private sector (medians of 30 and 25 hours respectively), a trend which is repeated in nursery, primary and secondary school. The greatest difference in workload between public and private sectors was at the upper secondary level, where the former comprised a median of 40 hours and the latter 26. On the other hand, weekly lay

teachers' working hours in primary and lower secondary tend to be longer in the private (median 25 hours) than in the public sector (20). The median number of years in a main job for primary and secondary teachers was seven years, a result influenced by female teachers who work predominantly in the public sector (table 1.11). The table also shows that the gender issue has an important role to play in career: male teachers tend to have spent less time in the profession than female teachers. In the 1990s, however, probably due to a lack of jobs on offer, teaching became a viable option for men seeking employment. This may be one of the reasons why male median years of experience are lower than for females: in other words, male teachers have spent less time in the profession because they entered their current job more recently.

TABLE 1.11 – Primary and secondary schools: median number of years in a main job and age started working by level taught and teachers' schooling levels – Brazil, 2006

Level taught in main job and teacher's schooling level	Number of years in job				Age started working			
	Sex		Sector		Total	Sex		Total
	Male	Female	Private	Public		Male	Female	
Nursery school								
Teachers with a degree		6	3	8	6		17	17
Teachers with upper secondary level education	3	3	2	5	3	17	17	17
Primary & secondary school								
Primary school teachers with a degree	6	10	4	11	10	16	17	17
Lower secondary school teachers with a degree	7	10	4	10	10	16	17	17
Teachers with upper secondary level education	3	6	2	7	5	15	17	17
Lay teachers	3	3	2	4	3	14	16	16
Upper secondary teachers	8	8	4	11	8	17	18	18
Total	6	7	3	9	7	16	17	17

Source: IBGE-PNAD, Micro-data.

There is a relationship between years of service and segment in which individuals teach, the trend being that teachers with most experience are in the public (nine years) rather than the private sector (three years). The public sector holds the advantage of stability, full pension, health care

and structured career progression, being benefits which are usually valued by employees. This is reflected in lower turnover, especially for nursery school teachers and those in primary and lower secondary schooling with a degree (eight years in the former and between 10 and 11 years in the latter), as well as for upper secondary school teachers (11 years).

Finally, it should be noted that male and female teachers began working very early, as indicated by the median of 17 years. When matching this information against years of service in the current job, it is possible to infer that teachers had other jobs before teaching, whilst still very young. This situation is more common amongst male teachers in primary and lower secondary school who only hold upper secondary level qualifications or are lay teachers, as these began working at age 15 and 14, respectively.

4. EDUCATION LEVELS AMONGST TEACHERS VERSUS DEMAND FOR TRAINING

Although the information in the School Census of Primary and Secondary Education in 2006 referred to teaching jobs and not to the teachers who hold them *per se*, the data provides some important indications about teachers' education levels. As was the case in previous studies (UNESCO, 2004; CATRIB; GOMES; GONÇALVES, 2008), most Brazilian teachers were found to have adequate training from the point of view of the qualifications required for the levels they work in, especially when one considers that the minimum required for teaching nursery and primary school by law until 1996 was an upper secondary qualification.

Amongst those holding teaching positions in nursery schools, 97.2% had upper secondary education or a university degree and, in primary schools, the proportion reached 99%. However, in nursery schools, over half of those with teaching jobs (54.3%) had only completed upper secondary education, and in primary schools, only 41.3% of teachers had attained this level.

Furthermore, 2.8% of those in nursery schools were lay teachers, with some having completed lower secondary school, and 0.8% of those teaching at primary schools had no schooling beyond that level. The region with the highest proportion of such lay teachers is the Northeast, followed by the North and, in terms of primary and lower secondary levels, they teach primarily in rural schools. The provision of nursery schools in rural areas was, in turn, almost non-existent.

Since the first half of the last century, a university degree was required for teachers of different subjects which today comprise secondary level education. Nevertheless, 14.5% of those with teaching jobs in lower secondary education and do not hold a university degree are mostly located in the Northeast. The most qualified are those who teach upper secondary education, with 95.4% of teaching jobs held by those with a degree.

Considering the increase in training required for all primary and secondary teachers, including a university degree as determined by Brazilian legislation, considerable efforts have been made at different government levels not only to prepare new professionals to meet the sector's future needs but also to increase qualifications for teachers in service.

A calculation of the demand for pre-service and in-service training for these teachers requires much more detailed information than that available, as well as complex processing which is not the remit for this study. However, observation of data from the school census permits an initial idea of the general dimensions with which we must work in order to achieve such a bold objective. Taking into account the number of teaching positions in the country, the demand for university degrees for primary and secondary school teachers is distributed as shown in table 1.12.

TABLE 1.12 – Teaching jobs and the demand for university degrees – Brazil, 2006

Level of Education	Total	No degree	Lay teachers
Nursery school	403,919	230,518	11,261
Primary	840,185	355,393	8,538
Lower secondary	865,655	125,991	518
Primary & lower secondary	1,705,840	481,384	9,056
Upper secondary	519,935	23,726	22
Total	**2,629,694**	**735,628**	**20,339**

Source: BRAZIL. MEC/INEP, 2006. *School census on primary and lower secondary education.*

The figure of 735,628 jobs held by teachers without a university degree, in addition to those with upper secondary schooling, includes lay teachers. However, as can be noted, this is a very low number and some were studying at the time of the research, as stated by PNAD (table 1.5). In turn, the presence of lay teachers in some cases leads to the conclusion that many of them will be substituted when the supply of qualified professionals increases in the region where they work.

In proportional terms, the data in table 1.12, obtained for teaching jobs, is coherent with the preliminary data from the 2007 Primary and Secondary School Census (BRAZIL. MEC/INEP, 2009, p. 27). Where teachers were considered individually in this census, it was found that 5.3% of those without a teaching degree teach in the later years of lower secondary school, and 6.4% in this situation work in upper secondary schools. Teachers working in primary and secondary education with a background only of lower secondary level numbered 15,982, with 6,135 working in nursery schools and kindergartens, and 5,515 in primary schools.

As shown in table 1.13, the demand for training in accordance with legislation is very different according to the levels and stages of teaching and varies from region to region.

TABLE 1.13 – Teaching jobs by level of education, teachers' schooling level and regions – Brazil, 2006

Levels of Education		Brazil	North	North-east	South-east	South	Mid-west
Nursery school	Total	403,919	27,520	124,123	167,696	61,894	22,686
	No degree	230,518	21,083	95,581	77,488	27,130	9,236
	Lay teachers	11,261	847	5,226	2,486	2,185	517
Primary	Total	840,185	79,076	267,752	315,214	118,300	59,843
	No degree	355,393	51,431	173,476	81,470	33,274	15,742
	Lay teachers	8,538	1,701	4,666	906	637	628
Lower secondary	Total	865,655	63,582	239,657	360,797	137,946	63,673
	No degree	125,991	16,551	73,255	17,798	10,693	7,694
	Lay teachers	518	120	289	31	43	35
Upper secondary	Total	519,935	32,145	124,561	243,317	82,572	37,340
	No degree	23,726	1,124	13,598	5,516	1,973	1,515
	Lay teachers	22	8	7	0	6	1

Source: BRAZIL. MEC/INEP, 2006. *Primary and secondary school census.*

Considering the unequal distribution of public and private places in university degree courses for teachers within each region, there is an immediate need to adopt an articulated strategy across levels of government that trains teachers and those that hire them, which, given its complexity, will require centralized coordination in order to attain success.

2. LEGAL BENCHMARKS FOR TEACHER TRAINING COURSES

Teacher training through specific courses began in Brazil at the end of the 19th century with Teacher Training Colleges (*Escolas Normais)* aimed at preparing those who would go on to teach "*primeiras letras*" (basic reading, writing and Mathematics). One must recall that, at that time, and for many decades thereafter, the provision of schooling was extremely limited in Brazil and was only available to a select few.

At the onset of the 20th century teacher training for secondary school became a cause for concern in regular and specific courses. Training for this kind of teacher began with the creation of universities. Until that time, training had been carried out by freelancers or self-taught professionals but one must consider that the number of secondary schools was very low, as was the number of students. With the beginning of Brazil's industrialization process in the early 20th century, the need for further education began to dawn on workers and a small expansion of the school system took place. More teachers were required to accompany this increase. Therefore, following graduation with a Bachelor's degree in the 1930s, a further year was added to include educational subjects in order to be awarded a teaching degree. This additional year was geared towards secondary school teachers and the training became known as 3+1. This model was also applied to degree courses in Education, regulated in 1939, aimed at forming a Bachelor's degree in education and, additionally, to train teachers for Teacher Training Colleges, who were also able, through extension and ministerial bills, to teach some subjects at secondary level.

The differentiation between the multi-subject teacher for primary levels and specialist teacher for other grades was thus created historically and socially. It persists to this day, both in courses offered and in terms of career and salary and particularly with regards to perception by social, academic and political communities, even with the current requirement for a university degree for teachers in primary education. Any innovation in the structure of teacher training institutes and courses comes up against this traditional perception and institutionalized interests, making it difficult to reformulate this training, becoming more integrated and with new bases, as well as implementing a new format which could provide qualitative increases and with repercussions in schools, as took place in several countries in recent years, such as Cuba, Korea and Ireland.

1. TEACHER TRAINING PRIOR TO LAW Nº 9,394/1996 (LDB)

It is not inappropriate to remember earlier primary and secondary school teacher training curriculum designs, given their historic significance and persistent influence over current practices in courses. When considering Brazilian legislation from the 1960s onwards, the legal foundations which guided curriculum structure for teacher training courses in Brazil were found in Law Nºs 4,024/1961, 5,540/1968, 5,692/1971, and 7,044/1982, and subsequent amendments at Federal and State level. Primary school teacher training had been consolidated by secondary level training colleges since the early decades of the 20th century and training secondary school teachers took place in higher education institutes (teaching degrees).

According to Law Nº 5,692/1971, which reformed primary and secondary education in Brazil, the teaching colleges were redundant and the role they had played was replaced by a teaching qualification at upper secondary level, known as *Magistério*. With this change, this training lost some of its specific characteristics, as being just one course amidst other qualifications, it was required to adjust considerably to the general curriculum for upper secondary teaching.

The supply of teachers for a growing school system was by no means guaranteed at the time, and this law, based on the prediction that there would not be enough teachers to meet the demands of school system, in view of the expansion of compulsory schooling to eight years and, above all, the need to expand the provision of lower secondary classes, created several possibilities for overcoming the lack of teachers qualified via teaching degrees (articles 77 and 78). Furthermore, the amendments kept several emergency measures for teacher training in place, called Schemes I and II, for primary and lower secondary levels respectively.

With the demise of Teacher Training Colleges and introduction of a Teaching Degree, amongst other qualifications at upper secondary level, primary school teacher training was achieved through a dispersed curriculum, with part of the training being specific, yet much reduced, as a result of the new curriculum design for this level of teaching. Research shows that there was an increased loss of identity for this qualification in terms of teacher training (MELLO, 1985); however, encouraged by the Federal government, from 1982 onwards, some States in Brazil set-up Specific Centres for Teacher Training and Development (CEFAMS) with their own resources. These were created with a view to guaranteeing improved teacher training for primary schools, given the problems detected in qualifying these teachers through a regular teaching degree. With full-time, three year courses and a curriculum geared towards general and pedagogical training for these teachers, with emphasis on teaching practice, the CEFAMS grew in number and, based on evaluations, attained a high quality for the courses offered (GOMES, 1993; GROSBAUM et al., 1993; PIMENTA, 1995). In the State of São Paulo, where there were more than 50 CEFAMs throughout the different regions of the State, scholarships were given to those who studied full-time. These centres, which provided upper secondary level training, were eventually closed in the years following approval of Law Nº 9,394/1996, the new Law of Guidelines and Foundations (LDB), which transferred training these teachers to universities.

Let us therefore return to the 1980s. In 1982, Law Nº 7,044/1982 was passed, bringing changes to article 30 of Law Nº 5,692/1971. The

teaching degree was maintained, but other options for training teachers for primary and lower secondary levels were introduced:

> a) in primary teaching, specific upper-secondary level qualifications; b) in primary and lower secondary teaching, a teaching diploma from a university, specific to primary and lower secondary teaching and obtained through a short course; c) throughout primary and secondary levels, specific qualifications from a higher education institute, corresponding to a full teaching degree (BRAZIL, 1996).

With this law, so-called short teaching diploma courses were launched at degree level but with less hours of instruction than full teaching degrees, aimed at training teachers for lower secondary and primary teaching. These courses could train teachers by integrating subjects, which was an innovation; for example, a teaching degree in Sciences (with components of Biology, Physics and Chemistry) or Social Studies (with components from History, Geography and Sociology).

The implementation of short (multidisciplinary) teaching diplomas to qualify primary and lower secondary teachers generated controversy and counter-arguments from academics and unions, leading the Federal Education Board (CFE) to issue normative guidelines some years later. Their aim was to turn these short teaching diplomas into full teaching degrees, with specific qualifications and with a view to this course format being substituted by full teaching degrees. With the goal of improving primary and secondary teacher training, the CFE approved Recommendation Nº 8/1986, in the mid-1980s, proposed the removal of short teaching diplomas in Brazil's large capital cities, considering the improved provision of degree courses in these locations and the transitory nature attributed to such courses by law. They were only fully removed by the Law of Guidelines and Foundations for Brazilian Education (LDB) (BRAZIL, 1996) between the mid and late 1990s.

The Federal Education Board approved Report Nº 161 on the Reformulation of Education degree courses in 1986, which enabled these establishments to also provide training for primary school teachers. This is something that several institutions had already been experimenting

with. The course had always been controversial in view of its legal history and previously been reformulated, with special attention directed to Law Nº 5,540/1968 on University Reform, represented by CFE Report Nº 252/1969 and Resolution Nº 2/1969. The training of educators was normalized with these pronouncements, emphasizing the training of specialists and corresponding to the hegemonic technical model prevailing at the time and thus the training of teachers for upper secondary level Teacher Training Colleges was maintained. Graduates in Education were entitled to teach at primary level, without specific training for this age group having been included in their courses, following legal appeals.

As argued by Brzezinski:

> The structuring of a course in Education facilitated adoption of the premise 'if you can do more you can do less', that is, if those with an Education degree were qualified to train primary school teachers by 'osmosis', they would acquire knowledge of the content of a primary course (BRZEZINSKI, 1996, p. 45).

With regards to teaching degrees in general, resolutions by the then Federal Education Board stipulated that a minimum curriculum was covered in each degree, defining compulsory subjects. The curriculum structure of these courses gave special emphasis on training in a specific area, with an education component towards the end of the course.

For this period, which ranged from the 1960s to the end of the 1980s, studies already indicated problems in Brazil's teacher training courses. On "state of the art" teacher training, covering the period from 1950 to 1986, Silva et al note that the variety of studies mainly concerned with analysis and discussion of how the teacher is trained:

> report considerable imprecision about a desirable profile for this professional, and that over time different publications criticized courses which were considered encyclopaedic, elitist and idealistic. They further considered that different reforms had the effect of speeding-up teacher training, giving such courses diluted general curricula and increasingly superficial specific training (SILVA et al., 1991, p. 135).

With regards to teaching degrees in the varied areas of knowledge covered by primary and secondary education, it has been shown that a teaching degree undergraduate remains between two separate schools of training, "with an identity crisis: specialist in a specific area or teacher? Mathematician or Math teacher? Geographer or Geography teacher? Physicist or Physics teacher?" (GATTI, 1992, p. 71). This issue is relevant to this day when considering these courses.

Based on discussions and papers from the time, this training model was heavily questioned but several adjustments by legislation were somewhat fragmented (ALVES, 1992; BRAGA, 1988; CONARCFE, 1989, 1992; ANFOPE, 1992). The documents published show the need for a deeper and more integrated analysis of the following:

- Training needs in the face of the *status quo*;
- Forms of articulation and relations between training in a specific discipline, general educational training and specific teacher training, considering levels taught;
- New forms of institutional organization that can support these needs and new forms of integration; trainer training of staff adequately prepared to undertake the training of teachers at degree level;
- A new concept of professional training for teachers based on a proposal for a continuum of training.

In the context of such debates and proposals, the new Law of Guidelines and Foundations for Brazilian Education (LDB) was approved in 1996.

2. TEACHER TRAINING FOLLOWING LAW Nº 9,394/1996 (LDB)

With the publication of the new Law of Guidelines and Foundations for Brazilian Education (BRAZIL, 1996) on 23 December 1996, alterations were proposed for institutions offering teacher training, having defined a period of transition towards its full implementation.

Thus, the curriculum structure of teacher training courses was still marked by previous legislation for a relatively long period, the first curricular adaptations taking place from 2002, when the National

Curricular Guidelines for Teacher Training were approved, and in subsequent years, when curricular guidelines for each teaching degree were approved by the Federal Education Board.

The LDB of 1996 stipulates the requirement of a university degree for primary and secondary teachers. Articles 62 and 63 state:

> Art. 62 – Training of teachers to work in primary and secondary education shall require a teaching degree from universities and institutes of higher education. For nursery and primary school teaching, regular Face-to-Face upper secondary level qualification will be considered a minimum.
>
> Art. 63 – Institutes of Higher Education shall maintain:
>
> I. Teacher training courses for primary and secondary level, including a regular degree, aimed at training teachers for nursery and primary school teaching;
>
> II. Teacher training programs for those with university diplomas who wish to focus on primary and secondary education;
>
> III. Continuous development programs for education professionals at several levels.

This Law, with its transitory provisions, allowed for a deadline of ten years for school systems to adapt to the new norm. This grace period was important at the time as most primary school teachers only had upper secondary schooling in Brazil and there were also thousands of lay teachers as no upper secondary schooling was required until then. It would take time, considerable effort and funding to be able to train these teachers to university degree level. In subsequent chapters the efforts made by public authorities will be demonstrated, such as expansion of regular courses and the provision of special teacher training programs.

By reading the two quoted articles, it is possible to deduce that universities are still able to organize a teacher training course according to their own institutional projects, provided the courses are offered as a full teaching degree, whether or not they incorporate Higher Education Institutes (ISEs) and Teacher Training Colleges (*Escolas Normais Superiores*

– *ENS)*. Even the ISE will be more flexible, as we shall see below, in a Resolution of the National Education Board (CNE) General Assembly on September 30, 1999, which covers such institutes. In support of this interpretation, it is also possible to verify the terms of article 7, item VII, of the CNE/CP Resolution Nº 1/2002, where creation of ISEs "in institutions without university-level autonomy" is signalled. The ISEs, in the context of isolated or integrated colleges, would constitute the new format for teacher training, substituting the fragmented courses. ISEs offered the possibility of integration, with a common foundation, of training teachers at different levels of schooling and specialization, with Teacher Training Colleges (ENSs) acquiring the status of ISEs (cf. art 63).

In 1999, the National Education Board published Resolution CP Nº 1/99, which, in article 1 and respective sub-clauses, consolidates this new proposal for a training structure, contained in the LDB and, through articles 2 and 3, proposes an organic structure for operation and flexible organization and denomination. In these institutions, education colleges or integrated colleges (cf. text of Resolution) teaching content from different teaching degrees should necessarily be integrated, thus avoiding fragmentation, as has been our tradition. The concern for integration of different formats for teacher training and the suggestion of different institutions is self-evident. The following articles should be analyzed:

> Art. 2 – With a view to ensuring specificity and the organic nature of the professional training process, higher education institutes will have their own institutional design for teacher training, which integrates the pedagogical content of their courses and includes:
>
> I. The different areas of foundations for primary and secondary education;
>
> II. Curricular content for primary and secondary education;
>
> III. The characteristics of the Information and Communication Society.
>
> Art. 3 – Higher education institutes shall be organized:

> I. As a higher education institute *per se*, as a college, integrated college or further education institution, with management and coordination of all the teaching degrees offered;
>
> II. As a department at a university or university centre, with joint management and coordination of all the teaching degrees offered;
>
> III. As a single coordination for courses offered at different branches of the same institution.
>
> Single paragraph. In any hypothesis, higher education institutes shall have a level of formally constituted management or coordination, which will be responsible for integrating the elaboration, delivery and evaluation of the institution's teacher training program, forming the basis for specific teaching projects in each course.

This resolution also covered the quality of teaching staff at Higher Education Institutes, in article 4, item 1 and sub-clauses, making far greater demands than for other undergraduate degrees in the country:

> Art. 4 – Higher education institutes will have their own teaching staff that are capable of teaching all curricular content and supervising course activities and programs offered in an integrated manner.
>
> § 1 In accordance with the provisions of article 66 of the LDB, the teaching staff at higher education institutions shall have post-graduate qualifications, preferably in the field related to the curricular content for primary and secondary education, and will include the following as a minimum:
>
> I. 10% (ten percent) with Masters or Doctorate degrees;
>
> II. 1/3 (one third) on a full-time basis;
>
> III. Half with proven experience of primary and/or secondary level teaching.

In this resolution, it is considered necessary that teachers take part collectively in the preparation and evaluation of the pedagogical program:

> Art. 5 – The teaching staff at higher education institutions, coordinated by a level of management or coordinators, shall take part, as a group, in the preparation, delivery and evaluation of the respective specific teaching programs.

These proposals characterize a new era in prospects for teacher training, both from a structural point of view and that of integrating teacher training curricula and concern for qualification of trainer trainers, with a clear institutional position with regard to training teachers for primary and secondary schools. Despite the absence of a policy covering research on this training, it is important to remember that with regard to universities, scientific investigation is intrinsic to a university career, forming an inseparable part of the university teaching profession and the vocation of a university.

The regulation and authorization for teacher training courses subsequent to this resolution allow establishment of independent teacher training colleges and their number is growing but the same is not true for IHEs, meaning that the idea of an organic element to teacher training will gradually be lost. This loss is also pronounced with the curricular guidelines for each course aimed at 'specialist' teachers, with consideration for National Guidelines for Teacher Training being relegated to second place, while teaching degrees proliferate, independent of one another and without the integration anticipated.

The desegregation that research has indicated with regards to teacher training and its internal fragmentation in terms of curriculum seem to correspond to several institutional interests, such as the existence of crystallized institutional niches or the lack of prospects for teachers' capacity to educate, as well as cost-cutting. In addition to the integrated structure required from IHEs, the conditions defined for hiring teachers specifically as a result of higher costs may also have contributed to the idea that a specific centre for teacher training at private institutions, whether an institute or a college, would not succeed. For public universities,

strategic alterations in curriculum or organizational structure would involve the reassignment of institutions and teachers, which would require change in formative culture and crystallized representations.

In 2002, the National Curricular Guidelines for Teacher Training in Primary and Secondary Education were approved, the content of which focuses on developing teachers' personal, social and professional abilities. These guidelines postulate that training teachers who will work at different levels and in different formats of primary and secondary education should observe some of the guiding principles of this preparation for a specific professional role. On one hand this considers training for the abilities necessary to perform the function professionally as the main focus of the course, showing coherence between the training given and the expected practices of the future teacher and, on the other hand, a focus on teaching and learning, to understand the process by which knowledge is constructed. Learning should be guided by the principle of action-reflection-action, with the resolution of problem situations being one of the most important pedagogical strategies (BRAZIL. MEC/CNE, 2002).

Regarding the viewpoint on these guidelines we highlight paragraph 3 of article 6 below:

> § 3 In addition to specific training related to the different stages of primary and secondary education, the definition of knowledge required to constitute abilities shall enable participation in a broader contemporary debate involving cultural, social and economic issues, as well as knowledge of human development and teaching *per se*, including:
>
> I. General and professional culture;
>
> II. Knowledge of children, adolescents, youths and adults, including specific modules on students with special educational needs and indigenous communities;
>
> III. Knowledge of the cultural, social, political and economic aspects of education;

IV. Content from the fields of knowledge which will be taught;

V. Pedagogical knowledge;

VI. Knowledge arising from experience.

The guidelines also advise that "practice must be present from the onset of the course and must permeate the entire teacher training process" in any specialty (art. 12), and emphasizes "necessary flexibility, so that each training institution can elaborate innovative projects of their own, integrating the axes mentioned in all courses" (art. 14). There are six axes for integration, forming a curricular matrix (art. 11): 1) different areas of professional knowledge; 2) interaction and communication, as well as development of intellectual and professional autonomy; 3) the relationship between disciplines and interdisciplinarity; 4) training in common with specific training courses; 5) knowledge to be taught and philosophical, educational and pedagogical knowledge that underlies teaching actions; 6) theoretical and practical dimensions.

In principle, this resolution is the basic guide for teacher training courses, with the other specific curricular guidelines per area being encouraged to take it as a benchmark. Although they quote this CNE Resolution, not all guidelines maintain the fundamental perspectives exposed here and teacher training courses, although adopting such references in their theoretical foundations, do not implement them concretely in their curricula (see chapter III).

Even with partial adjustments as a result of the guidelines in teaching degrees for specialists, it was found that the historical idea of offering training in a specific subject prevails, with emphasis towards the number of subjects and classroom hours, practically without integrating pedagogical subjects. The latter is left with a small proportion of the total number of classroom hours or activities (GATTI; NUNES, 2008, v. 2).

Regarding the normative proposal for articulating training courses with systems and schools in primary and secondary education, offering practice and experience of school life, as already discussed by Ayres

(2005), universities and other training institutions still need to make efforts to seek institutional channels for interaction with schools through partnerships for the development of future teachers, as this is not the case with the majority of courses.

3. TEACHER TRAINING COLLEGES (ENS) AND EDUCATION COURSES

After publication of LDB/1996, between 1997 and 2006, a fierce dispute took place between groups favouring the IHEs and ENSs and those who defended teacher training for primary and nursery school through Education degrees, which the LDB does not provide for.

In 2006, following considerable debate, the National Education Board approved Resolution Nº 1, of May 15, 2006 (BRAZIL. MEC/CNE, 2006), with national curricular guidelines for degree courses in Education, also attributing training teachers for nursery and primary schooling, in addition to regular upper secondary schools, education for young people and adults and managerial training. This teaching degree gained a broad range of functions, although the main focus was teacher training. This facilitated the Education and higher level courses which were authorized and operating, to adapt to these guidelines, proposing a new pedagogical program.

The breadth of responsibilities given to teaching degree courses in Education by CNE/CP Resolution Nº 1/2006, especially considering the number of hours required to complete the course is readily seen in its 4th article:

> Art. 4 – The teaching degree in Education is aimed at training teachers to perform the role of nursery and primary school teachers, teachers in upper secondary education, vocational training, support services and other areas where pedagogical knowledge is required.
>
> Single paragraph. Teaching activities also include participation in organization and management of systems and institutions, encompassing:
>
> I. Planning, delivery, coordination, monitoring and evaluation of tasks inherent to the education sector;

> II. Planning, delivery, coordination, monitoring and evaluation of projects and educational experiences outside of the school;
>
> III. Production and dissemination of scientific-technological knowledge in the educational field, in both school and non-school contexts.

The complexity of curriculum design required for this course is high, as may also be seen in the orientation for the above-quoted resolution and disciplinary breadth imposed, in view of the duration of the course and its workload, given that it should enable "application to the field of education and contributions in the form of philosophical, historical, anthropological, environmental-ecological, psychological, linguistic, sociological, political, economic and cultural knowledge". At the same time, the course must encompass all the aspects provided for in article 4, single paragraph, of the aforementioned resolution.

The Bachelor's in Education should also be qualified for the provisions in a further 16 items of article 5 of this resolution and complete (item IV of article 8º):

> IV. A curricular work placement to be undertaken during the course, so as to ensure professional teaching experience in both school and non-school environments, which expand and strengthen ethical attitudes, knowledge and abilities:
>
> a) in nursery schools and primary schools in particular;
>
> b) in pedagogical subjects at regular upper secondary level courses;
>
> c) in vocational training in the school support services field;
>
> d) in adult and youth education;
>
> e) in participation in management activities for educational processes, planning, implementing, coordinating, monitoring and evaluating educational activities and projects;
>
> f) in professional development meetings for educators.

These proposals led to tensions over curricular development for such courses, which have still not been fully resolved. To incorporate all of this orientation into a single curricular matrix, especially for night courses at which most students study, is no easy task and is leading to some simplification that may affect graduate profiles. As for training teachers for nursery and primary schools, education courses and teacher training diplomas are seeking to adjust to the many functions attributed by the specific guidelines approved by the CNE in 2006. Few courses offer a module for this type of training (GATTI et al., 2008, v. 1). What is found is the persistence of some traditional teacher training formats on the curricula and subject listing of education courses, with unclear incorporation of this new orientation. This will be dealt with in chapter IV of this study, where it will be seen that despite the new curricular guidelines, the other teaching degrees have curricula closer to the old (3+1) scheme than to the post-LDB ideas recommended both by official documents and those experienced in training teachers for primary and secondary schools.

4. DISTANCE LEARNING AND TEACHER TRAINING

One of the current concerns amongst education specialists and teacher trainers in particular, is the proliferation of teaching degrees by distance learning. As university degrees, these courses are regulated by Presidential Decrees Nºs 5,622/2005, 5,773/2006, and 6,303/2007. Law Nº 9,394/2009 (LDB), in its 80th article, stipulates that institutions interested in offering degrees via distance learning should seek a license from the Federal government and criteria has been established for that purpose. Article 1 of Decree Nº 5,622/2005 (BRAZIL, 2005) determines that this type of course must comprise Face-to-Face sessions for student evaluation, compulsory work placements, presentation and defence of a final paper and teaching practice related activities. These sessions can take place both on university campuses and at centres opened by institutions.

Distance degree courses should have the same duration as Face-to-Face courses. This decree regulates all the conditions for licensing institutions that wish to offer distance courses and a further two which

complement this. According to CES/CNE Report Nº 301/2003, once licensed universities and colleges may create new degree courses without the need for ministerial authorization but these courses are subject to a recognition process by the Ministry. On the other hand, the Ministry of Education permitted Face-to-Face courses to offer up to 20% of their course content to be provided under a semi-distance format system.

While taking legal precautions, the volume of distance courses for teacher training in different areas has grown rapidly and they are now offered at countless centres which are maintained by licensed institutions. This growth signals a need to improve the processes by which such initiatives are evaluated. With the ease of setting-up such courses and due to their considerable expansion in the field of teaching degrees, questions have been raised on whether or not teacher training will take place via distance learning for future generations. One needs to consider the socio-cultural development of young would-be teachers who do not have the experience of going to university and being part of a community, an institution? What of the development of human sensibility and solidarity? Almost without academic experience in Face-to-Face relations and a collective routine of studies in school relationships, how will they interact with their students in classes at primary and secondary levels?

5. NATIONAL TEACHER TRAINING POLICY

Decree Nº 6,755 (BRAZIL, 2009) was published in January 2009, launching a national teacher training policy for primary and secondary education, discussing the role of CAPES in the development of pre-service and in-service training programs. The proposal was "to organize pre-service and in-service training for teachers in public sector primary and secondary schools in the form of collaboration between the Federal, State, Municipal and Federal District governments" (article 1). It seeks to support "the offer and expansion of pre-service and in-service training for teachers by public higher education institutions" and to nationally balance "opportunities for pre-service and in-service training of teaching professionals" (article 3, items II and III). The policy provides for the

creation of Permanent State Forums for Teacher Training Support to articulate strategic plans to be formulated in co-participation with representatives from several institutions, based on diagnoses, monitoring and evaluations. The State Secretaries of Education must preside over these forums in their respective States. The Ministry of Education will be responsible for approving the strategic plan which will support teacher development activities both by granting study and research scholarships for teachers, providing project support related to proposed approved activities and giving financial support to the States, Federal District, municipalities and public institutions responsible for project implementation.

Furthermore, this presidential decree proposes that teacher training activities should provide integration between higher education institutions and primary and secondary school networks, as well as student participation in teaching and learning activities in public schools. CAPES is held responsible for developing pedagogical projects which propose innovations in curricular and teacher training paths, as well as proposals for revising academic and curricular structure of teaching degree courses and research that affects teacher training (articles 10 and 11).

The proposals seek to address some of the background issues raised for decades by studies on the teacher training process, including: integration of levels of management and between and within institutions, as well as teaching networks, schools and other non-formal educational bodies; organize the curricular matrix and teacher training processes; rethink curricula and how to implement them, reviewing teacher training institutions and course structure; further study of teacher development processes in their multiple forms. It is possible to interpret that a break is sought from traditional teacher training mechanisms, mobilizing content, which has already crystallized, towards a transformation of teacher training activities. As a proposal, this represents progress, although bureaucratic and financial aspects included in the format can create obstacles to its rapid implementation (aspects mentioned in articles 4, 5, 6, 8 and 13).

Another issue to consider is the prevailing mentality and representations at the institutions and among their community-members who, as we saw

at the beginning of this report, are impregnated with concepts which have been historically constructed regarding teacher training. It is also important to consider the tension between academics, specialists and educators, given that the issue or rationalism and encyclopaedism are in direct opposition to humanistic intentions and purposes.

In addition, only stimulating expansion of existing structures and their current curricula (see chapter V) will not succeed in truly bringing-about a transformation in approach and a new quality of teacher training for primary and secondary schools.

In relation to this decree, a certain period of time is needed to evaluate the effectiveness of what is proposed, based on what is concretely implemented in the coming years.

6. REFLECTING ON LEGISLATION

Navigating through educational legislation on teacher training, involving comings and goings, full circles, amendments and parallel initiatives in the public domain, is far from easy. One is reminded of Brzezinski's phrase, inspired by Anísio Teixeira, which we generalize here: decrees, norms etc. can be characterized as manifestations "of how the official world attributes standards to the real world (or experienced world) of primary and secondary teaching professionals, without taking their peculiarities and originalities into account..." (BRZEZINSKI, 1999, p. 81). As Anísio Teixeira stated, "With autonomy, we continue to be a nation with a dual personality, the official and the real one" (BRZEZINSKI, 1999); one could say 'the nation of hegemonic groups on one hand and that of the population and workers on the other'. In the same article, the author provokes the reader to reflect, asking: "do battles between the official and real world in relation to primary and secondary school teacher training policies express the right to citizenship or do they constitute a power struggle?" (BRZEZINSKI, 1999, p. 83).

3. PRE-SERVICE TEACHER TRAINING: FACE-TO-FACE TEACHING DEGREES

There was a constant increase in the level of teacher training throughout the 20th century in the developed world and this was accompanied by Western countries with average development indicators. Seeking to adjust to more recent international trends, as we have already noted, Law Nº 9,394/1996, allowed upper secondary level training colleges to operate temporarily by establishing that training primary and secondary school teachers should be held at the higher education level, foreseeing a period of 10 years for educational systems to develop this ruling.

Now, ten years after the stipulated period, the Primary and Secondary School Census of 2006 does not register upper secondary level teacher training colleges, despite shortcomings in the basic training identified in certain segments of teaching and the fact that there are still many lay teachers at work, who may or may not be studying (PNAD 2006).

The truth is that in a very short period of time, the location for teacher training in the country shifted entirely to higher education. This change, which has far-reaching consequences and was implemented quickly, raises questions such as those relating to the possibility of new degree courses to cover vast areas of Brazil where, until very recently, upper secondary courses barely existed, even considering the fact that there is an intense decentralization process taking place in higher education (both public and private universities).[9] Questions are also raised about the operation and funding of courses, as well as the quality of training given, which is certainly the most problematic to measure.

9 According to the 2006 Statistical Synopsis of Higher Education, 37.7% of the 2,270 higher education institutions in existence at the time were located in capitals and the remainder in the countryside.

Given the new legal requirements, as is to be expected after the LDB, an explosion of teaching degree courses aimed at training teachers for nursery and primary school teaching was seen, although, in view of the large number of teachers who only attend upper secondary level courses, there is still a long way to go for universal teacher training at degree level, not to mention the new generations that are likely to become teachers. Significant growth is also observed in the provision of traditional teaching degrees, which train teachers in specific primary and secondary school subjects.

It can also be observed that considerable changes have been made to the range of distance learning teaching degree courses more recently following new Federal government guidance; the first signs can already be noticed in the current panorama of teacher training courses in Brazil.

1. FACE-TO-FACE TEACHING DEGREES: A GENERAL OVERVIEW

According to census data included in the Statistical Synopsis of Higher Education, in 2006 there were 22,101 Face-to-Face undergraduate courses[10], a third of which specialized in teacher training: 33.7%.[11]

In this study, we shall call those courses aimed at training teachers for nursery and primary school (Education degree, teaching diploma and similar) "Teaching Degree I". Courses dedicated to training teachers in specific school subjects for secondary education will be called "Teaching Degree II".[12]

10 Preliminary data from the 2007 Higher Education Census are being released but it is not possible to access the database at the time of writing. Thus, we sometimes refer to information on 2007 but analyses are mostly carried out using the 2006 Statistical Synopsis of Higher Education.

11 Information relating to higher education courses for teachers contains certain ambiguities as a result of divergent nomenclature adopted and the fact that some courses do not only train teachers but other professionals too.

12 Teaching Degree II includes courses which are part of the General Education Area in the Higher Education Census and that are specifically aimed at training subject specialists. Nevertheless, courses with generic denominations, such as History, Chemistry and Philosophy, which are ranked in other parts of the census, were also included because they can form the initial stage of a career complemented with a teaching degree, whether from the same university or not.

When one compares the relative growth of teacher training courses between 2001 and 2006 (table 3.1), one finds that Teaching Degree I courses, aimed primarily at training multidisciplinary teachers, have practically doubled. The number of Teaching Degree II courses also underwent a relative increase, although to a lesser extent, having reached 52.4%.

TABLE 3.1 – Growth of Face-to-Face teaching degrees and respective enrolments – Brazil, 2001 to 2006

	Period	Courses	Enrolments
Teaching Degree I	2001	1,224	259,575
	2006	2,415	356,168
	% Growth	(97.30)	(37.21)
Teaching Degree II	2001	3,307	575,809
	2006	5,041	805,947
	% Growth	(52.40)	(40.00)
Total	2001	4,531	835,384
	2006	7,456	1,162,115
	% Growth	(64.60)	(39.10)

Source: MEC/INEP, 2001 and 2006. *Statistical Synopsis of Higher Education.*

This explosion of courses, however, does not correspond to an equivalent increase in enrolment growth, which did increase but to a lesser degree when compared to the increase in courses. As indicated by other studies, such as Catrib, Gomes & Gonçalves (2008) this suggests that there are still many unfilled places, especially at private courses. Enrolments at regular Teaching Degree I courses increased 37.2%, whilst those for Teaching Degree II reached 40%. This apparent mismatch, in the case of Teaching Degree I, can be partially explained by special degree programs, developed via an emergency measure to raise levels of teacher training for nursery and primary school teaching in State and municipal systems, which relieved some of the demand on regular Teaching Degree I courses in those States.

However, when accompanying the pace of growth in these courses over a very short time, as can be seen in Gatti and Nunes' (2008) study, it is possible to note that the greatest expansion in Teaching Degrees occurred between 2001 and 2004, with growth rapidly declining after this period.

The 2007 Higher Education Census offers, in turn, another important indicator. The number of enrolments in courses specifically linked to school subjects, called Specific Subject Teacher Training, was lower than in 2006 for some subjects. A number of these courses were the only ones to show negative growth statistics in Brazil. Nevertheless, as the categories we have created encompass courses from other areas outside General Education, the results obtained for this field in the 2007 Higher Education Census cannot be generalized for all courses in this study.

From the standpoint of academic organization of IHEs offering teaching degrees (table 3.2), the first item that should be emphasized is that teacher training is overwhelmingly taking place at universities, which, in principle, suggests better opportunities for students' cultural and academic lives. In addition to the 63.3% of courses being offered by universities, 10.3% of these belong to colleges, where conditions and opportunities are presumably close to those of universities. Yet, caution is necessary when analyzing education opportunities effectively available to students in many universities, in view of the accelerated pace of growth in these institutions and, consequently, their insufficient experience.

TABLE 3.2 – Teaching degree courses by academic organization of IHEs – Brazil, 2006

Academic Organization of IHEs	Teaching Degree 1		Teaching Degree 2		Total	
	n	%	n	%	n	%
Universities	1,371	56.8	3,352	66.5	4,723	63.3
Colleges	264	10.9	507	10.1	771	10.3
Integrated Colleges	96	4.0	205	4.1	301	4.0
Colleges, Schools and Institutes	684	28.3	927	18.4	1,611	21.6
Technical Training Centres	0.0	50	1.0	50	0.7	
Total	2,415	100.0	5,041	100.1	7,456	99.9

Source: MEC/INEP, 2001 and 2006. *Statistical Synopsis of Higher Education.*

According to the 2007 Census, amongst the ten largest universities in Brazil according to the number of students, only three were public, and it is well known that centres of academic excellence are to be found among public universities. The University of São Paulo, the largest of the public IHEs, was sixth in the enrolment ranking (with 49,774 students); in addition to USP, the São Paulo State University and the Federal University of Pará occupied ninth and tenth places respectively, with just over 32,000 students each. The transformation process for a significant number of private universities into large scale businesses, with over 100,000 students at some of these, has resulted in expansion of their campuses throughout different States and regions of the country but their business success seems not to have been accompanied by a corresponding academic maturity and effective development of the capacity to create new knowledge through research, which forms the core of university activities *per se*.

Having made these observations, let us return to the data. It was found that a considerable percentage of the courses (21.6%) are offered at isolated universities or institutes where opportunities for cultural exchange tend to be limited. However, one should note that despite these limitations, conditions for cultural and academic interaction are more common for students taking Teaching Degree II courses. Students taking Teaching Degree I are more likely to study in isolated colleges and less at universities.

1.1. Provision of courses and enrolments by IHE administrative unit

What segment of society contributed most to the growth of these courses in recent years and who pays for investments to meet the recent rise in demand for such a numerous segment of teachers as that represented by nursery and primary school teachers? See table 3.3.

Amongst the 22,101 various types of higher education courses in Brazil, private enterprise is responsible for maintaining 70% of these. However, when it comes to teacher training, the provision of public and private courses tends to be more equal. In 2001, the public sector held just over half the courses (51.4%), whilst in 2006, the reverse was true with the private sector maintaining 54.2%.

TABLE 3.3 – Face-to-Face Teaching Degree courses by IHE administrative category – Brazil, 2001 to 2006

	Period	Public			Sub-total	Private		Sub-total	Total
		Federal	State	Municipal		Private	Community/ Religious/ Philanthropic		
Teaching Degree II	2001	764	894	93	1,751	670	886	1,556	3,307
		(23.1)	(27.0)	(2.8)	(52.9)	(20.3)	(26.8)	(47.1)	(100.0)
	2006	916	1,428	164	2,508	1,219	1,314	2,533	5,041
		(18.2)	(28.3)	(3.3)	(49.8)	(24.2)	(26.1)	(50.2)	(100.0)
Teaching Degree I	2001	204	349	27	580	323	321	644	1,224
		(16.7)	(28.5)	(2.2)	(47.4)	(26.4)	(26.2)	(52.6)	(100.0)
	2006	186	671	52	909	768	738	1,506	2,415
		(7.7)	(27.8)	(2.2)	(37.6)	(31.8)	(30.6)	(62.4)	(100.0)
Total	2001	968	1,243	120	2,331	993	1,207	2,200	4,531
		(21.4)	(27.4)	(2.6)	(51.4)	(21.9)	(26.6)	(48.6)	(100.0)
	2006	1,102	2,099	216	3,417	1,987	2,052	4,039	7,456
		(14.8)	(28.2)	(2.9)	(45.8)	(26.6)	(27.5)	(54.2)	(100.0)

Source: MEC/INEP, 2001 and 2006. *Statistical Synopsis of Higher Education.*

Despite this small variation, the relative balance between public and private sectors in the provision of Face-to-Face teaching degrees, when compared to the predominance of general higher education courses in the private sector, may indicate greater State involvement in training the majority, who will become their employees. However, the distribution of courses amongst public and private institutions is also subject to other conditioning factors, as shall be seen below.

In the public sector, a slight predominance of State institutions is found for both Teaching Degrees I and II. In the period 2001 to 2006, amongst those maintained by the public sector, it was the State teaching degrees that grew most proportionately, as a result of recent demand for such training. The removal of some Teacher Training Colleges through Federal jurisdiction over the period contributed, in turn, to a relative loss of space for Teaching Degree I public courses in 2006 (37.6% public versus 62.4% private). Federal institutions which generally receive greater academic prestige, also showed a drop in the proportion of Teaching Degree II courses between 2001 and 2006 but continue to maintain more courses in Teaching Degrees for specific subjects than for multidisciplinary teachers (Teaching Degree I: 7.7% and Teaching Degree II: 18.2%).

There was more significant growth in Teaching Degree I in the period in the private sector, having also increased the number of courses offered for Teaching Degree II. The provision can be divided in similar proportions between private courses for profit and those of a philanthropic, community or religious nature. Only a few of these have a long tradition in the field, such as some religious universities.

Despite efforts to expand public courses, the proportion of growth in enrolments for Teaching Degrees I and II is found to be systematically less than the increased provision of public courses (table 3.4). However, this scenario is inverted in the private sector. In 2006, the proportion of enrolments by students attending private institutions (57.5%) was greater than the growth of these courses (54.2%).

Amongst factors contributing to explain a higher demand for private courses is: the number of places offered by IHEs; more competitive university entrance exams in public institutions, especially the more prestigious ones and course duration.

TABLE 3.4 – Enrolments in Face-to-Face Teaching Degree courses by IHE administrative category – Brazil, 2001 and 2006

	Period	Public			Sub-total	Private		Sub-total	Total
		Federal	State	Municipal		Private	Community/ Religious/ Philanthropic,		
Teaching Degree II	2001	145,981	128,356	21,213	295,550	125,846	154,413	280,259	575,809
		(25.4)	(22.3)	(3.7)	(51.3)	(21.9)	(26.8)	(48.7)	(100.0)
	2006	163,349	169,897	34,106	367,352	203,508	235,087	438,595	805,756
		(20.3)	(21.1)	(4.2)	(45.6)	(25.3)	(29.2)	(54.4)	(100.0)
Teaching Degree I	2001	41,331	56,188	5,240	102,759	77,071	79,745	156,816	259,575
		(15.9)	(21.6)	(2.0)	(39.6)	(29.7)	(30.7)	(60.4)	(100.0)
	2006	37,877	83,009	6,020	126,906	129,688	99,383	229,071	355,977
		(10.6)	(23.3)	(1.7)	(35.7)	(36.4)	(27.9)	(64.3)	(100.0)
Total	2001	187,312	184,544	26,453	398,309	202,917	234,158	437,075	835,384
		(22.4)	(22.1)	(3.2)	(47.7)	(24.3)	(28.0)	(52.3)	(100.0)
	2006	201,226	252,906	40,126	494,258	333,196	334,470	667,666	1,161,733
		(17.3)	(21.8)	(3.5)	(42.5)	(28.7)	(28.8)	(57.5)	(100.0)

Source: MEC/INEP, 2001 and 2006. *Statistical Synopsis of Higher Education.*

1.2. The regional distribution of courses

Another factor that interferes with higher student enrolments by different types of IHE is related to the regional distribution of courses, which is not only connected with population density of the different regions and venues in which the establishments are located but with the stage of socio-economic development in the region. The context may favour or limit the offer of courses and their operation in market terms, either due to the greater capacity of the school population to pay for private courses or the proportion of those who have completed upper secondary level education, enabling them to enter higher education more easily.

As information related to the regional distribution of courses is not available in the 2006 Statistical Synopsis of Higher Education, we have used data from 2005 in table 3.5, given the importance of this variable.

TABLE 3.5 – Face-to-Face Teacher Training Courses by region – Brazil, 2005

Region	Teaching	Degrees Education	Total
North	409	367	776
	(8.5)	(15.0)	(10.7)
Northeast	1,256	457	1,713
	(26.2)	(18.6)	(23.6)
Southeast	1,769	1,093	2,862
	(36.9)	(44.5)	(39.5)
South	827	316	1,143
	(17.3)	(12.9)	(15.8)
Midwest	533	221	754
	(11.1)	(9.0)	(10.4)
Total	4,794	2,454	7,248
	(100.0)	(100.0)	(100.0)

Source: MEC/INEP, 2005. *Higher Education Census.*

Of the 7,248 courses offering Teaching Degrees I and II in the country, 2,862 (practically 40%), are concentrated in the Southeast Region, which is the most developed and populous. The second region in number of courses is the Northeast, which is almost as populous as the

former but has a more backward economy (23.6%); the South comes in third place, with 15.8% of courses, good social indicators and economic development. The Midwest and North have a lower population density and similar proportions of teaching degree courses, each accounting for a little over 10% of their total supply, although the Midwest is more dynamic than the Amazonian States, which are located in the North. The diversity of this provision acquires even more significant nuances when one considers the administration that maintains courses in these regions.

TABLE 3.6 – Face-to-Face courses for Teaching Degree I and respective enrolments by administrative category and region – Brazil, 2005

	Region	Public			Sub-total	Private		Sub-total	Total
		Federal	State	Municipal		Private	Community/ Religious/ Philanthropic		
Courses	North	79	224	2	305	52	10	62	367
		(21.5)	(61.0)	(0.5)	(83.1)	(14.2)	(2.7)	(16.9)	(100.0)
	North-east	34	303	2	339	99	19	118	457
		(7.4)	(66.3)	(0.4)	(74.2)	(21.7)	(4.2)	(25.8)	(100.0)
	South-east	15	65	28	108	404	581	985	1,093
		(1.4)	(5.9)	(2.6)	(9.9)	(37.0)	(53.2)	(90.1)	(100.0)
	South	16	38	14	68	99	149	248	316
		(5.1)	(12.0)	(4.4)	(21.5)	(31.3)	(47.2)	(78.5)	(100.0)
	Midwest	26	81	5	112	83	26	109	221
		(11.8)	(36.7)	(2.3)	(50.7)	(37.6)	(11.8)	(49.3)	(100.0)
	Total	170	711	51	932	737	785	1,522	2,454
		(6.9)	(29.0)	(2.1)	(38.0)	(30.0)	(32.0)	(62.0)	(100.0)
Enrolments	North	17,801	13,786	360	31,947	9,658	2,024	11,682	43,629
		(40.8)	(31.6)	(0.8)	(73.2)	(22.1)	(4.6)	(26.8)	(100.0)
	North-east	9,022	39,809	370	49,201	17,332	5,317	22,649	71,850
		(12.6)	(55.4)	(0.5)	(68.5)	(24.1)	(7.4)	(31.5)	(100.0)
	South-east	6,026	10,928	3,714	20,668	67,775	75,372	143,147	163,815
		(3.7)	(6.7)	(2.3)	(12.6)	(41.4)	(46.0)	(87.4)	(100.0)
	South	3,240	7,027	1,987	12,254	13,762	27,468	41,230	53,484
		(6.1)	(13.1)	(3.7)	(22.9)	(25.7)	(51.4)	(77.1)	(100.0)
	Midwest	5,525	10,994	581	17,100	16,190	4,356	20,546	37,646
		(14.7)	(29.2)	(1.5)	(45.4)	(43.0)	(11.6)	(54.6)	(100.0)
	Total	41,614	82,544	7,012	131,170	124,717	114,537	239,254	370,424
		(11.2)	(22.3)	(1.9)	(35.4)	(33.7)	(30.9)	(64.6)	(100.0)

Source: MEC/INEP, 2005. *Higher Education Census.*

At first glance, table 3.6 highlights the fact that there is a clear predominance of private enterprises in the more prosperous regions, a trend which is also beginning to be seen in the emerging Midwest region.

In the Southeast, 90.1% of Teaching Degree I courses were offered by private enterprises and represent 87.4% of enrolments. In the South, the region with the second largest range of courses for Teaching Degree I in Brazil, 78.5% also belong to private enterprise, representing 77.1% of enrolments. In the Midwest, private and public courses are almost equal in number (49.3% and 50.7% respectively) but enrolments in private institutions correspond to 54.6% of the student population. The other regions, which are less suitable for free market courses, depend more on public initiatives for the professional development of teachers. In the Northeast region, which is heavily populated but underprivileged, the public sector accounts for 74.2% of Teaching Degree I courses and 68.5% of enrolments; finally, the North, with a sparse population density and geographically isolated cities, the vast majority of courses are offered by the public sector (83.1%) and 73.2% of students attend these institutions.

As for courses leading to Teaching Degree II, which prepare teachers for specific subject areas on the curriculum, the provision by public and private sectors is roughly equivalent, although there are proportionately more enrolments in the private sector, as can be seen in table 3.7. However, there are some differences in relation to Teaching Degree I courses.

In the Southeast of Brazil, the proportion of courses leading to Teaching Degree II maintained by private enterprise (78.1%) is slightly lower than for Teaching Degree I and private students represent 72.4% of enrolments. In the South, the proportion of private courses drops to 66.7% and enrolments to 63.1%. However, in the other three regions, there are more public than private courses, with the Northeast being the one that benefits most from public provision – 87.3% of courses are public, as are 80% of enrolments.

TABLE 3.7 – Face-to-Face courses for Teaching Degree II and respective enrolments by administrative category and region – Brazil, 2005

	Region	Public			Sub-total	Private		Sub-total	Total
		Federal	State	Municipal		Private	Community/ Religious/ Philanthropic		
Courses	North	228	86	4	318	74	17	91	409
		(55.7)	(21.0)	(1.0)	(77.8)	(18.1)	(4.2)	(22.2)	(100.0)
	North-east	239	820	37	1,096	111	49	160	1,256
		(19.0)	(65.3)	(2.9)	(87.3)	(8.8)	(3.9)	(12.7)	(100.0)
	Southeast	135	187	65	387	672	710	1,382	1,769
		(7.6)	(10.6)	(3.7)	(21.9)	(38.0)	(40.1)	(78.1)	(100.0)
	South	96	129	50	275	146	406	552	827
		(11.6)	(15.6)	(6.0)	(33.3)	(17.7)	(49.1)	(66.7)	(100.0)
	Midwest	111	233	15	359	105	69	174	533
		(20.8)	(43.7)	(2.8)	(67.4)	(19.7)	(12.9)	(32.6)	(100.0)
	Total	809	1455	171	2,435	1108	1251	2,359	4,794
		(16.9)	(30.4)	(3.6)	(50.8)	(23.1)	(26.1)	(49.2)	(100.0)
Enrolments	North	30,765	7411	629	38,805	9,839	2,536	12,375	51,180
		(60.1)	(14.5)	(1.2)	(75.8)	(19.2)	(5.0)	(24.2)	(100.0)
	North-east	49,334	74,177	12,637	136,148	22,441	10,652	33,093	169,241
		(29.2)	(43.8)	(7.5)	(80.4)	(13.3)	(6.3)	(19.6)	(100.0)
	Southeast	38,442	47,447	13,589	99,478	120,159	140,150	260,309	359,787
		(10.7)	(13.2)	(3.8)	(27.6)	(33.4)	(39.0)	(72.4)	(100.0)
	South	21,605	23,261	7,153	52,019	23,962	64,874	88,836	140,855
		(15.3)	(16.5)	(5.1)	(36.9)	(17.0)	(46.1)	(63.1)	(100.0)
	Midwest	21,680	21,979	1,038	44,697	18,032	15,192	33,224	77,921
		(27.8)	(28.2)	(1.3)	(57.4)	(23.1)	(19.5)	(42.6)	(100.0)
	Total	161,826	174,275	35,046	371,147	194,433	233,404	427,837	798,984
		(20.3)	(21.8)	(4.4)	(46.5)	(24.3)	(29.2)	(53.5)	(100.0)

Source: MEC/INEP, 2005. *Higher Education Census.*

1.3. Time of day for courses

Table 3.8 shows another important variable for a better understanding of why students choose public or private courses. This is the distribution of enrolments in Teaching Degrees by time of day, which can only be determined through analysis of the 2005 Higher Education Census.

TABLE 3.8 – Enrolments in Face-to-Face courses leading to Teaching Degree by time of day and region – Brazil, 2005

		Public			Private	Total
		State	Federal	Municipal		
Teaching Degree I	Daytime course	47,033	29,475	842	38,904	116,254
		(57.0)	(70.8)	(12.0)	(16.3)	(31.4)
	Evening course	35,511	12,139	6,170	200,350	254,170
		(43.0)	(29.2)	(88.0)	(83.7)	(68.6)
	Total	82,544	41,614	7,012	239,254	370,424
Teaching Degree II	Daytime course	92,234	111,304	5,673	110,057	319,268
		(52.9)	(68.8)	(16.2)	(25.7)	(40.0)
	Evening course	82,041	50,522	29,373	317,780	479,716
		(47.1)	(31.2)	(83.8)	(74.3)	(60.0)
	Total	174,275	161,826	35,046	427,837	798,984
Total	Daytime course	139,267	140,779	6,515	148,961	435,522
		(54.2)	(69.2)	(15.5)	(22.3)	(37.2)
	Evening course	117,552	62,661	35,543	518,130	733,886
		(45.8)	(30.8)	(84.5)	(77.7)	(62.8)
	Total	256,819	203,440	42,058	667,091	1,169,408

Source: MEC/INEP, 2005. *Higher Education Census.*

Although most teaching degree enrolments are for the evening course, one can see that those aimed at training multi-disciplinary teachers have more students in that period (68.6%) than the other teaching degrees (60%), although the percentage of enrolments in Teaching Degree II is also very high. For Teaching Degree I, Federal courses have the lowest number of students in the evenings (29.2%), followed by State courses (43%). The small number of municipal level higher education institutes follows the same pattern as private institutions, with over 88% of students preferring evening classes.

For Teaching Degree II, the proportion of students enrolled in evening classes in the different administrative categories does not vary greatly from the group in Teaching Degree I; the number is only slightly higher for Teaching Degree I in Federal (31.2%) and State courses (47.1%). The proportion of students in evening classes at municipal institutions and private IHEs was still high, at 83.2% and 74.3% respectively.

Generally speaking, evening classes tend to be of a lower quality than their daytime equivalent, particularly with regards to activities related to teaching practice required to qualify students to teach specific subjects. This suggests that teacher training held in the evening usually takes place in less satisfactory conditions than those of other trainee teachers.

The general scenario for the provision of courses and enrolments shows that, in the Southeast region, which comprises 45% of teaching degree students in the country, there are proportionately very few students with access to courses at public institutions, although many of the most important Federal and State universities (São Paulo) are located there. These universities are responsible for the highest academic and scientific productivity in the country. Students opting for a teaching profession are, however, largely relegated to private courses, which tend to be of lower quality. In the Northeast, the region with the second largest contingent of teaching degree undergraduates, teacher training is ensured by the recent expansion of State courses, which have a limited track record in higher education.

The provision of teaching degrees enables one to infer that teacher training conditions in Brazil are generally still far from satisfactory and shows that university-level teacher training for primary schools is of slightly lower quality than the others. Public sector action in primary and secondary school teacher training previously performed a mostly complementary and redistributive function, concentrating on serving regions with lower economic and social development indicators.

2. FACE-TO-FACE TEACHING DEGREES BY FIELD OF KNOWLEDGE AND JOBS

Distribution of courses leading to a teaching degree and enrolments for different fields of knowledge depend largely on decisions related to the primary and secondary school curricula, made in the legislative and executive branches and supported by the National and State Education Boards. These decisions result from disputes between different social agents, claiming greater representation of given subjects, skills and abilities in the curriculum. Such agents certainly include the executive

and legislative bodies and also social movements, NGOs, business and professional unions, scientific and professional associations, including teaching associations, which have played a key role in curriculum design for primary and secondary education.

New, compulsory curricular components, which also require appropriate teacher training were recently introduced into the primary and secondary school curriculum as follows: Spanish (Law Nº 11,161/2005), Sociology and Philosophy (Law Nº 11,684/2008), and Music (Law Nº 11,769/2008). The compulsory inclusion of Afro-Brazilian and African History and Culture (Law Nº 10,639/2003) and indigenous peoples (Law Nº 11,465/2008) also complements these at all school levels.

The quantitative dimension of different education levels in primary and secondary education must also be taken into account in the provision of teaching degrees, as teaching jobs are created in accordance with the number of students they will serve. Nevertheless, amongst other variables that influence the opening of courses for teachers and the choice of students, one cannot ignore market influences on the demand for certain teaching degrees. Some of these offer greater or more varied opportunities for insertion in the employment market and are occasionally better-paid. A recent study, undertaken by MEC, shows that approximately 300,000 people teach in areas different to those which they studied at university in Brazil.[13]

We shall now examine the provision of teaching degrees by subject area.

2.1. Teaching Degree I

The 2006 Census of Higher Education still records the range of teacher training courses for primary and nursery schools, permitted under Law Nº 9,394/1996. In view of the National Curriculum Guidelines for Education courses, approved in 2006, they must all

13 MEC/CAPES Press Office. Available online at: <http://www.capes.gov.br>. Last access: 6 Feb. 2009.

adjust to the broader scope of education courses, whilst ensuring the autonomy of IHEs to formulate their own teacher training curricula and taking institutional background and specific vocation into consideration, including the characteristics of the students they serve.

Table 3.9 shows the predominance of education courses for this kind of training. They represent 64.7% of the total available and receive 79% of enrolments, with 44.5% of students mostly studying at State-run public IHEs.

TABLE 3.9 – Teaching Degree I: courses and enrolments by administrative category – Brazil, 2006

	Teaching Degree I	Total		Public								Private					
				Federal		State		Municipal		Sub-total Public		Private		Community/ Religious/ Philanthropic		Sub-total Private	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Course	Education	1,562	64.7	164	10.5	495	31.7	36	2.3	695	44.5	491	31.4	376	24.1	867	55.5
	Teacher Training College	798	33.0	5	0.6	162	20.3	16	2.0	183	22.9	269	33.7	346	4.4	615	77.1
	Teachers trained	55	2.3	17	30.9	14	25.5	0	0.0	31	56.4	8	14.5	16	29.1	24	43.6
	Total Teaching Degrees I	**2,415**	**100.0**	**186**	**7.7**	**671**	**27.8**	**52**	**2.2**	**909**	**37.6**	**768**	**31.8**	**738**	**30.6**	**1,506**	**62.4**
Enrolment	Education	281,172	79.0	36,892	13.1	63,867	22.7	5,327	1.9	106,086	37.7	104,566	37.2	70,520	25.1	175,086	62.3
	Teacher Training College	70,025	19.7	167	0.2	17,464	24.9	693	1.0	18,324	26.2	24,458	34.9	27,243	38.9	51,701	73.8
	Teachers trained	4,780	1.3	818	17.1	1,678	35.1	0	0.0	2,496	52.2	664	13.9	1,620	33.9	2,284	47.8
	Total Teaching Degrees I	**355,977**	**100.0**	**37,877**	**10.6**	**83,009**	**23.3**	**6,020**	**1.7**	**126,906**	**35.7**	**129,688**	**36.4**	**99,383**	**27.9**	**229,071**	**64.3**

Source: MEC/INEP, 2006. *Higher Education Census.*

Nevertheless, there is a substantial proportion of Teacher Training College courses (33%), with most maintained by private enterprise (77.1%), although the sum of their enrolments represents only 19.7% of the general calculation. In view of CNE/CP Resolution Nº 1/2006, the trend will be for these courses to rapidly become education degrees, under different names, linked to teacher training for: nursery school, primary, lower secondary school and upper secondary levels. Other courses had minimal attendance.

However the enormous gap in nursery school teacher training is worthy of attention, as this is the initial period of education, which

encompasses several years of attention towards young children and, as seen previously, comprises the highest percentage of teachers with insufficient training. Following in the tradition of upper secondary level training courses, current Teaching Degree I courses tend to simultaneously prepare teachers for nursery, primary and secondary schools. There is a suspicion that since they were formerly regarded as more of a complement to primary school teacher training, the courses offered did not properly cover the specificities of pre-school children and kindergartens.

In the general calculation of Teaching Degree I courses, 37.6% were maintained by public authorities, with State level IHEs corresponding to the largest proportion (27.8%) and also attracting the largest number of students: 23.3%.

2.2. Teaching Degree II

Before proceeding with an analysis of the provision of courses and enrolments in the different areas of Teaching Degree II, we will look at some studies carried out by INEP, the Chamber of Primary and Secondary Education of the National Education Board (CEB/CNE) on meeting the demand for teachers of specific subjects for secondary education, which have had considerable repercussions on teacher training policies.

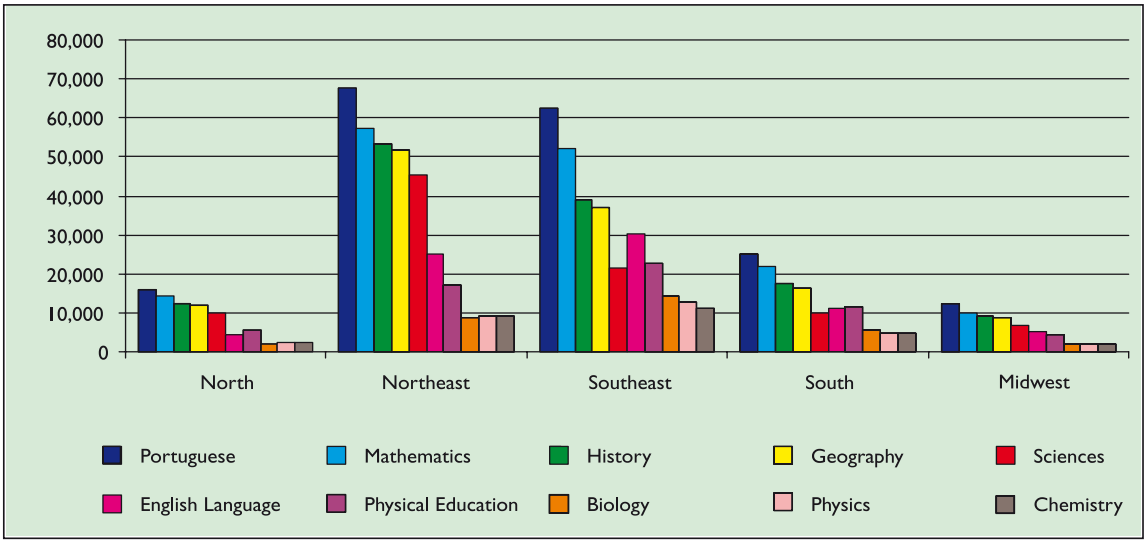
In 2006, returning to simulations undertaken in previous years by INEP, based on the Primary and Secondary School Census and the Census of Higher Education, plus information from the Primary and Secondary Teachers' Census[14] held in 2003 but published in 2006, research published by the National Education Board (BRAZIL, MEC/CNE, 2007) and INEP (BRAZIL, MEC/INEP, 2006a) shows that the number of teachers trained in the past 15 years was immensely out of

14 Although the 2003 Census of Teaching Professionals was planned to have the coverage of a census, a lower number of responses than envisaged was obtained due to the difficulty in collecting data. Constituting a non-probabilistic sample, the data cannot be generalized, even though the response rate for questionnaires (one per school) was 77.8%. Despite these limitations and based on the new data obtained, INEP decided to publish the study. It should be noted that as with primary and secondary school censuses, data was tabulated in terms of teaching jobs, which makes it impossible to arrive at an effective estimate of the number of teachers.

line with the demand for primary and secondary teachers. Furthermore, it shows a low percentage of teachers with initial training in the subjects they taught, even though they may have received in-service training. It is only in Portuguese, Biology and Physical Education that more than 50% of teachers have a background in these specific subjects. The worst case was in Natural Sciences, where only 9% of Physics teachers and 13% of Chemistry teachers were trained in this area, a deficit which particularly affects the upper secondary level. According to the latter study, 246,085 positions would have to be filled at upper secondary level, with 479,906 vacancies at primary and secondary level, as reported by Ruiz (2008). Amongst the proposals made to overcome this obstacle are: the Institutional Program for Teaching Initiation (PIBID) and the establishment of programs that encourage teaching degrees, provide the creation of teaching degrees in specific subjects and evening classes in those areas where the shortfall is greatest.

Figure 2 enables examination of some data supplied by the 2003 Census of Teaching Professionals. They show a scenario which indicates the different presence of curricular components in primary and secondary education, even with the caveats made on their representativeness.

FIGURE 2 – Subjects taught by primary and secondary school teachers by region – Brazil 2003



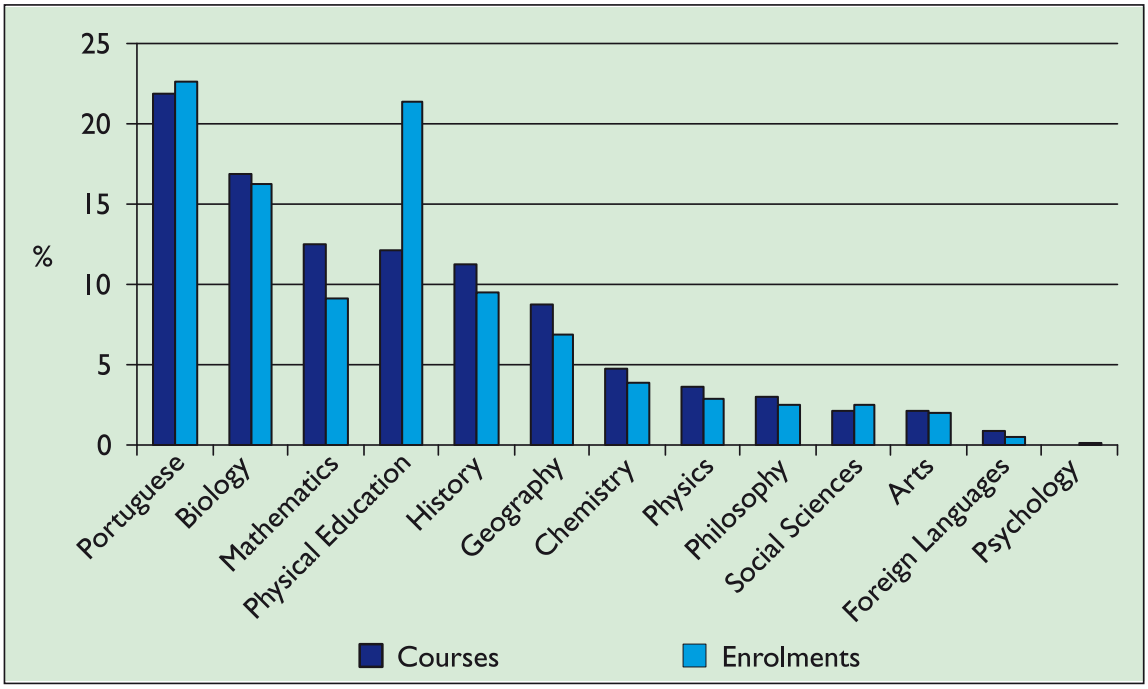
Source: MEC/INEP, 2003. *Census of Primary and Secondary Teaching 2003*, apud CATRIB; GOMES; GONÇALVES, 2008.

When regional differences are considered, it is clear that Portuguese and Mathematics, which comes close behind, constitute the school subjects which employ most teachers, as they have longer classroom hours throughout primary and secondary schooling. However, a more balanced distribution is observed across school subjects in some regions.

Portuguese and Mathematics are followed by History and Geography, although the relative position held by teachers of Sciences, Physical Education and English in schools oscillates according to the region considered. The teaching of Sciences, in the form of Biology, Physics and Chemistry, only occurs at upper secondary level, which, for that reason, implies a smaller number of classes in these specific subjects, given the lower number of enrolments at that level. The distribution of these curricular components is in proportion to that of their respective teachers. Although Art Education is also a compulsory subject in primary and secondary education, it is not reflected in the figure.

Returning to data from the 2006 Higher Education Census and to courses and enrolments in Teaching Degree II courses registered here, it is possible to see a very different distribution of subjects from that encountered in schools three years earlier, as shown in Figure 3.

FIGURE 3 – Teaching Degree II: courses and enrolments in subjects that form the primary and secondary curriculum – Brazil, 2006



Source: MEC/INEP, 2006. *Statistical Synopsis of Higher Education.*

The grouping of courses and subjects based on the 2006 Higher Education Census does not correspond exactly to the subjects teachers declared they teach in the 2003 Census of Teaching Professionals but it allows for an analysis that can be compared with what was found in the school networks.

It can be identified from the 2006 census data that the offer of courses and choices by students invert the traditional hierarchy that places Portuguese and Mathematics at the top of primary and secondary school curriculum. This does not mean that these subjects are not valued in schools. On the contrary, their presence in school systems has been reinforced, including the adoption of evaluating primary and secondary school students' performance, promoted by the National System for Evaluating Primary and Secondary Education (SAEB) and, recently, by creation of the Primary and Secondary Education Development Index (IDEB), which specifically cover students' performance in Portuguese and Mathematics.

Nevertheless, graph 3 suggests that a significant portion of students appear to seek a teaching degree in the hope of finding a wider variety of job opportunities, amongst other factors, and also because of the low status of teaching and discouraging salaries. From information on the CAPES/MEC website (2009), this hypothesis is reinforced by data included on the 2007 Higher Education Census and quantity of enrolments in recent years, indicating that the number of students graduating in specific subjects, focused towards teaching, such as Languages, Biology, Chemistry, Geography and Philosophy, fell in relation to 2006.

Data related to subjects under the fields of knowledge will be examined in more detail, with support from tables at the end of this chapter, including the number of courses and enrolments in teaching degrees by area and administrative category (tables 3.10 and 3.14).

• Languages

In the field of Languages, of the 1,152 language courses registered, only 94 (8.2%) were exclusively for the mother tongue (Portuguese). Most included Brazilian Portuguese language and literature and foreign

language and literature and some simply call themselves Language courses. In addition, some were aimed specifically at training future teachers, whilst others were generic, such as Language courses. This is the category with the largest number of courses and students for Teaching Degree II. There was also a small group of courses which only offered foreign languages, labelled in Figure 3 as Second Languages.

What this data suggests is that Portuguese Language teachers are trained by courses that place different degrees of emphasis on different subject areas, either within the discipline itself, in the ratio of mother tongue to foreign language or in the content relating to the teaching of languages *per se*.

It is well known that three quarters of the courses and enrolments focus specifically on training language teachers. No information is available regarding which or how many languages are being taught to future teachers. The imprecision of information on courses raises questions about conditions for effective knowledge in this multi-language approach and about adequate preparation of these teachers for teaching the respective languages in the classroom. The supply of public courses (45.9%) in the field of languages is only slightly lower than that of private universities. However, amongst public IHEs, those which offer the majority of this teaching degree are State-owned (31%).

• Mathematics and Natural Sciences

The number of Mathematics courses and the proportionately low demand for them are not coherent with the significant presence and importance of this subject on the school curriculum. This data suggests that there is a lack of Mathematics teachers to meet the needs of school networks. According to the INEP studies mentioned, conducted in 2006, only 27% of Mathematics teachers had specific training in the area.

The field of Sciences is quantitatively much better represented in regard to the range of courses available and enrolments than the primary and secondary school curriculum would suggest. However, to form the group of Biology courses, which are the second most numerous under

Teaching Degree II, it several types of course are grouped together, such as those called Sciences, Biological Sciences and Biology and teacher training courses in Sciences and Biology, with those aimed at the teaching profession predominating (27.6%), even though the percentage taking Biological Sciences is significant (20.2%),

In the same way, when Physics and Chemistry courses are considered, those aimed at preparing teachers for the respective subjects predominate. Nevertheless, enrolments in Chemistry courses are higher than in those focused explicitly to teaching careers and enrolments in Physics courses are almost equivalent to those aimed at the teaching profession, which helps to explain the lack of teachers for these school subjects.

Courses training Science teachers have been created in order to tackle the lack of interest from students who opt for classical courses in the Science field, particularly Physics and Chemistry and who leave teaching posts vacant, in an attempt to specifically attract those interested in a teaching career and preparing them as multidisciplinary teachers in the field. This may help to fill some of the gaps caused by the lack of qualified teachers, depending on the locations that contain these vacancies. Nevertheless, the strong tradition of subject-based training that marked teaching in Brazil, according to which teachers have greater affinity with the demands of their specific background than with the general demands of primary and secondary schooling (LOPES, 2002), leads not only professional but also scientific bodies to oppose resistance to interdisciplinary solutions for the curriculum. In the whole field, 55.7% of courses are offered by public institutions and the greatest contribution is from State-owned IHEs (29.6%).

- **Human Sciences and Philosophy**

If the primary and lower secondary curriculum enjoys a relatively broad consensus in society, the upper secondary level is still the object of heated discussions between social agents who seek to impress different emphases on the course, with the area of Human Sciences specifically generating this type of debate. Curriculum reforms at the end of the

1990s sought to recover the importance of Human Sciences in society and in school culture, as they had fallen in prestige and lost ground to pure sciences during the military regime. The National Curricular Parameters for upper secondary school assure the revival of humanistic culture, seeking to unite it with the need to deal with the demands of a technological society, as they understand that Exact and Natural Sciences are complementary and not exclusive. Human Sciences therefore install knowledge in the curriculum that could be described as historic, geographical, economic, political, legal, sociological, anthropological and, above all, philosophical. They may be offered in an interdisciplinary fashion, be grouped and regrouped at the school's discretion into specific subjects, or in projects, programs and activities, seeking to overcome fragmentation into different subjects. They return philosophical content to the curriculum in a transdisciplinary way, including philosophy of science and philosophy of language (BRAZIL, MEC/SEMT, 1999).

Within this broad orientation, History and Geography[15], having been partially diluted into Social Studies, recovered their own identify in the 1980s, continuing to be the most common subjects in primary and secondary curricula. This omnipresence has repercussions for the provision of teaching degrees, which are the most numerous in the field considered. The most noteworthy among these, with a greater proportion of enrolments, are general History and Geography courses which, in addition to training for a Bachelor's degree, also tend to offer teaching diplomas in the respective subjects. Although not extensive, these courses are responsible for a proportionately large percentage of enrolments. As for the other subjects within Human Sciences, in the period of transition to a democratic regime, several school systems reintroduced subjects like Philosophy, Sociology and Psychology into the upper secondary curriculum, either as compulsory or optional subjects. This was at the discretion of school chains or individual schools, so that the curriculum reform of the late 1990s ratified these initiatives and gave them a more all-encompassing and national nature. However, just as courses leading to a teaching degree have a strong subject focus,

15 Geography is a subject half way between Natural and Human Sciences.

primary and secondary schools also function in a structure built upon subject foundations, especially at secondary level. This is reflected in the criteria for hiring teachers, allocating classes and lack of time and space set-aside for curriculum integration. Therefore, it came to be that in addition to History and Geography, the remaining content of Human Sciences in primary and secondary schools continued to be under-represented or as systematic, even though the theoretical foundations of contemporary History and Geography had already incorporated contributions from other Sciences (BITTENCOURT, 1998).

These difficulties, together with those associated with inserting Human Science teaching degree graduates into the employment market, resulted in considerable pressure from teaching bodies, leading the National Education Board to approve the compulsory inclusion of Philosophy and Sociology in upper secondary education on July 7, 2006, which was ratified by Federal Law in 2008. This Law determined that these subjects should be taught at all grades of this education level. Psychology, however, was excluded from these rulings. Oscillations regarding upper secondary school curricula composition are obviously reflected in the supply of degree courses and demand from students for diplomas in such subjects. Following on from History and Geography, Social Science courses in this group are the most numerous and have the highest number of enrolments. They are followed by Social Science Teacher Training courses. Both Sociology courses and courses for Sociology teachers were numerically insignificant. In 2006, Philosophy courses had more enrolments than those specifically focusing on teacher training but there were few of these as a whole. The recent compulsory teaching of these two subjects may revert this trend.

Once Psychology stopped being part of the Human Sciences triad that used to embellish the upper secondary curriculum, teacher training courses in the field disappeared in 2006, leading to the mobilization of entities that represent the area.

Only the coverage of themes relating to the Brazilian ethnic and cultural matrices have remained transversal and non-subject related, thus more easily identified in initiatives for in-service teacher training

than teaching degrees (GOMES, 2008). The public sector corresponds to 53.9% of degree courses in the field of Human Sciences, with State IHEs accounting for 30.6% of State sector enrolments.

• Physical Education and Arts

As can be seen in figure 3, the number of Physical Education enrolments is surprising. There are a wide range of courses that offer this subject and they are in high demand, to the extent that their enrolment levels are on a par with those of Language courses, which are the most popular within Teaching Degree II. As the demand for Physical Education classes in primary and secondary schools is much lower than that for Portuguese, one can infer that these students take advantage of much broader employment opportunities. Hence, the greatest concentration of enrolments is in Physical Education teacher training, although there are also a significant percentage of students on the Physical Education course.

The apparent success of these courses contrasts profoundly with the disappearance of courses for training teachers of the Arts. This may help to explain the recent mobilization towards reiteration of the compulsory teaching of Music within Art education. This subject was already compulsory on curricula, showing the efforts to expand employment opportunities for these particular professionals. Unlike the other areas in Teaching Degree II and as a result of Physical Education, this niche is predominantly in the hands of private initiatives: 67.3%. However, the provision of courses among public institutions in State-owned IHEs (16.3%) is still larger than in Federal universities. In response to the considerable challenge posed for teacher training, the Education Development Plan, which went public in 2007 (BRAZIL, MEC, 2007), emphasizes teacher training and valuing education professionals. It expresses an important government commitment to training teachers for the public primary and secondary education systems. CAPES/MEC therefore also took on responsibility for pre-service and in-service teacher training and the creation of a National System for Training Education Professionals was proposed (BRAZIL, 2009).

3. SOME PARTIAL CONCLUSIONS ON FACE-TO-FACE TEACHING DEGREES

1. The rapid change of venue for teacher training to higher education in Brazil, accompanied by the accelerated growth of IHEs with little or no academic tradition in the field of teacher training, causes us to question the effective capacity of many IHEs to add relevant contributions to training teachers at this new level.
2. Although most degree courses are private, as shown in the general overview of teaching degrees, public authorities have shown considerable participation in courses focusing on teacher training. There are two large niches for teacher training: multidisciplinary nursery and primary school teachers and Physical Education teachers and these are predominantly private.
3. Public IHEs have played a clear compensatory role in Brazil, ensuring opportunities for degree level teacher training in economically underprivileged regions.
4. State IHEs, many of which have been created recently, are those which are attending the demand for teacher training in the public sector in the greatest proportion.
5. When observing enrolments in courses for specific subjects, aimed explicitly at teacher training and general degree courses in the same subjects, although the former are more numerous, there are more significant proportions of students seeking general courses, especially in areas where job opportunities are broader and more inviting than teaching.
6. Degree courses that add teaching qualifications, such as Languages, Physics, Mathematics, Biology, History and Geography, tend to be offered by Federal universities in the public sector, whilst teacher training courses for primary teachers are concentrated in State universities.

7. Although teachers have played an important role in reconfiguring the primary and secondary school curriculum at different moments in history, the multiplication of subjects and crystallization of curricula in courses of encyclopaedic form, without deeper discussion of their scope in primary and secondary education, may be serving interests connected with expanding job opportunities rather than the needs of student training.

COMPLEMENTARY TABLES – CHAPTER 3

TABLE 3.10 – Teaching Degree I: denominations, number of courses and enrolments

Teaching Degree I		Total		Sub-total Public		Sub-total Private	
		Courses	Enrolments	Courses	Enrolments	Courses	Enrolments
Nursery School	n	1	41	0	0	1	41
	%	0.0	0.0	0.0	0.0	100.0	100.0
Education	n	1,562	281,172	695	106,086	867	175,086
	%	64.7	79.0	44.5	37.7	55.5	62.3
Lower secondary level teacher training	n	1		0	0	1	
	%	0.0		0.0		100.0	
Primary school teacher training	n	5		5	0	0	
	%	0.2		100.0		0.0	
Nursery and primary level teacher training	n	11	1,309	10	1,286	1	23
	%	0.5	0.4	90.9	98.2	9.1	1.8
Primary and lower secondary level teacher training	n	2	167	1	102	1	65
	%	0.1	0.0	50.0	61.1	50.0	38.9
Upper secondary level teacher training	n	12	686	8	486	4	200
	%	0.5	0.2	66.7	70.8	33.3	29.2
Primary and secondary level teacher training	n	19	2,378	6	557	13	1,821
	%	0.8	0.7	31.6	23.4	68.4	76.6
Teacher Training Colleges	n	798	70,025	183	18,324	615	51,701
	%	33.0	19.7	22.9	26.2	77.1	73.8
Nursery school teacher training	n	4	199	1	65	3	134
	%	0.2	0.1	25.0	32.7	75.0	67.3
Teaching Degree I Total	n	2,515	355,977	909	126,906	1,506	229,071
	%	100.0	100.0	37.6	35.7	62.4	64.3

TABLE 3.11 – Sciences and Mathematics: denominations, number of courses and enrolments

Mathematics and Natural Sciences		Total		Sub-total Public		Sub-total Private	
		Courses	Enrolments	Courses	Enrolments	Courses	Enrolments
Training Biology teachers	n	377	47,200	210	19,766	167	27,434
	%	19.8	18.2	55.7	41.9	44.3	58.1
Training Science teachers	n	203	24,453	140	14,616	63	9,837
	%	10.7	9.4	69.0	59.8	31.0	40.2
Training Physics teachers	n	134	11,734	89	9,334	45	2,400
	%	7.0	4.5	66.4	79.5	33.6	20.5
Training Mathematics teachers	n	567	59,254	295	30,505	272	28,749
	%	29.8	22.9	52.0	51.5	48.0	48.5
Training Chemistry teachers	n	155	13,856	101	9,390	54	4,466
	%	8.1	5.3	65.2	67.8	34.8	32.2
Biology	n	15	3,413	1		14	3,413
	%	0.8	1.3	6.7		93.3	100.0
Biological Sciences	n	247	52,275	91	20,464	156	31,811
	%	13.0	20.2	36.8	39.1	63.2	60.9
Sciences	n	8	3,977	1	112	7	3,865
	%	0.4	1.5	12.5	2.8	87.5	97.2
Physics	n	51	11,060	43	10,571	8	489
	%	2.7	4.3	84.3	95.6	15.7	4.4
Mathematics	n	64	14,260	42	10,329	22	3,931
	%	3.4	5.5	65.6	72.4	34.4	27.6
Chemistry	n	84	17,645	49	10,849	35	6,796
	%	4.4	6.8	58.3	61.5	41.7	38.5
Mathematics and Natural Sciences Total	n	1,905	259,127	1,062	135,936	843	123,191
	%	100.0	100.0	55.7	52.5	44.3	47.5

TABLE 3.12 – Languages: denominations, number of courses and enrolments

Languages		Total		Sub-total Public		Sub-total Private	
		Courses	Enrolments	Courses	Enrolments	Courses	Enrolments
Training Language teachers	n	880	139,678	350	54,781	530	84,897
	%	76.4	74.9	39.8	39.2	60.2	60.8
Training modern foreign language/ literature teachers	n	43	3,296	41	3,239	2	57
	%	3.7	1.8	95.3	98.3	4.7	1.7
Training Portuguese language/ literature teachers	n	92	5,448	85	4,254	7	1,194
	%	8.0	2.9	92.4	78.1	7.6	21.9
Training Portuguese language/ literature and modern foreign language teachers	n	38	2,883	24	2,064	14	819
	%	3.3	1.5	63.2	71.6	36.8	28.4
Languages	n	91	33,247	24	17,125	67	16,122
	%	7.9	17.8	26.4	51.5	73.6	48.5
Portuguese language/ literature and modern foreign language/ literature	n	2	634	1	416	1	218
	%	0.2	0.3	50.0	65.6	50.0	34.4
Portuguese language/ literature	n	2	598	1	486	1	112
	%	0.2	0.3	50.0	81.3	50.0	18.7
Modern foreign language/ literature	n	3	591	2	359	1	232
	%	0.3	0.3	66.7	60.7	33.3	39.3
Second language	n	1	83	1	83	0	0
	%	0.1	0.0	100.0	100.0	0.0	0.0
Total Languages	n	1,252	186,458	529	82,807	623	103,651
	%	100.0	100.0	45.9	44.4	54.1	55.6

TABLE 3.13 – Philosophy and Human Sciences: denomination, number of courses and enrolments

Philosophy and Human Sciences		Total		Sub-total Public		Sub-total Private	
		Courses	Enrolments	Courses	Enrolments	Courses	Enrolments
Training Philosophy teachers	n	70	7,758	15	2,584	55	5,174
	%	5.5	4.5	21.4	33.3	78.6	66.7
Training Geography teachers	n	343	32,375	197	19,724	146	12,651
	%	27.1	18.8	57.4	60.9	42.6	39.1
Training History teachers	n	471	53,297	252	27,522	219	25,775
	%	37.1	30.9	53.5	51.6	46.5	48.4
Training Psychology teachers	n	2	573	1	368	1	205
	%	0.2	0.3	50.0	64.2	50.0	35.8
Training Sociology teachers	n	1	49	1	49	0	0
	%	0.1	0.0	100.0	100.0	0.0	0.0
Training Social Science teachers	n	26	1,246	13	642	13	604
	%	2.1	0.7	50.0	51.5	50.0	48.5
Philosophy	n	83	12,131	32	7,962	51	4,169
	%	6.5	7.0	38.6	65.6	61.4	34.4
History	n	94	23,419	53	15,381	41	8,038
	%	7.4	13.6	56.4	65.7	43.6	34.3
Social Sciences	n	77	18,098	55	15,765	22	2,333
	%	6.1	10.5	71.4	87.1	28.6	12.9
Sociology	n	6	775	1	346	5	429
	%	0.5	0.4	16.7	44.6	83.3	55.4
Geography	n	95	22,582	63	17,677	32	4,905
	%	7.5	13.1	66.3	78.3	33.7	21.7
Philosophy and Human Sciences Total	n	1,268	172,303	683	108,020	585	64,283
	%	100.0	100.0	53.9	62.7	46.1	37.3

TABLE 3.14 – Physical Education and Arts: denomination, number of courses and enrolments

Physical Education and Arts		Total		Sub-total Public		Sub-total Private	
		Courses	Enrolments	Courses	Enrolments	Courses	Enrolments
Training Physical Education teachers at primary and secondary level	n	1	191	0	0	1	191
	%	0.1	0.1	0.0	0.0	100.0	100.0
Training Art teachers (Art Education)	n	84	11,841	40	5,549	44	6,292
	%	11.7	6.3	47.6	46.9	52.4	53.1
Training Physical Education teachers	n	387	97,618	147	25,090	240	72,528
	%	54.1	51.9	38.0	25.7	62.0	74.3
Arts	n	6	1,172	4	874	2	298
	%	0.8	0.6	66.7	74.6	33.3	25.4
Arts and Education	n	1	88	1	88	0	0
	%	0.1	0.0	100.0	100.0	0.0	0.0
Arts and Media	n	1	102	1	102	0	0
	%	0.1	0.1	100.0	100.0	0.0	0.0
Art Education	n	12	2,869	3	664	9	2,205
	%	1.7	1.5	25.0	23.1	75.0	76.9
Physical Education	n	224	74,178	38	8,222	186	65,956
	%	31.3	39.4	17.0	11.1	83.0	88.9
Physical Education and Arts Total	n	716	188,059	234	40,589	482	147,470
	%	100.0	100.0	32.7	21.6	67.3	78.4

4. TEACHING DEGREES VIA DISTANCE LEARNING (DL)

Teacher training has recently earned a new configuration, becoming associated with Distance Learning (DL). We shall outline a brief history of this teaching format, so as to contextualize the range of courses and better located them within the prolific transformations that have been taking place in Brazil.

From the late 1970s, countries such as the United Kingdom, Germany and Spain created public universities which offered distance learning, focusing on thousands of working students at a lower cost. They were able to obtain high quality standards in the programmes developed through the experience gained.

As noted by Preti (2005b), the Brazilian government at that time gave no thought to the creation of a public university for distance learning but prepared and implemented national DL programs, such as the Minerva Project, which sought to increase general training for those with limited schooling and *Logos*, which focused on training lay teachers (1973-1990).

In 1992, MEC created the National Office for Distance Education and Secretariat for Distance Education (SEED) in 1995. Although SEED had been created, the government did not truly adopt a DL policy. As indicated by Preti (2005b), the government simply implemented or supported projects to meet specific demands in the educational field, such as *Telecurso 2000*, which was created in 2004 with the aim of providing general upper secondary schooling and programs focusing on teacher training, such as *Proformação*, which was directed at

lay teachers; *Um Salto para o Futuro* which sought to provide in-service training for primary and nursery school teachers, plus several teaching degrees. According to the author, the programs implemented in the last 30 years always took place on the margin of educational policies and were much more similar to an emergency strategy to deal with serious and immediate problems in education, such as illiteracy and qualification of workers, especially teachers. Despite apparently positive quantitative results in many programmes, most were deactivated during changes in administration, which failed to provide continuity or stability to actions which had already started. Their inefficiency was also due to failure to update teaching materials, offer a systematic and personalized service for students, develop systems to evaluate the training process and the fact that programmes were almost always generated centrally by government for the entire nation and implemented without due consideration for regional differences.

In 1996, the Law of Guidelines and Foundations for National Education opened up new development possibilities for DL in Brazil, establishing in article 8 that "Public authorities will encourage the development and supply of distance learning programmes at all levels and types of teaching and continued education". The Federal government is responsible for accrediting institutions and authorizing their implementation, falling to the respective school systems to produce, control and evaluate DL programmes (BRAZIL, 1996).

In 1998, The Ministry of Education promoted DL regulation by means of Decree N°s 2,494/1998 (BRAZIL, 1998a) and 2,561/1998 (BRAZIL, 1998b) and Bill N° 301/1998 (BRAZIL. MEC, 1998). The latter normalized the process of licensing institutions prepared to offer undergraduate and technical professional distance courses, enabling partnerships and agreements between institutions. In the same year the Ministry published a document entitled "Quality indicators for distance undergraduate courses", which seeks to guide institutions offering DL courses but is not legally binding.

Some public universities began testing their first experiences with DL from the mid 1990s: the Federal University of Mato Grosso (1995),

Federal University of Paraná (1998), Federal University of Ceará (1998) and the Federal University of Santa Catarina (1998), each with highly diverse proposals and seeking to address specific problems. Although this way of approaching DL does not imply the creation of permanent systems to serve different objectives and programs in different administrative spheres and within universities themselves, regional projects with local characteristics began to be developed. These sought greater adaptation to local realities and culture. They followed in the path of experiments in other Latin American countries and elsewhere, which had contributed to a new discourse on DL, giving a greater focus on the subjects than market forces.

1. THE OPEN AND DISTANCE EDUCATION CENTRE AT THE FEDERAL UNIVERSITY OF MATO GROSSO

The Federal University of Mato Gross (UFMT) pioneered undergraduate degrees by distance learning. According to Preti (2005a, 2005b), its Open and Distance Education Centre (NEAD) began studies into DL in 1992 and made contact with State universities abroad. In 1995, it offered the first Full Teaching Degree for Primary Teachers in a distance learning format, aimed at 350 public sector teachers; it later came to offer this course to the entire State and then expanded to other States, in partnership with local public universities. The course is part of the Inter-Institutional Teacher Qualification Program for Mato Grosso do Sul, which included participation by representatives of public universities in the State and their various teaching degrees, the State Secretariat for Education (SEDUC), Union of Municipal Education Leaders (UNDIME) and Trade Union for Public Education Workers in Mato Grosso. This represents a clear continuation of the partnership with SEDUC, which had existed since the 1970s (through the Program to Decentralize Modular Teaching Degrees) and offers undergraduate courses during the school vacation period.

This is a tripartite agreement enabling the course to be offered to any municipal authority interested in taking part. The UFMT makes human resources available for the pedagogical and coordination team

and specialists in different areas of knowledge. SEDUC offers specialists for the pedagogical team and teachers from the public network to act as academic supervisors. The municipalities also provide and maintain Support Centres for Municipal DL Centres, as well as teachers to act as academic supervisors and student support. The project was designed, constructed and evaluated collectively in terms of pedagogy, policy and administration.

In 2001, the United Nations Development Programme (UNDP) Secretariat for Primary and Lower Secondary Education at MEC and the National Education Board, commissioned research into teacher training courses and the UFMT course was included as a national benchmark for this format. With regards to its impact, in addition to allowing the inclusion of a greater number of students, the permanent nature of its range and high quality development were mentioned as positive aspects of the course and notably the following: inter-institutional agreements; interdisciplinary team; operational system prioritizing support for self-study; production of specific teaching materials and the existence of a support centre with technology enabling interactive access to academic coordinators.

Consolidation of the Distance Learning Centre at UFMT also involved participation in the CAERENAD Programme, comprising *Télé-Université de Québec*, in Canada; Pontifical Catholic University of Chile; the State Distance University of Costa Rica; the University of Senegal and University of Mauritius. Research undertaken in partnership with the CAERENAD Program countries on their respective tutoring systems led to reformulation of initial training for academic supervisors and of some of the practices adopted. Studies also showed a low dropout rate from the course, far less than the average recorded on DL courses.

Of the undergraduate courses authorized by MEC since regulation in 1998, only the UFMT program, which had been developed as an experimental pilot, was recognized by MEC in 2002, having obtained top marks according to criteria established for DL by MEC/SESu.

Four years after it had been implemented, the program was expanded to the State in collaboration with the State University of Mato Grosso. It was estimated that the State would have practically met the entire

demand for degree-level teacher training by 2007. Nevertheless, it was estimated that as many teachers are not employed in the public networks, new training demands could be produced.

Once the range of teaching degree courses was resolved, NEAD started to seek other fields of action and partnerships and to offer extension courses, *lato sensu* graduate courses and continuous development.

In 2001, NEAD coordinated preparation of the *ProDocência* Programme, with participation by 21 main Federal universities and proposed a document with guiding principles to prepare teaching degree distance education courses in the same year, with a view to training primary school teachers within the UniRede network. This document subsidized MEC Secretariat for Distance Education guidelines. Experience acquired by NEAD provided the foundations for broader DL policymaking nationally, having contributed to constructing quality standards for distance education teaching degrees.

2. ESTABLISHMENT OF CONSORTIA AND PUBLIC UNIVERSITY NETWORKS

The Centre for Open and Distance Education at UFMT assisted the Federal University of Paraná (UFPR) and State University of Santa Catarina (UFSC) in the establishment of DL centres, then acted as a Pedagogical Centre for *UniRede*, a consortium created in 1999, initially by UFMT, UFPR, UFSC and the State University of Ceará and, following considerable expansion, came to include 69 member institutions in 2005 (MARTINS, 2006).

On analyzing curricular designs and the concept of tutoring proposed by the *UniRede* Consortium, however, Oliveira (2002) notes a contradiction between the discourse within course design and plans and their implementation. Dialogue approaches and interactive processes are proposed, from the constructivist, student-centred standpoint whilst recognizing differences and the need for personalized education.

Nevertheless, organization of these projects and their pedagogical activities tend to fit a mass instruction model, without regional identity, transferred from the classroom to virtual environments and/or tele-rooms and reducing the humanizing dimension of learning (OLIVEIRA apud PRETI, 2005b).

Preti (2005b) also makes reference to criticisms by the National Association for Training Education Professionals (ANFOPE), made in Belém, North Brazil in 2002, according to which the proposals for teacher training via DL did not have a formative nature and ended-up disqualifying those teachers already in service, consisting of a way to devalue and belittle this type of training.

The incipient capacity for regulation and control by government authorities and lack of DL policies meant, however, that distance learning initiatives developed separately from one another within public higher education institutes. They also nurture the dilution of limits between public and private sectors. Third-party services hired to keep courses functioning; materials produced by third parties acquired and private and non-governmental institutions obtain public subsidies.

However, the effort to create integrated systems or networks to offer teacher training courses for primary and secondary school teachers continues, comprising a new response to the challenge of raising teacher training to degree level, expanding and reaching different States and regions. National Fund to Education Development (*Fundo Nacional de Desenvolvimento da Educação* – FNDE) funds are released by the central government to sustain these projects.

The CEDERJ consortium, created in 2002 by the Governor of the State of Rio de Janeiro, brings together public universities and the State's Centre for Sciences. UNIVIR joins universities in the Midwest and *CampusNet* and universities in the Amazon Region. The *Veredas* Project, focusing on one of the Minas Gerais State government's priorities, unites the IHEs of that State. UNIVESP (Virtual University of São Paulo State) is beginning activities in the field of higher education, at the time of writing, with its own course design proposal.

3. THE TRANSITION OF DL POLICIES IN BRAZIL

The expansion of courses and networks at the turn of the millennium and growing involvement of IHEs in DL, especially for teacher training, shows that this teaching format is gaining new dimensions in Brazil and is becoming increasingly important in educational policy.

The National Education Plan, sanctioned by Law Nº 10,172/2001 (BRAZIL, 2001), reiterates the importance of DL in education policies and establishes guidelines, objectives and goals for its implementation. To meet the demands created in the field, the plan emphasizes DL policy for teacher training and amongst its objectives proposing an increase in the range of degree level teacher training courses at a distance and financial support for research into DL.

This orientation adds to the recommendations of the Worldwide Conference on Higher Education, called by UNESCO in 1998 (UNESCO, 1998), proposing that difficulties in access to education can be solved through the use of information and communications technology (ICT), enabling democratic access to this level of education. Although it recognizes the problems of distance education and admits that they are exacerbated by infrastructure shortcomings in developing countries, the entity proposes that educational planning policies highlight DL and are supported by central governments themselves (MARTINS, 2006).

The Ministry of Education Bill Nº 2,253/2001 authorizes higher education institutions to introduce distance learning modules into their Face-to-Face courses, provided that they do not exceed 20% of the total workload and that final evaluations are made in person.

In view of the growing trend towards introducing DL approaches and technology into higher education, enabling establishment of the most varied combinations of Face-to-Face and distance learning in the range of courses within those systems, MEC designated an Advisory Commission on Higher Education at a Distance to support the Secretariat for Higher Education in 2002, together with representatives from the Secretariat for Distance Education, Secretariat for Upper Secondary & Technical Education, Coordination for Improvement

of Higher Education Personnel (CAPES) and National Institute of Pedagogical Studies (INEP).

The Advisory Commission for Distance Education (BRAZIL. MEC/SESu, 2002) report assumes that DL constitutes a wider initiative for dealing with the demands generated by the expanded number of upper secondary school leavers and by teacher training, estimated at 875,000 higher education places, that are far from being addressed. Admitting that Brazilian regulations are confined to an emergency and outdated view of the reach of DL and that investment in DL is high, the report proposes to contribute to the establishment of new benchmarks, capable of guiding the processes for supervising and evaluating DL, enabling expansion of the range of courses with flexibility and ensuring improved quality in higher education. Taking into account the experience acquired in teacher training initiatives in blended learning courses for public sector teachers, involving considerable cooperation between State and municipal governments, as well as innovative projects, supported by Face-to-Face and virtual tutorials and quality teaching material[16], the document advocates:

1. preparation of a new concept for distance education which incorporates ICTs and the Internet and promotes a cooperative relationship between students, teachers and institutions;
2. equivalent status between DL and Face-to-Face learning, addressing specific aspects and ensuring high quality education in both modes;
3. integration of DL in the Institutional Development Plan and pedagogical planning of IHEs

The document also lists elements that should be part of a distance degree course and proposes DL regulation.

The Ministerial Advisory Commission report gave rise to Quality Benchmarks for DL, made available by SEED in 2003, which seek to guide initiatives in progress, in a highly dispersed and barely regulated context. They make recommendations on pedagogical aspects, human

16 See chapter 7 (Special Forms of Teacher Training) in this publication.

resources and infrastructure to be observed by the courses and encompassing: commitment by managers; project design; transparency of information; a multidisciplinary professional team; communication/ interaction between agents, educational resources, support infrastructure, continuous and wide-ranging evaluation, agreements and partnerships and financial sustainability (SANCHEZ, 2008).

Seeking to correct the acceleration of courses and ensure a more appropriate student service, MEC issued Bill Nº 4,059/2004 (BRAZIL, 2004) which revoked the one published in 2001. This determined that Face-to-Face courses using remote communication technology (up to a maximum of 20%) be offered as blended learning and that the pedagogical and curricular organization include Face-to-Face meetings and tutoring. It further clarifies that tutorials require qualified teachers at a level compatible with the course's pedagogical proposal, with a specific workload for both Face-to-Face and distance sessions.

Based on the shortfall of upper secondary teachers with specific training for that level, detected by the 2003 Census of Teaching Professionals, the Secretariat for Distance Education at MEC promulgated a Call for Proposals 001/2004, inviting public universities to offer teaching degree courses in Education, Physics, Chemistry & Biology and Mathematics. Eight consortia were chosen, totalling 39 IHEs, which offered 19 courses in all regions of Brazil and comprising 17,585 students.

According to Martins (2006), SEED established a system for monitoring consortia institutions, in search of shared solutions for ensuring an expansion of public higher education places. These institutions were put in touch with *ProLicenciatura,* a programme launched in 2005 by the Secretariat for Primary and Secondary Education, with the objective of offering degrees in teaching the diverse school subjects to teachers already in service.

While considering that implementation of quality DL courses requires considerable work and investment, the *UniRede* consortium sent MEC a document as a contribution to the measures necessary to consolidate this form of study in Brazil. As summarized by Martins, they refer to:

- opening places for teachers and administrative staff in universities to attend DL;
- expansion of the reach of universities through support from municipalities and States in the construction and maintenance of study centres with telecommunications resources, libraries, computers, study rooms and staff for technical and pedagogical support, so as to increase the capillary action of higher education and reach distant communities.
- inclusion of DL students in the budgetary planning of IHEs;
- allocating financial resources to introduce and implement DL infrastructure (which may come from public or private partnerships);
- Implementation of adequate subsidized communication services for DL throughout Brazil;
- creation of mechanisms to enable the shared use of teaching materials developed by public IHEs (MARTINS, 2006).

Finally, Decree Nº 5,622 of December 19, 2005 (BRAZIL, 2005), gives new legal order to DL in Brazil, defining this in article 1, as

> an educational form in which didactic and pedagogical mediation in teaching and learning processes takes place through the use of media, information technology and communication with students and teachers developing educational activities in different times or places.

It states that distance courses and programs should be designed to have the same duration as Face-to-Face courses and establishes similarity for certificates and diplomas. Furthermore, the Decree states that Benchmarks for Quality in Distance Learning, defined by MEC, must form the basis of rules for regulation, supervision and evaluation of this form of education (article 7). Amongst relevant aspects of the decree, the following can be highlighted: establishment and preponderance of Face-to-Face evaluation of students in relation to distance evaluation; greater detailing of criteria for institutional licensing, especially with regards to decentralized centres for student support; mechanisms for

covering abuses, such as uncontrolled supply of higher education places with no regard for adequate capacity to meet demand; permission to establish a collaborative scheme between State Boards of Education, the National Education Board and different administrative spheres; provision for including those with special needs and institutionalization of official documentation using Quality Benchmarks (MEC/SEED apud SANCHEZ, 2008).

4. THE OPEN UNIVERSITY OF BRAZIL AND PLANNING A NATIONAL TEACHER TRAINING SYSTEM

The Ministry of Education discussed a design for creating the Brazilian Open University system (UAB) with the State University Forum for Education in 2005, with the main objective being to promote capacity building and pre-service and in-service teacher training for primary and secondary schools, using distance learning methodologies.

Decree Nº 5.800 was published (BRAZIL, 2006a) in June 2006, establishing the Brazilian Open University system under the Distance Learning Directorate, linked to CAPES and in partnership with SEED. The UAB integrated with public higher education institutes, Brazilian States and municipalities to meet this central objective, seeking to further decentralize the provision of higher education courses and programs, in addition to expanding access to public higher education, bringing these courses to different regions of the country. The UAB also proposed offering degree courses for training leaders, managers and staff in primary and secondary education in all States, municipalities and the Federal District and to support research into innovative methodologies and incorporate ICT into higher education. With this system MEC also sought to increase collaboration between central government and the other Federal units, stimulating creation of permanent training centres through centres for Face-to-Face support, located in municipalities in the countryside as a priority.

To offer distance courses, each municipality should set up a Face-to-Face support centre with a library and computer, Physics, Chemistry and Biology laboratories and ensure tutor support, guaranteeing a physical

space for a Face-to-Face student service. The preparation and provision of courses is the responsibility of the public IHEs and Federal Centres for Technological Education (CEFETs), which are also responsible for developing teaching and learning materials. Access to the UAB system is gained by means of free Face-to-Face university entrance exams, with the papers written and applied by the respective institutions. The institutions offering courses must promote visits to the centres in order for the Face-to-Face sessions required by the LDB to be carried out (Available at: <http://www.uab.capes.gov.br>. Last access: 13 Mar. 2009).

The State Universities Forum for Education then proposed creation of a Development Foundation for UAB, comprising representatives of State institutions and other entities. State universities have an important role in the establishment and joint organization of future public consortia, to be created between central government, the States and municipalities, so as to provide DL activities throughout Brazil. The Foundation's proposal is based on the creation of a scholarship program for DL research and consolidating public partnerships between the three authorities and with Federal university and UAB participation (MALANCHEN, 2007).

In December 2005 the first call for proposals was released, establishing how institutions should organize their projects and equip Face-to-Face centres in order to compete for DL courses in partnership with UAB in 2007. After this process, 27 centres were selected and 673 groups opened, offering 32,880 places. The second call for proposals, published in October 2006, sought to select projects and centres to be implemented in April 2008.

In view of the increased complexity of educational expansion processes, particularly in the DL form, the Ministry of Education has been reinforcing and expanding the role of CAPES since 2007, establishing actions focusing on training teachers for primary and secondary school, aiming for a more organic integration between primary and secondary education and higher education policies (DOURADO, 2008). In addition to its existing responsibilities, the "new" CAPES came to coordinate the design of the National Training Plan, seeking greater integration of activities leading to pre-service and in-service teacher training, through

the UAB and other initiatives. The role previously afforded to the Secretariats for primary and secondary education, higher education and distance education is not clearly defined.

According to Dourado (2008), the roles of INEP and the National Fund to Develop Education (FNDE) were strengthened, as these entities came to be considered responsible for monitoring, evaluating and financing education in Brazil, particularly with regard to actions involving teacher development.

5. NEW QUALITY BENCHMARKS FOR DL

In 2007, MEC, through SEED, established new Benchmarks for Quality Distance Learning, in order to guide rules for its regulation, supervision and evaluation (BRAZIL. MEC/SEED, 2007).

Sanches (2008), quoting an article published in the Brazilian Statistical Yearbook for Open and Distance Education, indicates that aspects covered by the 2003 benchmarks are returned to but the new set place more emphasis on the political-pedagogical design of courses and foundations on which they are based. They defend the need to provide clear and precise information to students and other stakeholders in DL courses and programs. As for the high dropout rates in courses, related to a lack of initial information on students in 2003, the 2007 benchmarks recognize the sense of isolation caused by the methodology as one of the factors that aggravated the problem. This caused the document to cover the form of interaction between teachers, tutors and students, course and subject coordinators and those responsible for academic and administrative management in greater detail. The course communication system should enable students to rapidly resolve issues relating to learning in general and to specific content and materials.

Teaching material, which should be developed in terms of form and content, in accordance with the principles of political-pedagogical design and 2007 benchmarks, must be pre-tested and focused on developing specific abilities and knowledge. Evaluation, in turn, should encompass specific aspects: that of Face-to-Face and distance learning

for both students and the institution, which covers the pedagogical and didactic organization of the course, teaching staff, tutors and technical-administrative staff and facilities.

Another aspect which deserves special attention in the document is that of the qualifications and attributes of the teaching, tutoring, technical and administrative staff and special importance is conferred on Face-to-Face support centres, with a description of essential equipment they should have, a checklist for maintenance of facilities and equipment and their appropriate adaptation according to the number of students attended. Emphasis is also given to integration of DL with other processes at the institution with a view to ensuring students have access to the same learning and support conditions that those on Face-to-Face courses enjoy.

6. THE PRO-TEACHING PROGRAM AND IN-SERVICE TEACHER TRAINING BY DISTANCE LEARNING

In addition to the UAB system, the Federal government also implemented the *Pro-Licenciatura* Programme in 2005, aimed exclusively at initial distance training for in-service teachers, based on studies that indicated inadequacies in training teachers working at primary and secondary education levels[17]. The programme is coordinated by the Secretariat for Primary and Secondary Education, in partnership with the Secretariat for Distance Education.

The requirements for teachers to participate in courses are that the respective State or municipal Secretariats are part of the programme and teachers have no legal qualifications in the area they are teaching, having at least one year of teaching experience in the public sector. Tutors at Face-to-Face support centres must be teachers from the local public system and have a teaching degree as a minimum or preferably a graduate degree in education or similar fields.

17 Moon's study (2008) on the role of new DL technologies in response to the global crisis regarding the shortfall of teachers and appropriate teacher training indicates that this problem was not limited to poor countries. In 1999, the State of California, USA, launched a DL program to train the growing number of lay teachers in its primary and lower secondary school system.

According to Malanchen (2007), the *Pró-Licenciatura* Programme had 55 projects approved for teaching degree courses in 2006. The courses were located in public, community and religious IHEs in 22 States. 78% of the institutions that had projects approved were public universities. The objective at MEC was to reach 60,000 teachers in 2006 and 90,000 in 2007, ensuring the programme's operation and maintenance in public and private institutions with FNDE funds.

7. THE ACCELERATED EXPANSION OF COURSES

The reordering of the distance education field by public authorities has clearly enabled rapid growth of higher education in this form over the past 10 years.

In 1998, according to data from MEC/SESu/DEPES released by the Advisory Commission for Distance Higher Education at MEC, there were eight requests for licensing and authorizing regular distance courses in Brazil. In 2002, however, this number had rapidly expanded to 47, the majority being undergraduate courses focusing on teacher training (80%) and 60% of these were education courses and teaching diplomas.

According to the UAB portal, there were 74 institutions in consortia in the system and 774 Face-to-Face support centres listed in April 2009 (Available at: <http://www.uab.capes.gov.br>. Last access: 2 Apr. 2009).

In 2008, the State of São Paulo Virtual University (UNIVESP) was launched by the State government, foreseeing cooperative action and with the objective of integrating successful initiatives already developed by State universities in São Paulo, (USP, UNESP and UNICAMP), with support from the Foundation for Research Support in São Paulo State (FAPESP), Foundation for Administrative Development in São Paulo (FUNDAP), Padre Anchieta Foundation and controller of TV Cultura in the State, coordinated by the State Secretariat for Higher Education. Actions aimed at professional development for teachers working in the State network include a specialization course in primary and lower secondary teaching, teaching degrees in Portuguese, Sciences

and IT and graduate courses. In addition to the range of degree courses for teachers with no qualifications at this level (a total of 36,000), the programme provides for improvement in teaching Physics, Chemistry, Biology and Mathematics.

As the expansion of undergraduate courses in DL is relatively recent, the system for collecting data on this form is still not fully consolidated. However, data from the Census of Higher Education indicate the enormous growth of distance degree courses in Brazil (table 4.1).

TABLE 4.1 – Growth in distance undergraduate courses and students – Brazil, 2000-2007

Number of undergraduate distance courses								
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
N	10	14	46	52	107	189	349	408
Number of times grown compared to 2002				0.1	1.3	3.1	6.6	7.9
Enrolments in undergraduate distance courses								
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
N	1,682	5,359	40,714	49,911	59,611	114,642	207,206	369,766
Number of times grown compared to 2002				0.2	0.5	1.8	4.1	8.1
Graduates from distance degree courses								
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
N	460	131	1,712	4,005	6,746	12,626	25,804	29,812
Number of times grown compared to 2002				1.3	2.9	6.4	14.1	16.4
Places offered through entrance exams and other selective processes								
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
N	6,430	6,856	24,389	24,025	113,079	423,411	813,550	1,541,070
Number of times grown compared to 2002				0.0	3.6	16.4	32.4	62.2

Source: MEC/INEP, 2002 and 2007. *Higher Education Censuses*.

As shown by table 4.1, the number of undergraduate courses grew almost eightfold between 2002 and 2007, with the largest expansion seen between 2005 and 2007, facilitated not only by encouraging public IHEs to adopt DL but also by the legal equivalence given to Face-to-Face and distance learning, which also opened up new prospects for private IHEs. The 107 courses which existed in 2004 grew to 408 in 2007 and enrolments rose from 59,611 in 2004 to 369,766 in 2007.

The explosion of places by entrance exams and other selective processes should also be noted, rising from 113,079 in 2004 to 1,541,070 in 2007 and when considering the initial investment required for these courses, questions should be raised on capacity for meeting demands by potential students. Nevertheless, student response, expressed as enrolments, seems to have fallen below institutional expectations, as they represent only 30% of the places offered in 2007.

Legislation determines that distance degrees should have the same duration as Face-to-Face courses, and, in turn, recognition of the equal status of both courses is only recent, which may explain the low number of graduates: 11.3% in 2007, which is only 8% of the total enrolments. Yet it is important to remember that according to the Brazilian DL Annual Study (SANCHEZ, 2008) amongst undergraduate students, 91.2% of those who dropped out in this form of study did so at the beginning of the course.

As for distance learning degrees, complete data is only currently available in the Higher Education Census up to 2005. They grew in a smaller proportion than undergraduate students in general. However, these courses more than doubled in number between 2002 and 2005, with the largest increase having been found in the Teaching Degree II, which multiplied almost six fold (table 4.2).

In view of the presupposition of policies encouraging DL, it was hoped that this form would contribute to reduce the segmentation of higher education in Brazil, increasing access for students in regions that have fewer educational opportunities at this level.

TABLE 4.2 – Growth in distance teaching degrees – Brazil, 2002-2005

		North	North-east	South-east	South	Mid-west	Total
Teaching Degree II	2002	0	4	2	3	0	9
	2005	9	39	7	4	2	61
	No of times grown 2002-2005		8.8	2.5	0.3	2*	5.8
Teaching Degree I	2002	0	3	27	3	3	36
	2005	2	38	21	19	5	85
	No of times grown 2002-2005		11.7	-0.2	5.3	0.7	1.4
Total	2002	0	7	29	6	3	45
	2005	11	77	28	23	7	146
	No of times grown 2002-2005		10.0	0.0	2.8	1.3	2.2

Source: MEC/INEP, 2002, 2003, 2004 and 2005. *Higher Education Censuses.*
*Approximate number, as no courses were identified in this region in 2002.

When observing the regional distribution of courses, expansion occurred partially in the desired direction from the standpoint of inclusion, as they contributed to facilitating access to higher education in the Northeast. However, DL courses underwent very little growth between 2002 and 2005 in the North and Midwest where educational opportunities are also scarce.

In the Southeast region, which is best-served in terms of DL, there was an increase in the Teaching Degree II but a drop in Teaching Degree I, whilst the South underwent significant growth in the provision of distance teacher training for primary school teachers. Data for the period can be observed in table 4.3 regarding the distribution of enrolments for distance courses in the region.

Although the number of courses has more than doubled, enrolments increased at a slower rate, failing to double during the period: growing from 40,324 to 78,366. The highest growth in absolute terms was found in Teaching Degree I, which is responsible for a large volume of DL enrolments but the largest relative growth was in Teaching Degree II.

TABLE 4.3 – Enrolments in distance teaching degrees by region – Brazil, 2002-2005

		North	North-east	South-east	South	Mid-west	Total
Teaching Degree II	2002		565	310	116	0	991
		0.0	**57.0**	**31.3**	**11.7**	**0.0**	**100.0**
	2005	353	5,387	2,979	147	0	8,866
		4.0	**60.8**	**33.6**	**1.7**	**0.0**	**100.0**
Teaching Degree I	2002		1,959	18,655	16,965	1,759	39,338
		0.0	**5.0**	**47.4**	**43.1**	**4.5**	**100.0**
	2005	6,385	7,550	18,417	34,868	2,280	69,500
		9.2	**10.9**	**26.5**	**50.2**	**3.3**	**100.0**
Total	2002		2,524	18,965	17,081	1,759	40,329
		0.0	**6.3**	**47.0**	**42.4**	**4.4**	**100.0**
	2005	6,738	12,937	21,396	35,015	2,280	78,366
		8.6	**16.5**	**27.3**	**44.7**	**2.9**	**100.0**

Source: MEC/INEP, 2002 and 2005. *Higher Education Censuses*.

Although analysis of this data is preliminary, considering that these policies are more recent, it can be seen that enrolments in 2002 were strongly concentrated in the Southeast and South, which are the richest regions and a better distribution was found amongst regions as a whole in 2005, with the exception of the South, where this concentration increased. This profile of enrolment distribution is principally determined by Teaching Degree I, which is the most numerous course.

Enrolments for Teaching Degree II show a different distribution. In 2002, enrolments were mainly concentrated in the Northeast, which is underprivileged and populous but were also significant in the Southeast, which is rich and populous and in the South to a certain extent. In 2005, this scenario only changes in terms of the decrease in enrolments in the South and because they begin to appear in the North but not in the Midwest.

In summary, there are indications of a redistribution of courses and enrolments that may be auspicious.

With regards to the administrative category, the preponderance of enrolments in the public sector identified in 2002 (85.1) changed considerably. In 2005, despite efforts to expand the public provision of DL, the market share fell to 55.4% of students, whilst private

initiative rose from 14.9% to 44.6% due to the growth in enrolments at private institutions. Community, religious and philanthropic institutions maintain a modest participation during the period.

Amongst public IHEs and similar to Face-to-Face teaching degrees, State institutions receive the most students. This profile is clear for Teaching Degree I but changes when one examines Teaching Degree II where Federal institutions predominate.

TABLE 4.4 – Enrolments in distance teaching degrees by administrative category – Brazil, 2002-2005

		Public			Private			Total
		Federal	State	Sub-total	Private	Community/ Religious/ Philanthropic	Sub-total	
Teaching Degree II	2002	841	150	991	0	0	991	
		84.9	**15.1**	**100.0**	**0.0**	**0.0**	**0.0**	**100.0**
	2005	2,344	639	2,983	5,387	496	5,883	8,866
		26.4	**7.2**	**33.6**	**60.8**	**5.6**	**66.4**	**100.0**
Teaching Degree I	2002	11,123	22,208	33,331	3,855	2,152	6,007	39,338
		28.3	**56.5**	**84.7**	**9.8**	**5.5**	**15.3**	**100.0**
	2005	13,298	27,149	40,447	23,068	5,985	29,053	69,500
		19.1	**39.1**	**58.2**	**33.2**	**8.6**	**41.8**	**100.0**
Total	2002	11,964	22,358	34,322	3,855	2,152	6,007	40,329
		29.7	**55.4**	**85.1**	**9.6**	**5.3**	**14.9**	**100.0**
	2005	15,642	27,788	43,430	28,455	6,481	34,936	78,366
		20.0	**35.5**	**55.4**	**36.3**	**8.3**	**44.6**	**100.0**

Source: MEC/INEP, 2002 and 2005. *Higher Education Censuses*.

The path desired by public policies is that growth in DL provision in public IHEs exceeds that of private institutions but this trend has not yet been confirmed.

The 2006 Higher Education Census database for DL courses was not available at the time of writing and so information on these is more limited.

According to the 2006 Higher Education Census, when distance teaching degrees are examined by area, it is found that half of them were Teaching Degree I, encompassing education degrees, teaching diplomas and others. Around 30% were aimed at the fields of Mathematics and Natural Sciences, which have the greatest deficit of qualified teachers in primary schools. 72% of enrolments are for Teaching Degree I and

are much less significant in terms of Mathematics and Sciences (13.5%) despite the intention of policies to address this demand from schools. Numbers are even less significant in other areas (table 4.5).

TABLE 4.5 – Courses and enrolments on distance teaching degrees by area – Brazil, 2006

Area & course		Courses	New	Students Graduates	Enrolments on June 30
Teaching Degree I	Educational Administration	1	114	19	53
	Primary School Teacher Training	26	6,496	835	7,227
	Special Education Teacher Training	1	0	0	117
	Nursery School Teacher Training	1	732	0	1,073
	Nursery and Primary School Teacher Training	1	35,587	0	16,622
	Primary School Teacher Training	1	751	543	661
	Upper Secondary School Teacher Training	1	59	0	23
	Primary and Secondary School Teacher Training	1	87	37	46
	Bachelor's Degree	19	24,068	7,577	46,221
	Education	38	27,543	9,904	35,565
	Education sub-total	**90**	**95,437**	**18,915**	**107,608**
Mathematics and Natural Sciences	Teacher training in Biology	14	6,165	45	7,374
	Teacher training in Science	2	573	0	0
	Teacher training in Computer Science1	346	0	252	
	Teacher training in Physics	6	1,865	10	1,376
	Teacher training in Mathematics	24	12,359	109	10,582
	Teacher training in Chemistry	5	1,160	37	635
	Mathematics and Natural Sciences sub-total	**52**	**22,468**	**201**	**20,219**
Languages	Teacher training in Languages	10	8,478	0	5,767
	Teacher training in Portuguese language/ literature	4	1,845	89	1,913
	Teacher training in Portuguese language/ literature and modern foreign languages	4	3,429	0	5,802
	Languages sub-total	**18**	**13,752**	**89**	**13,482**
Human Sciences and Philosophy	Teacher training in Philosophy	2	569	0	531
	Teacher training in Geography	6	5,301	0	1,608
	Teacher training in History	5	4,126	0	5,929
	Teacher training in Sociology	1	15	0	4
	Human Sciences and Philosophy sub-total	**14**	**10,011**	**0**	**8,072**
Arts and Physical Education	Teacher training in Arts	1	45	17	11
	Teacher training in Physical Education	1	73	0	0
	Arts and Physical Education sub-total	**2**	**118**	**17**	**11**
	General Total	**176**	**141,786**	**19,222**	**149,392**

Source: MEC/INEP, 2006. *Higher Education Census.*

It can also be observed that the proportion of new students in relation to the total enrolments at the end of the first semester of 2006 is very high: 94.9%; this does not allow for any deduction on the current number of graduates.

Preliminary data from the 2007 Higher Education Census indicates that the number of distance teaching degrees increased to 176 and enrolments rose to 149,392 and, as has already been indicated by the analysis of Face-to-Face teaching degrees, it is highly symptomatic that the impact of this growth is already generating repercussions and closure of these courses. In the private sector, competition arising from the lower costs of DL enrolments cannot be matched by Face-to-Face courses, which are more expensive to maintain. Furthermore, the growth of free public DL courses will certainly restrict the market for private institutions in relation to Face-to-Face courses.

In view of the impact of this magnitude and considerable reservations expressed by wider society and academia in particular regarding the quality of distance learning, a series of questions must be asked.

In 2007, research coordinated by Dilvo Ristoff, the then director of the Department of Statistics and Evaluation of Higher education (DEAES) at INEP, entitled "A trajetória dos cursos de graduação a distância", seeks to provide data on this growing form of training. The study clarifies that DL students tend to be older, poorer and have darker skin than students on Face-to-Face teaching degrees. They are generally married, have children, lower education levels, work to support their family, have less Internet access, use computers less frequently and have a lower knowledge of foreign languages (Spanish and English). Nevertheless, these students' performance in 7 of the 13 areas of teaching degrees that were subject to the National Course Examination (ENADE) examinations in 2005 and 2006[18] was better than that of those on Face-to-Face courses, which constitutes proof of course quality (LOYOLLA, 2008). Data from the DEAES study can be seen in table 4.6.

18 The ENADE is one of the tools for evaluating the quality of degree courses.

The hypothesis to explain the better results of DL students, despite their disadvantages on entrance, is that they would have better conditions to study, without as many interruptions.

TABLE 4.6 – Performance of students in undergraduate Face-to-Face and distance courses, in ENADE – Brazil, 2005 and 2006

Area	Face-to-Face	Distance
Administration	**37.71**	**37.99**
Biology	**32.67**	**32.79**
Accounting	34.97	32.59
Social Sciences	**41.16**	**52.87**
Philosophy	32.5	30.36
Physics	**32.5**	**39.62**
Teacher Training (Diploma)	42.82	41.52
Geography	39.04	32.58
History	38.47	31.6
Languages	35.71	33.05
Mathematics	**31.68**	**34.16**
Education	**43.35**	**46.09**
Tourism	**46.34**	**52.26**

Source: MEC/INEP/DEAES. Data collected by Dilvo Ristoff.

However, this data must be analyzed with caution. It should be noted that most DL courses in table 4.7 had not yet generated graduates or the number was very low, which throws serious doubts on the comparison made in terms of reliability and, consequently, the statistical margin of error. Thus, the better results presented by the few DL students evaluated in these exams, compared to the volume of students leaving Face-to-Face courses, may be attributed to entry variables and not necessarily what was taught during the courses.

8. DL RELATED ISSUES

The legal apparatus set-up to provide initial support for the national teacher training system, designed fundamentally through integration of public institutions, in order to tackle the preponderance of private enterprise in higher education in Brazil, failed to prevent the accelerated and disordered growth of DL, in both the public and private sectors. On the contrary, it is possible to admit that in fact this growth resulted from the form of regulation.

TABLE 4.7 – Number of new students and graduates who took the ENADE exam in 2005 and 2006

	ENADE*				Distance Learning			
	No. of courses	New students	Graduates	Total	No. of courses	New students	Enrolments 30/6	Graduates
Biology	542	13,542	10,933	24,475	9	4,518	2,517	-
Physics	164	2,574	1,654	4,228	4	379	304	-
Mathematics	457	10,229	9,243	19,472	17	3,394	1,390	105
Chemistry	188	3,952	3,120	7,072	3	-	-	-
Education	891	23,318	26,179	49,497	20	4,574	10,501	2,810
Languages	1,287	23,330	22,870	46,200	11	4,016	1,964	36
Philosophy	113	2,363	2,056	4,419	2	208	149	-
Geography	321	5,668	6,075	11,743	5	919	316	-
History	408	9,537	9,075	18,612	5	1,653	903	-
Social Sciences	78	1,680	2,150	3,830	2	155	130	
Teacher Training College**	462	10,468	10,598	21,066	19	24,068	46,221	7,577
Administration**	1,475	90,916	62,593	153,509	50	28,329	13,742	717
Accounting**	811	23,907	19,040	42,947	11	6,169	944	-
Tourism**	397	7,449	9,500	16,949	3	537	1,209	196

* Source: ENADE 2005 and 2006 – Number of students present for examinations.
** The data from distance courses in administration, accounting, tourism and teacher training college was obtained from the 2006 Higher Education Census, when these courses were incorporated in the ENADE exams.

The political urgency of setting up a new system that reverts the *status quo* of unequal access to higher education in the short term, seems not to match the time required for policies of this scale and scope to succeed in expanding, based on the maturation of experiences, creation of innovative responses to a new and changing reality to be faced and constructing a permanent and solid infrastructure that guarantees the quality of services provided.

However, there is evidence of policy fragmentation in higher education for teacher training in the context of central government, as SESu, the department traditionally charged with formulating and ordering policy, and the Secretariat for Primary and Secondary Education came to have a secondary role in this new arrangement.

Additionally, there are numerous indicators that the multiplication of consortia and centres for distance teaching degrees is taking place without a political-pedagogical design for teacher development more closely contextualized with the national and local sphere being developed and shared and without basic operational structures functioning adequately.

As Barreto (2008) argues in an often circular discourse, the UAB site sets off from the centres and returns to them, always increasing in number. The programme architecture simply points to the goals established in the National Education Plan, as far as the number of higher education places is concerned. The pedagogical foundation of the proposal is not clear, being limited to references to DL methodology so that the texts are only concerned with the operational dimension. As pointed out by Dourado (2008) and in view of the above, the centrality of the political-pedagogical design must be established and greater attention given to the actual conditions for technological apparatus and its usage and considered directly responsible for the quality of the teaching offered or lack thereof.

Research into the problems and challenges posed by the expansion of DL and the new importance it has gained in Brazil is scarce, which is understandable in some ways, given its recent appearance. However, this is a field full of ideologies and charged with polarized radicalizations. On one hand, there are authors who defend greater access to education and better knowledge of ICTs as factors leading to greater democracy and there are institutions engaged in large scale self-serving investments. On the other hand, there are many who reject the use of ICTs as substitutes for the human relations necessarily involved in the training process and they rebel against the globalizing influences of the trend towards adopting such technology. In view of the need to overcome these dichotomies, it is important to support studies which approach issues relating to managing this kind of training in Brazil and the integration of networks and DL in Institutional Development Plans of IHEs that bring empirical evidence on the functioning of specific aspects of courses within institutions and which evaluate the impact of this form of teaching, in the light of effective professional development.

Although the norms that regulate expansion of DL insist on integration with IHE's Institutional Development Plans, the trend towards creating a parallel and independent structure for the assembly and operation of these courses seems to continue to be the rule. Brazil has still not broken with the tradition of segregating this form of teaching from Face-to-Face courses, which constitute the modus operandi through which universities have always represented their operations.

From the point of view of course functioning, one can observe that special projects for in-service teacher training were generally closely accompanied and underwent external evaluation. For the most part, teachers evaluated this form of teaching positively and the gains identified seem to be representative. However, when implementing a permanent DL policy in conditions of equal status with Face-to-Face courses, one must consider that the Federal government is not in a position to monitor, supervise and inspect the courses created. Not even the 20% of subjects taught at a distance, which is the maximum that can be introduced into Face-to-Face courses by legislation, have been appropriately monitored.

As virtual teaching alters not only institutional logic but also the very nature of teaching, it is important to be more attentive of the teacher's role which, in principle, is expanded in DL. The experiences at the University of Mato Grosso in the early days, led to consolidation of a multidisciplinary team which was central to their teaching degrees. Yet the multidisciplinary team mentioned in the DL regulations refers to teachers, tutors and specialists. Of course DL specialists are necessary to make the system operate and appropriate for the specifics of distance learning. However, there are no indicators of special attention to integrate teachers in the context of the teaching degrees themselves, preparing and implementing a pedagogical design, producing and revising of a system of teaching material and monitoring tutors and students. A DL centre cannot be reduced to a minimal team of operators, even if they are themselves teachers, as it is important to have a more collective involvement of teachers to monitor the learning and teaching process and to resolve the difficulties that arise.

In turn, tutoring has been one of the most vulnerable aspects in DL to date. An investigation of several calls for proposals to promote DL courses carried out by Barreto (2008) shows the precarious state of their activities. According to the author, the tutor is seen as the weakest link in a chain of simplifications, an unfolding of the process of offloading training and teaching, "it is impossible to escape from the emphasis placed on so-called 'self sufficient' materials and technology for their production and circulation" (BARRETO, 2008, p 925).

The FNDE funds planned to cover the costs, mostly in the form of scholarships to supplement the salaries of teachers predominantly from State or municipal networks, are certainly not compatible with assembling a regular education system, which requires permanent financing to ensure stability of staff. The precarious state that is being expanded makes the link tutors have with the programme extremely weak and do not allow for systematic investment in in-service improvement.

One should also consider trainee teachers. In the special programs for in-service teacher training, work placements worked well, in that the schools where trainee teachers worked were the natural location to bring theory and practice together. Once the distance undergraduate courses become regulated, the tendency will be for them to increasingly receive students leaving upper secondary school, as is the case with other teaching degrees. Greater attention should certainly be given to the requirement for teaching placements in schools in this new format.

Although expressly encouraging the expansion of public higher education, central government policies have opened up new possibilities for the action of private IHEs and new market niches for companies that operate in the field with predominantly market-driven purposes by conferring a new regulatory benchmark on distance learning and making DL courses equivalent to Face-to-Face courses. Despite the investment necessary to create and maintain this form of teaching, the cost per student is lower. Initial investments, however, are quite high, considering the infrastructure specified which does not seem to be duly dealt with.

The greatest cause for concern amongst the education community in view of this scenario is that insertion of a form of teacher training which is offered in an even more precarious way than Face-to-Face courses in the proposed format, instead of contributing to a solution to the crisis within teacher training, DL may actually make the training processes more fragile and destabilize the considerable experience gained in training. Despite due criticism, distance learning requires alternatives that contribute to its strengthening and consolidation.

5. THE CURRICULA OF INSTITUTIONS THAT TRAIN PRIMARY AND LOWER SECONDARY SCHOOL TEACHERS

In view of the current challenges of primary and secondary education and the problems that teacher training has been facing and while seeking to comprehend these characteristics, we will present the main findings of the research training "Teachers for Primary and Lower Secondary Education: teacher training institutions and their curricula". This was undertaken in 2008 by the Educational Research Department at the Carlos Chagas Foundation, with support from the Vitor Civita Foundation and coordinated by researchers Bernadete A. Gatti and Marina R. Nunes (2008).

While using a representative sample, the study analysed the curricular structure and contents of 165 Face-to-Face courses at higher education institutes in Brazil that promote pre-service teacher training in the fields of Education, Portuguese, Mathematics and Biological Sciences. The courses were distributed as follows: 71 in Education, 32 teaching degrees in Portuguese, 31 teaching degrees in Mathematics and 31 teaching degress in Biological Sciences.

The course sample took the following into consideration: regions of Brazil, organisational structures of Institutes of Higher Education (IHEs) and their organizational category, with data collection by means of direct assistance from the institutions, which provided the data requested and through Internet-based research of course curricular structure.

The nature of the sample will be described for each of the four areas investigated, followed by a succinct analysis of what the course

curriculum and contents comprise. Finally, some general conclusions related to the study will be outlined.

1. TEACHING DEGREES IN EDUCATION

Three thousand, five hundred and thirteen subjects were listed in the pedagogical design of the 71 Education courses,: 3,107 were compulsory[19] and 406 optional. A grouping process was applied that clearly demonstrated what was proposed for pre-service teacher training in the curricula of the IHEs investigated for the purposes of the study. In addition to an analysis of curriculum structure, 1,498 subject content lists, which are part of the aforementioned curricula, were also analysed. The subject grouping was initially orientated by the National Curricular Guidelines for Education course (BRAZIL. MEC/CNE, 2006) and encompasses three main pillars: 1) basic studies; 2) further and diversified study and 3) integrated studies. However, it was necessary to specify some elements that appear in these pillars to better differentiate curricular structures, which led to the construction and use of the following analysis categories:

1. Theoretical foundations in education – including subjects that offer students a theoretical basis and arising from different areas of knowledge: Anthropology, History, Psychology, Sociology and Statistics, amongst others and their equivalents in the field of education. Due to closer links with the field of education, general teaching skills were identified in a sub-group that will be analysed separately within this category.
2. Knowledge relating to educational systems includes pedagogical knowledge which seeks to provide broad training within the sphere of influence of teachers and other education professionals. The subjects refer to:

19 This calculation excluded work placements because although these are compulsory components with a predetermined workload defined in the National Curricular Guidelines, it was found that the hours are registered as part of the curriculum structure and generally there is no specification of how they are filled.As a result of their specificity and the homogeneous and indiscriminate way the hours are recorded, the work placements were not considered when calculating proportions for subject analysis.

- teaching structure and operations: the structure and operation of primary and secondary education; financing primary and secondary education in Brazil; foundations of education management; legislation on primary and secondary education and educational planning and policies;
- the curriculum: curriculum policies and practices; curriculum of primary and secondary education I; curriculum and evaluation; curriculum and culture; evaluating learning; curriculum and political-pedagogical design and preparing pedagogical projects;
- school management: coordinating work at school; the director's role; managing a school unit; managing and coordinating pedagogical work in primary and lower secondary education (supervision, administration and orientation) and aspects of supervision and organization of pedagogical work;
- the teaching profession: teaching and teachers' identity; professional ethics and teacher training.

3. Knowledge related to specific professional training – bringing together subjects that provide teaching tools:
   - curricular content in primary education: literacy training and early reading skills, Art and Education, Logical-Mathematical knowledge, Mathematical Education and reading and writing in Portuguese;
   - specific methodology and teaching practices: content and methodology in Portuguese, content and methodology in Mathematics, teaching History, foundations and methodology of teaching Natural Sciences, foundations and methodology of the Portuguese language in Primary Education, theoretical and methodological foundations in teaching Geography, Portuguese language: content and methodology, literacy training and early reading skills, methodology for teaching Arts and Physical Education, teaching practice in Portuguese language and research in Education through teaching practice;

- knowledge related to technology: managing educational media and ICT applied to education and technological resources for education while focusing on use.

4. Knowledge related to types and levels of specific teaching – encompassing subjects that approach areas of action together with specific segments:
    - nursery schooling: foundations of nursery school education, teaching Mathematics at nursery school and the history of kindergarten education;
    - special needs education: development and learning: specificities of those with special needs, special education and inclusion and concepts and methodology for teaching students with multiple deficiencies;
    - education of youths and adults (EYA): adult education in Brazil: history and politics, foundations and methodology for teaching youths and adults and starting literacy training for youths and adults;
    - education outside of schools: contents for training teachers in tertiary sector education in non-school institutions.
5. Other knowledge – subjects that expand the teacher's repertoire, such as transverse themes, new technologies and religion, etc.
6. Research and final paper (FP) – includes subjects that cover research methodology and preparing final papers, including their supervision.
7. Complementary activities – refer to integration recommended by National Curricular Guidelines: scientific-cultural activities, complementary activities, independent studies and cultural seminars, etc.

A comment should be made on work placements: the pedagogical projects and course contents do not provide information on how they are performed, supervised and monitored. The objectives, requirements, forms of validation, documentation, monitoring and agreements with

schools in the network are not clear. This lack of IHE projects and syllabi may signal that work placements are either considered an activity apart from the curriculum, which is a problem in so far as they should integrate with training topics and aspects of education and teaching or are considered a mere formality. Furthermore, widely disseminated observations about the operation of education courses allow us to suggest that most work placements in schools involve observation activities and do not constitute effective practice for students.

1.1. Data analysis

If one adds the 3,107 compulsory subjects to the list of 406 optional ones, the combination possibilities are considerable. As the minimum number of hours prescribed for an Education course is 3,200, with 300 hours allocated to a work placement, one can infer that the curriculum effectively implemented in these courses is fragmented, with a highly dispersed subject curriculum. This is confirmed when one examines the pedagogical design of each course, showing a sequential list of topics per semester and which generally do not have any explicit connections between them.

When considering the total sample, there is near-equivalence between the proportion of subjects that provide a theoretical background based on different areas of knowledge and those linked to more specific professional teacher training (table 5.1). However, an analysis of the contents indicates that for subjects related to knowledge of specific professional teacher training, there are also foci which seek to provide a theoretical foundation for knowledge on several areas but barely exploit their implications for educational practices. The contents frequently express concern with justifications with the 'why' of teaching, which can cause the contents to be transformed into mere recommendations. Nevertheless, there are only very incipient references to what and how to teach. Many contents use generic phrases that make it impossible to identify specific content. Some institutions propose the study of teaching content associated with methodologies but this is in a

panoramic and superficial manner. Thus, even in the 28% of subjects that may be classified as focusing on specific professional training, the content lists suggest that this training is still inadequate. In fact, the complex mediation between theory and practice does not seem to occur appropriately, as suggested by countless studies (ANDRÉ, 2002).

Amongst the subjects dedicated to nursery school teaching and specific kinds of teaching (youths and adults, special needs, etc), the content lists accentuate more generic or descriptive approaches to educational issues, as well as making very few references to associated practices. A few courses promote further training in educational types, by providing optional courses or topics and special projects but it is possible to detect a predominance of elements focusing on teaching practices as a construct integrated with background knowledge. Above all, the content lists show greater concern with offering supporting sociological and psychological data that may contribute to a greater understanding and contextualisation of the problems of working in these different teaching forms but they stop there. When the group of subjects dedicated to the foundations of education are added to the varied and general subjects that comprise the group which comprises other knowledge and complementary activity, almost 40% of the entire curriculum is covered. In addition, it is far from clear what qualifies as complementary activity in curriculum design. When complementing this scenario with optional subjects, most having a generic training perspective, it is possible to infer that the section of the curriculum that develops specific professional skills for teaching in schools and classrooms is greatly reduced. As proposed in legal documentation and discussions in the field, the relationship between theory and practice is also compromised by this formative basis.

These considerations are further maintained when the workload of subject is considered and not simply the quantity. In this way the proportion of hours dedicated to specific professional training is 30%, with 70% for the remaining topics. A caveat should again be made here: that the professional training subjects themselves tend to approach issues in a generic way, before integrating with educational practices.

Table 5.1 shows the curricular sub-categories under analysis in greater detail. Amongst the subjects that comprise the Education Theories category (26% of the total), only 3.4% refer to general teaching. The group of specific subjects, methodology and teaching practice ("how" to teach) represents 20.7% of the total and subjects aimed at content to be taught in primary schools is only 7.5%. These indicators make it clear that the specific content for subjects taught in the classroom are not the focus for initial teacher training programmes, which leads one to believe what Bernstein (1984) stated about female teachers' role in primary schooling in the early 20th century. First and foremost, it was expected that this type of schooling would allow for the socialisation of children, based on a set of values and basic consensual knowledge. There was little emphasis on issues such as the effective learning of socially valued content necessary for social life and future training and work.

TABLE 5.1 – Compulsory subjects, by analysis category and sub-category

Categories		N	%
Theoretical foundations of education	Theoretical foundations of education	701	22.6
	General teaching	106	3.4
	Sub-total	807	26.0
Knowledge related to educational systems	Educational systems	165	5.3
	Curriculum	158	5.1
	School management	140	4.5
	Teaching tasks	19	0.6
	Sub-total	482	15.5
Knowledge related to specific professional training	Nursery, primary and lower secondary school curriculum content	232	7.5
	Specific subjects, methodologies and teaching practice	643	20.7
	Technology	22	0.7
	Sub-total	897	28.9
Knowledge related to kinds and levels of teaching	Special needs	118	3.8
	EYA	49	1.6
	Kindergarten	165	5.3
	Non-school contexts	16	0.5
	Sub-total	348	11.2
Other knowledge		173	5.6
Research and final papers		217	7.0
Complementary activities		183	5.9
Total		3,107	100.0

Regarding the group of knowledge relating to educational systems, a balance was found across different sub-categories, with the exception of those relating to teaching (only 0.6%). Amongst those comprising knowledge related to kinds and levels of teaching, the low percentage of curricular attention to nursery schooling (5.3%) and special education (3.8) are noteworthy. Some institutions create more space for one or another of these training pathways within the minimum workload that the course must cover.

When observing the set of optional subjects shown in table 5.2, there is a propensity of courses offering subjects related to the theoretical foundations of education (24%), which encompass the philosophy and history of education, biological foundations of education and anthropology etc. A small percentage goes into nursery schooling, EYA, special education or even knowledge related to teaching primary school at any depth.

Around 25% of optional subjects fall under other subjects and cover a very wide variety of topics. In principle, many of them could be interpreted as representing new elements introduced into the curriculum to meet the specific demands of contemporary societies and, in general, are related to the transverse themes recommended by National Curricular Parameters (BRAZIL. MEC/SEF, 1997). They relate to approaches on cultural difference; the less wealthy segments of society and high risk groups who had limited access to schooling until recently. They exploit issues pertaining to preservation of the environment and health. There are others that seek to cover the educational challenges posed by the information technology era.

The research activities, final paper and 'complementary activities' were conceived through national curricular guidelines, such as integration resources which on one hand made it possible to draw closer links between research into empirical knowledge of schools and reflections on this and, on the other, to offer students opportunities to expand their cultural horizons. However , it is impossible to determine anything about the research activities based on the material investigated, beyond the fact that they represent a miniscule percentage of the curricula. As for complementary activities, it is not at all clear what they entail and how they are dealt with.

TABLE 5.2 – Optional subjects by analysis category and sub-category

Categories		N	%
Theoretical foundations of education	Theoretical foundations of education	93	22.9
	General subjects	3	0.7
	Sub-total	96	23.6
Knowledge related to educational systems	Educational systems	20	4.9
	Curriculum	14	3.4
	School management	23	5.7
	The job of teaching	8	2.0
	Sub-total	65	16.0
Knowledge related to specific professional training	Content of nursery, primary and lower secondary school subjects	26	6.4
	Specific subjects, methodologies and teaching practice	24	5.9
	Technology	13	3.2
	Sub-total	63	15.5
Knowledge related to modes and levels of education	Special education	16	3.9
	EYA	17	4.2
	Kindergarten	14	3.4
	Non-school contexts	4	1.0
	Sub-total	51	12.6
Other knowledge		101	24.9
Research and final paper		9	2.2
Complementary activities		21	5.2
Total		**406**	**100.0**

Regarding the relative weighting of groups of subjects, the following points should be noted:

- with respect to regions, slightly higher percentages of "theoretical foundations of education" were found in the North and Northeast and slightly higher percentages of "knowledge related to modes and levels of education" in the South and Southeast;
- regarding academic organisation of IHEs, universities show the highest percentage of subjects related to theoretical foundations of education (28%), whilst integrated or isolated colleges place more emphasis on subjects involving specific professional training;
- with respect to administrative category, Federal and State universities tend to value theoretical foundations but Federal

universities are equally concerned with specific professional training. However these preferences are inverted among the sparse number of municipal institutes.

1.2. Further syllabi analysis

An analysis of all 1,498 syllabi revealed that there is no common standard for their preparation and only a list of topics appears in three quarters of them. The wording is generally vague and does not facilitate a clear understanding of the themes proposed, nor does it allow for an understanding of the explicit or underlying objectives. The specific content that must be taught to nursery and primary school students, as well as education for youths and adults, are circumscribed to the area of literacy training, Portuguese, Mathematics, History, Geography, Arts, Sciences and Physical Education and, in principle, the syllabus would need to take into account the knowledge and values that should be present at each level or mode of teaching, which is not the case.

Amongst public universities, none of those studied showed other subjects for the substantial content of each area, not even Portuguese and Mathematics. Such content remains implicit in the subjects relating to teaching methodology or it is presumed that they are already known to students taking the training courses. The treatment given to specific content to be taught in primary and lower secondary schools can be identified in a few syllabi. It has been observed that private institutions generally offer some Portuguese language content, which is separate from teaching methodology. As for Mathematics, this is studied separately in only 18% of courses.

Reading the Portuguese language syllabi at a private IHE enables one to identify that there are two forms of presenting this subject: one, in which content refers to the specific field, without including content which should be taught by future teachers, and the other, the content which refers directly to what to teach in primary and secondary schools. Examples of the former group include Portuguese language and linguistics, which relate to further knowledge or which suggest

preparation of future teachers for language use, independent of the task of teaching. An example of the second group includes literacy training and methodology for teaching Portuguese. Without doubt, both groups of subjects collaborate towards constructing teaching skills, if the methodology for teaching Portuguese language is linked to specific content with the depth and specificity appropriate for this field. Nevertheless, it is still possible to observe the trend towards proposing theoretical depth without the corresponding professional praxis at this level.

The other subjects: History, Geography, Arts, Sciences and Physical Education appear to be predominantly associated with the subjects comprised in teaching methodology. Examination of the syllabi also raises the issue of understanding what institutions consider to be basic content to be taught in primary school, which leads one to question if this knowledge is indeed recommended in school systems. According to the syllabi where the issue arises (and there are very few of these) the following are considered basic content:

- History: notions of time, permanence and change, historical fact, historical subjectivity and social relations;
- Geography: space, society and nature, location, environmental study and map reading;
- Sciences: content relating to the history of science or epistemological and methodological issues and not topics that should be taught to primary school students. These are: the relationship between science and society, relationship between science and technology, epistemology and science teaching, including observation and experimentation;
- Mathematics: numerals, the four basic operations, fractions and problem-solving;
- Portuguese language: interpretation of texts, grammatical and lexical correction, difficulties in oral and written expression, discourse types and the foundations of linguistics.

The workload and syllabus for subjects associated with Sciences, Geography, History, Physical Education and even Maths suggest that the few courses that offer them draw an overview of the specific content without the necessary depth for contextualisation of forms of construction of a given concept in the field, as well as problematizing meanings that can be constructed by students. Furthermore, they fail to offer an opportunity for further study so teachers can propose challenges capable of establishing links between school knowledge and students' daily experiences.

The lack of sufficient preparation for future teachers to teach traditional school subjects, even at an introductory level, requires a deep reflection on the appropriacy of multidisciplinary training and interdisciplinary perspective. The subjects relating to teaching methods or knowledge of teaching are identified in different forms: content and methodology, methodology for teaching, foundations and methodology, theory and methodology, teaching and methodology, theoretical methodological foundations of teaching, methodology and practice of teaching.

In the nomenclature of subjects, the word "content" seems disassociated from teaching methods and, in the sample studied, figures on courses at only six institutions. In turn, there is frequent use of terms which give emphasis to the theoretical foundation of practices, as is the case of foundations and theories associated with methodologies. The syllabi address theoretical reflection without being related to pedagogical actions. Institutions which propose study of content associated with methodologies do so in a superficial and panoramic way. With specific regards to teaching, there are subjects entitled 'teaching', others identified as 'general teaching' and subjects identified as teaching Portuguese, Mathematics, History, Geography, Arts, Sciences and Physical Education (together or in sub-groups).

The syllabi for subjects identified merely by the word 'teaching' suggest that this is a field of foundations, which proposes themes associated with a philosophical, psychological or sociological approach to education. Discussions held in the 1980s about the distinction

between fundamental and instrumental teaching, which criticises a technical interpretation of teaching, is clearly suggested in more syllabi, as they reveal a concern with making the importance of the theoretical perspective on practical construction of a teaching methodology explicit. It is often observed that the subject 'teaching' appears as Teaching I and Teaching II. In the former, pedagogical and educational theories are studied, alongside historical overviews of teaching. In the latter are studies related to lesson planning, strategies for teaching and evaluation. Once again, there is a predominance of theoretical discourse without implications for possible use in school education.

In just under half the syllabi examined, there is a subject with the general title of 'teaching', covering general theories of education and teaching. In 18% of courses, there is no teaching subject, under any denomination. In only one course did analysis reveal subjects identified as "teaching methodology", separate from general teaching. In this course, such subjects take a clearly vocational perspective.

Regarding the education of children aged 0 to 6 years old and for youths and adults, first of all the syllabi suggest an attempt to adapt traditional, historical or theoretical knowledge, rather than an effort to incorporate new ideas.

With regards to special education, LIBRAS (Brazilian sign language) should be highlighted as a new content to be taught, and is a subject present in all courses of this sample because of its compulsory nature (Decree Nº 5.626, of 22nd September, 2005).

Nursery schooling generally appears as a subject in 82% of the institutions studied and all State universities offer this. Amongst the Federal universities, 29% fail to explicitly include nursery education in the subjects that comprise primary education. In private institutions, 79% have subjects which focus on teaching this level of education. Subjects relating to nursery education vary in nomenclature and syllabi; they are entitled Foundations of Nursery Education; Methodology and Practice of Nursery Education; Organisation of Pedagogical Work in

Nursery Education; Teaching Practice and Construction of Knowledge in Nursery Education; Foundations of Nursery Education and Pedagogical Proposals. Most courses have only one subject per semester in this area. In all institutions that offer such subjects, their approaches can be considered sociological, political or psychological and, much less frequently, can be divided into school practices or kindergarten experiences. In the set of subjects relating to contemporary demands, we find those that seek to adhere to the transverse themes suggested in the National Curricular Parameters: Ethics, Sexual Education, Environmental Education and subjects which focus on the study of new technologies and digital inclusion of teachers and the general population, although it is important to remember the dispersal of these subjects amongst courses. Generally, subjects in this set are highly varied and do not form a pattern.

All the courses offer a subject identified as 'Art and Education' or 'Education and Art' as this is a compulsory curricular component in primary and secondary schools. A subject was found for each of the artistic forms in only one of the Federal universities: Dance, Theatre, Visual Arts and Music.

The list of optional subjects is long and varied. The following are representative: Youth and Education; Notions of Law in Education and Eco-Pedagogy. In a handful of curricula, it is possible to find centres for further study or pathways for special training. There are pedagogical designs that seek to express values, above all in these groupings. Certain institutions place more emphasis on special education issues, some on art education, whilst others prefer personal experience, which is generically approached.

Finally, an imbalance is noted in the ratio of theory to practice, in favour of dealing with foundations and theory. Schools are almost entirely absent from syllabi, which leads one to imagine more abstract training, far removed from the concrete context in which the professional teacher will operate, given that in the syllabi examined, explicit mention of the word 'school' was found in only 8%.

2. TEACHING DEGREES IN LANGUAGES: PORTUGUESE LANGUAGE

In the curricula for the 32 Portuguese courses, 1,397 subjects were listed: 1,207 are compulsory[20] and 190 optional. They were grouped according to basic categories for an analysis used for all courses and while respecting the specificities of the field:

1. Theoretical foundations – similar to those for degrees in Education.
2. Knowledge relating to educational systems – as already described in detail.
3. Specific knowledge in the area – bringing together specific content from the field which is greater knowledge for those teaching Portuguese. Examples include diachronic studies of Portuguese, Portuguese and syntax, Portuguese semantics, phonetics, linguistics and textual theories.
4. Specific knowledge for teaching – including subjects providing tools for these professionals to function as teachers; comprising:
    - content from the primary and secondary school curriculum – area-specific knowledge, which is necessary for teachers. Examples: foundations of literacy training, learning/teaching Portuguese, linguistics applied to teaching Portuguese and infant and juvenile literature;
    - specific teaching methodologies and practices, including: methodology for Portuguese language, workshops on teaching literature and the practice of knowledge: text production in the classroom, or
    - knowledge relating to technology with a focus on use and incorporating: technology applied to education and technological resources for teaching Portuguese.
5. Knowledge relating to specific modes and levels of teaching – uniting subjects that refer to areas of activity in given segments:

20 As with the Education courses, work placements were excluded from this calculation.

- special education, subjects such as: foundations of special education, LIBRAS: Brazilian sign language (for Languages there was no specific subject on teaching youths and adults, which is another sub-category of this group.)

6. Other knowledge – subjects that expand teachers' repertoire, such as transversal themes, new technologies and religion etc.
7. Research and final paper – encompassing subjects that cover research methodology and preparation of final papers and including their supervision.
8. Complementary activities – referring to integration, recommended by National Curricular Guidelines: scientific-cultural activities, complementary activities, independent studies and cultural seminars, etc.

2.1. Data analysis

An analysis of the curricula for Portuguese courses shows that most compulsory subjects taught by IHEs are related to specific areas of knowledge which correspond to 51.6% of the total. Of the other categories, 15.4% relate to other knowledge, 10.5% are specific to teaching, 8.5% refer to theoretical foundations and 12.7% are divided similarly between knowledge relating to educational systems, research, final papers and complementary activities. Only 1.2% of the subjects cover knowledge relating to specific modes and levels of education (GATTI; NUNES, 2008, v. 2).

According to table 5.3, which shows the distribution of subjects by workload, it is observed that most subjects also fit the category of specific area of knowledge (51.4%) and other knowledge (15.2%), which corresponds to approximately two thirds of the training given.

Table 5.3 also shows that of all the subjects in the category of specific knowledge for teaching, 50.4% are aimed at content for primary and secondary education, 47.2% at specific teaching methodologies and teaching practice and only 2.4% at knowledge relating to technology.

With regard to educational systems, which represent a very small portion of subjects offered (4.3%), special mention should be made to the insignificant percentage of subjects relating to school management and the job of teaching.

TABLE 5.3 – Total hours for compulsory subjects by category, according to analysis categories and combining all the courses in the sample: Portuguese language teaching degree

Categories		Workload		Subjects	
		Hours	%	N	%
Theoretical foundations	Foundations	4,950	6.2	81	6.7
	General teaching	1,296	1.6	21	1.7
	Sub-total	6,246	7.8	102	8.5
Knowledge relating to educational systems	Structure and functioning	1,490	1.9	25	2.1
	Curriculum	1,256	1.6	20	1.7
	School management	236	0.3	3	0.2
	The job of teaching	288	0.4	4	0.3
	Sub-total	3,270	4.1	52	4.3
Specific area of knowledge		41,031	51.4	623	51.6
Specific knowledge for teaching	Content focusing on primary and secondary schools	4,179	5.2	64	5.3
	Specific methodology and teaching practices	4,531	5.7	60	5.0
	Knowledge relating to technology	188	0.2	3	0.2
	Sub-total	8,898	11.1	127	10.5
Knowledge relating to specific modes and levels	Special education	800	1.0	15	1.2
	EYA	0	0.0	0	0.0
	Sub-total	800	1.0	15	1.2
Other knowledge		12,184	15.2	186	15.4
Research and final paper		2,992	3.7	49	4.1
Complementary activities		4,531	5.7	53	4.4
Total		79,952	100.0	1,207	100.0

With respect to the distribution of optional subjects by analysis categories, table 5.4 shows that most are concentrated in specific knowledge of the field and other knowledge (42.1% each). Contemporary Portuguese novels and Idioms and Conventionality, are some of the optional subjects in specific content. The following subjects are found in other knowledge, in addition to those aimed at foreign language: Culture and institutions of Anglophone countries, Brazilian folklore,

phonetics and phonology of the French language and interaction in the foreign language classroom. The concentration of subjects in specific specialised training in the area is considerable, both with regard to compulsory and optional subjects.

TABLE 5.4 – Optional subjects by analysis categories and sub-categories: Portuguese teaching degree

Categories		N	%
Theoretical foundations	Foundations	16	8.4
	Sub-total	16	8.4
Knowledge relating to educational systems	Structure and functioning	1	0.5
	Curriculum	1	0.5
	Sub-total	2	1.1
Specific areas of knowledge		80	42.1
Specific knowledge for teaching	Curricular content for primary and secondary education	8	4.2
	Specific methodology and teaching practices	2	1.1
	Sub-total	10	5.3
Knowledge relating to modes and levels of education	Special education	1	0.5
	Sub-total	1	0.5
Other knowledge		80	42.1
Research and final paper		1	0.5
Total		190	100.0

When relating the distribution of subjects to regions in the country, it was found that: the Midwest shows the most significant differences in relation to the others, as 12.6% of subjects are linked to 'curriculum', whilst the national average is below 2% and the region has 22.5% of subjects relating to other knowledge. This percentage is only 15.4% elsewhere. The relative weighting of specific training subjects in the area also reduces in this region: whilst the percentage for this category was 51.6% across all regions, even though the subjects linked to the field of the curriculum could contribute to reconstituting this total from another angle. Although the North region also has a similar profile to the Midwest with regard to other knowledge (22.7%), the share of specific training content in the area and educational systems was near

the national average. Finally, it was observed that in the Northeast there were a slightly higher percentage of theoretical foundation subjects than in other regions (12.5%). As for the institutions' administrative category, some differences were found, especially in relation to State institutions: if the national percentage of subjects aimed at specific knowledge of the area is 51.6%, it rose to 69.4% in State IHEs, confirming the subject-specific vocation that many of these institutions have shared in recent years. It should also be noted that 1.7% of subjects offered in the State network is aimed at other knowledge, whilst this percentage was 20.1% in Federal universities (GATTI; NUNES, 2008, v. 2).

2.2. Further syllabi analysis

As National Curricular Guidelines for these courses are broad and curriculum structure is the responsibility of each institution, it is important to assess what is proposed in the composition of IHE curricula, checking research areas, similarities, differences, relevance and adequacy for professional demands.

Examination of the material available indicated that there are documents showing a discourse more attuned to the guidelines of public policies, considering the year 2001 as a starting point, which is the date when the resolution regulating workload for Primary and Secondary School Teacher Training was issued. It was also observed, however, that Pedagogical Design is not always linked to the curricular matrix and specific subject programmes, which brought about a separation in relation to official guidance. This includes:

- a choice of subjects and/or syllabi with no link to the pedagogical design presented;
- bibliography out of tune with theoretical lines quoted or recognisable in syllabi and/or out of step with supposed National Curricular Parameters;
- discrepancy between workloads adopted and those supposedly necessary for professional training in specific fields of work;
- recurrence of distinct subject content.

From a qualitative point of view, evaluation resulted in the following considerations:

1. A clear focus was identified in only 17% of the courses, specifying the profile of a trainee teacher and curricular options; both links and coherence between project, curricular matrix and programmes can be seen. Special emphasis is given to linguistics and literature, with concern for the cultural standard form of language, made explicit as an objective, and with relation to classical studies, which demonstrates coherence with official guidelines; there is an explicit intention of offering a teaching methodological course coherent with official guidance. With consistent and coherent bibliographical support, the syllabi reveal that the guiding principle of linguistic studies is founded in contemporary linguistic theory and encompasses, amongst other points, the study of discourse types, issues relating to oral language and style, as well as the study of issues pertaining to linguistic diversity. The literature section encompasses the programme contents of literary theory, Portuguese and Brazilian literature and infant and juvenile literature. Teaching practice highlights the issue of evaluation; there are subjects of a theoretical-practical nature in the form of workshops, which have clear proposals: they not only seek to practice writing but also teaching.

2. In the other courses, which are the the vast majority, qualitative analysis detected an imprecise focus, which was sometimes contradictory, with issues around the nomenclature of subjects and their respective syllabi, and in the syllabi's relationship with bibliographies. Methodology and teaching practice subjects refer to generalities, without specific approaches, such as the process of evaluation, emphasised in the PCNs or infant and juvenile literature. These absences may lead one to suppose that guidelines are more present at a rhetoric level rather than in pedagogical action. In the case of the long lists of optional subjects, core issues for those who will teach are relegated to second place, as there is no guarantee of training for all of these. Certain subjects

appear as integrative projects or seminars which are repeated in several semesters but the content is not duly defined, making proposals seem vague. Finally, in some cases a contradiction was observed between pedagogical design, which highlights certain knowledge and practices as being essential and workload, which does not confirm their central importance. Imbalances were also noted amongst courses between training in the field, which was not always clearly defined, and preparation for teaching that was not always specified in the course design and description. Finally, the initial statement about the form of study defined as "Face-to-Face" is maintained, as the specification of some subjects indicates blended learning. With a vast list of subjects and absence of a clear formative axis, it is assumed that the training of these future teachers is pulverised.

3. Methodology and teaching practice subjects refer to generalities, without a specific approach to the process of evaluating infant and juvenile literature for example.
4. Absence of coherence regarding theoretical subjects aimed at teacher training. There are very few theoretical subjects in the educational area (methodology, psychology, philosophy of education etc) present in the Language curricula.
5. Restrictive choice of foci. Most emphasise specific training, especially in certain linguistical areas.
6. Dispersal of the provision of subjects.
7. Incipient treatment of issues relating to inclusive education.

3. TEACHING DEGREES IN MATHEMATICS

In the curricular structures of Mathematics courses, 1,228 subjects were listed: 1,128 were compulsory and 100 optional. The subjects were grouped according to basic categories used for analysis of the areas and while respecting specialities in the field. Categories 1 and 2 have been analysed above. Category 3 (knowledge of a specific area)

combines disciplinary content which area specific to the area of Mathematics, or, in other words, a higher level of knowledge to work as a Mathematician. The following can be given as examples: Modern Algebra, Line Analysis, Differential Calculus, Ordinary Differential Equations, Differential Geometry, Introduction to Logic, Infinite Series and Group Theory. Category 4 (specific knowledge for teaching) encompasses subjects that provide tools for acting as a Mathematics teacher. It comprises:

- content from primary and secondary school curriculum – a specific area of knowledge necessary for a teacher. Examples: Combinatorial Analysis, Basic Statistics, Foundations of Algebra, Geometry, Probability and Numeric Sequences;
- specific teaching methodologies and practices, including: Teaching Mathematics, Tools for teaching Mathematics and Teaching Mathematics through problems;
- knowledge related to technology, focusing on use and incorporating: Application of Information Technology to teaching Mathematics, Computers for teaching, Information and communication technologies (ICT) and applications for Mathematical education.

Category 5 (knowledge relating to forms and levels of specific teaching) brings together subjects relating to given segments:

- in special education, subjects such as : inclusive education, methods and techniques for inclusive education for teaching Mathematics and LIBRAS (Brazilian sign language);
- in the education of youths and adults (EYA) – one subject: Mathematical education in EYA.

Category 6 (other knowledge) unites subjects which expand the teachers' repertoire, such as, transverse themes, new technologies and religion, etc. Subjects relating to Physics and Chemistry were included for Mathematics.

Categories 7 and 8 are similar to the other two teaching degrees examined above.

3.1. Data analysis

An analysis of curriculum structure of Mathematics courses shows that the majority of compulsory subjects offered by IHEs falls into two categories: specific areas of knowledge and knowledge specific to teaching, which are 32.1% and 30% respectively. Amongst the other categories, 14.7% relate to other knowledge which, as was previously stated, encompasses transverse themes and new technologies and Physics and Chemistry (9.2%); theoretical foundations (13.3%), subdivided into educational systems (3.6%), research and final paper (4.6%) and complementary activities (5.1%) in the case of Mathematics (GATTI; NUNES, 2008, v. 2).

Although the proportion of subjects relating to specific areas of knowledge and knowledge for teaching is more balanced in Mathematics teaching degrees than in the other teaching degrees studied, when the number of subjects in each is calculated, in terms of the number of classroom hours in each category, some differences are brought to light. A greater proportion of classroom hours dedicated to specialised areas of knowledge (table 5.5) and a smaller proportion of hours on specific knowledge for teaching. Furthermore, there are proportionately fewer hours dedicated to research and final papers. It is also observed that only 0.7% of subjects in this teaching degree are aimed at specific forms and levels of teaching.

While giving greater detail on this issue, table 5.5 shows the distribution of workload in subjects for each sub-category of analysis and frequency in relation to the total. Proportionately, in terms of workload, it was found that general teaching occupies 1.6% of the duration of the teaching degree; knowledge for primary and secondary schools, 18.5% and further knowledge of specific subject areas, 34.1%. Research and the final paper occupy 3.7% of the course duration, which is less time than complementary activities (5%) that include academic-scientific-cultural activities, complementary activities and independent studies.

TABLE 5.5 – Total number of hours for compulsory subjects by analysis category and combining all of the courses in the sample: Mathematics teaching degree, 2006

Categories		Workload		Subjects	
		Hours	%	N	%
Theoretical foundations	Foundations	5,380	6.6	85	7.5
	General teaching	1,307	1.6	19	1.7
	Sub-total	6,687	8.2	104	9.2
Knowledge relating to educational systems	Structure and functioning	1,644	2.0	25	2.2
	Curriculum	554	0.7	8	0.7
	School management	392	0.5	6	0.5
	The job of teaching	100	0.1	2	0.2
	Sub-total	2,690	3.3	41	3.6
Specific area of content		27,707	34.1	361	32.1
Specific training for teaching	Content for primary and secondary school teaching	15,088	18.5	204	18.1
	Specific teaching of methodology and practices	8,551	10.5	116	10.3
	Knowledge related to technology	1,356	1.7	18	1.6
	Sub-total	24,995	30.7	338	30.0
Knowledge relating to forms and levels of education	Special education	401	0.5	7	0.6
	EYA	40	0.0	1	0.1
	Sub-total	441	0.5	8	0.7
Other knowledge		11,766	14.5	166	14.7
Research and final paper		3,027	3.7	52	4.6
Complementary activity		4,039	5.0	58	5.1
Total		81,352	100.0	1,128	100.0

With regard to educational systems, which already represent a very small percentage of the total workload (3.3%), it should be noted that within this percentage, 2.0% corresponds to structure and functioning of education, 0.7% of classroom hours are dedicated to curriculum, 0.5% to school management and 0.1% to the job of teaching. Although the subjects related to these topics are more important for teacher training, it can be seen that Mathematics teaching degrees do not yet dedicate a larger portion of classroom hours to important aspects of training for professionals who will work in primary and secondary schools. Educational evaluation, for example, is a problem faced on a daily basis in schools and on issues discussed in relation to external

evaluations of this subject (SAEB, SARESP, ENEM, PISA) and the low indicators presented by students in these evaluations, are not part of the curricula of Mathematics teaching degrees. Evaluating pupils is far from trivial for educators and demands training and discussion. However, as is true of the other teaching degrees studied, from what was observed, trainee Mathematics teachers do not receive this training. It was also noted that not all institutions offer subjects relating to research and final papers, which is worrying, considering that preparation of a final paper is currently a compulsory item in order to obtain the qualifications to work as a Mathematics teacher.

Considering the group of optional subjects offered by the courses (table 5.6), it is found that specific areas of knowledge are unique (42%), followed by other knowledge (25%) and specific knowledge for teaching (22%). In the first category examples include: shapes and extensions, non-linear expansion and metric spaces. In the second category optional subjects include ecology and pollution, environmental Mathematics, technical English I and experimental Physics III and, in the third, discrete Mathematics and set theory.

TABLE 5.6 – Optional subjects by analysis categories and sub-categories: Mathematics teaching degree, 2006

Categories		N	%
Theoretical foundations	Foundations	6	6.0
	Sub-total	6	6.0
Knowledge relating to educational systems	Structure and functioning	0	0.0
	Curriculum	0	0.0
	School management	0	0.0
	The job of teaching	0	0.0
	Sub-total	0	0.0
Specific areas of knowledge		42	42.0
Specific knowledge for teaching	Content focusing on primary and secondary teaching	9	9.0
	Specific methodology and teaching practices	11	11.0
	Knowledge relating to technology	2	2.0
	Sub-total	22	22.0
Knowledge relating to forms and levels of education	Special education	1	1.0
	Sub-total	1	1.0
Other knowledge		25	25.0
Research and final paper		4	4.0
Total		100	100.0

When relating the distribution of subjects grouped into categories with the IHEs of different regions in Brazil, a small variation is found. The Northeast and Midwest regions are those with the lowest percentage of specific knowledge for teaching, whilst the North and South are those who teach these groups of subjects the most. On the other hand, when this category is compared with that of specific knowledge for the area, it is seen that the South and Southeast regions have the most balanced distribution. The North region is the only one in which the subjects relating to specific training for teaching are more numerous than those specific to the area. The Northeast stands out due to its slightly higher percentage in relation to "educational systems" (6%). It should be noted that within this category there is no record of subjects geared towards the curriculum, school management or the job of teaching in the Midwest.

3.2. Further syllabi analysis

According to the Curricular Guidelines for Mathematics Teaching Degrees, the content considered common to these degree courses is: Differential and Integral Calculus, Linear Algebra, Foundations of Analysis, Foundations of Algebra, Foundations of Geometry and Analytical Geometry. The courses analysed offer the content considered common to all Mathematics teaching degrees. However, some differences in denominations and depth of coverage are found. The number of subjects in each of these sub-areas also varies considerably. There is also a great variation in the workload attributed to such content, showing differing institutional emphases. Occasionally there is only one subject in a sub-area, whilst at other times there are four or more. Approximately 16% of the curricula examined show highly specialised content and important depth for training professional Mathematicians, yet it is not so important for primary or lower secondary school teachers. On the other hand, 45% of these curricula offer basic introductory concepts. Nevertheless, some courses (21%) also work on such content in subjects linked to teaching practice as a curricular component, or content from primary or secondary school education.

In addition to the content considered common to Mathematics teaching degrees, the common portion of the curriculum should include Mathematics content present in primary and secondary education in the areas of algebra, geometry and analysis. All the courses analysed include these contents, sometimes in isolated subjects and sometimes in the form of an introduction to higher education content. The denominations for isolated subjects appear as topics or foundations of elementary Mathematics, Mathematics or basic Mathematics, Mathematics for teaching, geometry in teaching and Mathematical education in primary and secondary schools. The contents covered in these subjects involve numeric sets, elementary operations, diverse functions (polynominal, logarithmic, exponential and trigonometric functions), arithmetic and geometric progressions, flat and spatial geometry, proportionality, complex numbers, polynomes, equations, combinations, matrices and determinants and simple and compound interest. In some cases, in which the syllabi contained bibliographical references, it was found that recommended textbooks included some aimed at upper secondary school students in many of these subjects.

Subjects pertaining to specific methodologies and teaching practices subjects seek to meet the requirement of 400 hours of practice, designated by the Curricular Guidelines for Primary and Secondary School Teacher Training. It was found that all the Mathematics teaching degree courses analysed had specific subjects relating to teaching practice, called: Practice and Methodology of Teaching Mathematics; Practice of Teaching Mathematics; Practice of Primary and Lower Secondary School Teaching; Practice; Pedagogical Practices for Teaching Mathematics; Teaching Laboratory; Teaching Projects and Tools for Teaching Mathematics, amongst others. However, an intentional design which relates aspects of training for teaching is not clearly seen, and many syllabi are repetitive and vague. A few courses include a broader dimension of training, proposing subjects such as introduction to IT; introduction to the history of Mathematics; Mathematics, society and culture; education and culture; Mathematical education and ICTs; Mathematical education and investigation and inclusive education.

Amongst the curricula and syllabi analysed, it was found that only one of them does not have a specific subject which explores concepts linked to computer science. However, when it comes to use of IT for education, this is clearly referred to in only 29% of courses. Three of the courses contain several subjects with syllabi that refer to new ICTs. Nevertheless, it is observed that syllabi demonstrate more of a discussion on the use of technology than its application *per se*. One might question whether or not the knowledge being given favours the use of new technologies in teaching practice for future teachers. That is, if the subjects only theoretically discuss ICT in teaching and and that provide foundations in computing are sufficient for future teaching practice using new technology.

It is clear that these Mathematics teaching degrees are training professionals with different profiles, some have a deep grounding in Mathematics and may not feel prepared to face classroom situations, which are not limited to Mathematical knowledge. Others, with a pedagogical training disconnected from any specific training in Mathematics, therefore forcing the professional to find inter-relations between these two types of training.

One characteristic also found in the curricular structure relates to incorporation of research as a principle of training. Institutions offer activities/subjects which allow the preparation of a final paper. A few of them offer subjects that approach issues relating to research methodology, others also offer subjects that present and discuss issues associated with educational research and investigations into Mathematical education. Some offer guidance for writing final papers. These subjects/activities may lead to the development of certain abilities and skills specific to Mathematics teachers, thus preparing the future teacher to express himself in written and oral form, with clarity and precision; to understand, criticise, use new ideas and technologies for problem-solving; to learn continuously, with professional practice also serving as a source of knowledge production; to identify, formulate and solve problems in the field, using logical-scientific rigour in the analysis of problematic situations; establish relations between Mathematics and other areas of

knowledge and attain a broad education, necessary for understanding the impact of solutions found in a global and social context. However, on one hand and based on their content, the syllabi do not allow inference of the effective role of subjects on educational research in the sense already mentioned and, on the other hand, they hardly enable one to determine how the guidance for final papers is given.

Considering the fragilities relating to these courses, one could point to teaching practice and work placements as aspects that deserve greater attention in teacher training than is currently offered by teaching degrees. Bearing in mind that it is primarily these subjects/activities that will be developed and these abilities and skills that future teachers will need to acquire in order to prepare effective proposals for the teaching-learning of Mathematics, focusing on primary and secondary education, the clarity and objectivity of the pedagogical design of the teaching degree in Mathematics are less than ideal. Another aspect that indicates the fragility of these courses is the imbalance between training in a specific area and training for teaching, in which there is no prospect for integrated training. In this sense, the lack of criteria and practices, clearly explained in pedagogical designs, enable a growing dialogue between the two contexts of training (regular school and higher education) and also constitutes a shortcoming in the pedagogical design of teaching degrees in Mathematics.

4. TEACHING DEGREES IN BIOLOGICAL SCIENCES

Based on research by Gatti and Nunes (2008, v. 2), an analysis of the data from curricula of Biological Science courses researched shows that most compulsory subjects offered by IHEs refer to specific areas of knowledge, corresponding to 64.3% of the total. This is the highest percentage among those reported here. Following this but in a much smaller proportion, comes "specific knowledge for teaching", with 10.4%. The other categories of subjects range between 4% and 7.1%, with the exception of "knowledge relating to specific forms and levels of teaching" analysis category, which represents only 0.8% of

the total. Thus, in the training of Biological Science teachers, there is a significant predominance of subject area content and very little relating to education and teaching. Going into further detail, table 5.7 shows the breakdown of classroom hours for subjects in each sub-category of analysis and simple frequency in relation to the total.

This distribution indicates that from only 10.4% of hours dedicated to specific knowledge for teaching, 8.4% relate to specific teaching methodology and practices, 17.4% to content aimed at primary and secondary schools and 2.1% to knowledge relating to technology. With regards to educational systems, which already represent very little of the total (4.0%) it is worth noting that most of the time corresponds to structure and functioning of teaching, with school management content and the job of teaching being almost ignored.

TABLE 5.7 – Total hours for compulsory subjects by category of analysis, combining all of the courses from teaching degrees in Biological Science

Categories		Workload		Subjects	
		Hours	%	N	%
Theoretical foundations	Foundations	4,560	5.0	77	5.5
	General teaching	1,269	1.4	22	1.6
	Sub-total	5,829	6.4	99	7.1
Knowledge relating to educational systems	Structure and functioning	1,428	1.6	24	1.7
	Curriculum	847	0.9	15	1.1
	School management	244	0.3	4	0.3
	The job of teaching	801	0.9	12	0.9
	Sub-total	3,320	3.6	55	4.0
Specific areas of knowledge		59,507	65.0	894	64.3
Specific knowledge for teaching	Content aimed at primary and secondary schools	1,358	1.5	25	1.8
	Specific teaching methodology and practices	8,007	8.7	116	8.4
	Knowledge related to technology	160	0.2	3	0.2
	Sub-total	9.525	10.4	144	10.4
Knowledge relating to forms and levels of teaching	Special education	529	0.6	11	0.8
	EYA	0	0.0	0	0.0
	Sub-total	529	0.6	11	0.8
Other knowledge		3.219	3.5	56	4.0
Research and final paper		3,067	3.3	55	4.0
Complementary activities		6,577	7.2	75	5.4
Total		91,573	100.0	1,389	100.0

In relation to optional subjects offered by Biological Science teaching degree courses, it is observed that most are concentrated in the specific areas of knowledge category, corresponding to 59.7% (examples: biological administration and environmental legislation and floral biology) as are the compulsory subjects,. Other knowledge and specific knowledge for teaching comes later and with much lower percentages (11.9% and 10.4%, respectively) in relation to the total for optional subjects. Note that knowledge relating to specific forms of teaching represents 7.5%. Examples of this latter category include: organization and management of special education and adult education and its organization (table 5.8).

TABLE 5.8 – Optional subjects by analysis categories and sub-categories: teaching degrees in Biological Sciences

Categories		N	%
Theoretical foundations	Foundations	0	0.0
	General teaching	0	0.0
	Sub-total	0	0.0
Knowledge relating to educational systems	Structure and functioning	2	3.0
	Curriculum	4	6.0
	Sub-total	6	9.0
Specific areas of knowledge		40	59.7
Specific knowledge for teaching	Curricular content aimed at primary and secondary schools	4	6.0
	Specific teaching methodology and practices	2	3.0
	Knowledge relating to technology	1	1.5
	Sub-total	7	10.4
Knowledge relating to forms and levels of education	Special education	4	6.0
	EYA	1	1.5
	Sub-total	5	7.5
Other knowledge		8	11.9
Research and final paper		1	1.5
Total		67	100.0

In the above-mentioned study on which this chapter is based, it is observed that when comparing the distribution of subjects grouped into categories with Brazil's regions, some differences are found between them. The North and Midwest are those with the highest number of subjects relating to specific subject content in the area and the lowest

relating to those specific to teaching. In the Southeast region, there is a slightly higher percentage relating to subjects focusing on specific teaching methodology and practices (12.1%), whilst in the North and Midwest, this fails to reach 4%. The North is the region with curricula showing the lowest percentage of theoretical foundations, yet, on the other hand, there is a relatively higher share of what is referred to as knowledge relating to educational systems.

4.1. Data analysis

From a qualitative perspective, this analysis sought to verify the sufficiency of basic training in view of the Curricular Guidelines for Biological Sciences (CNE/CES Report Nº 1.301/2001) and Curricular Guidelines for Training Primary and Secondary School Teachers (CNE/CP Resolution Nº 1/2002), as well as to identify the focus of courses, issues linked to the subject of teacher training and integration with subject training, homogeneity and heterogeneity and suspicions of fragility with regard to teacher training. The analyses may be summarised as follows:

a) Teacher training versus specific training

In most of the syllabi analysed, no integration was found between specific subjects (content of Biological Sciences) and teacher training (content for teachers). Although they appear on most of the curricula from the onset of the course, that is pedagogical topics are no longer left until the last year (as in the old 3+1 model), in the proposals analysed there were still 25% of courses in which pedagogical subjects only become part of the schedule from the second half of the degree course. This goes against the guidance of Brazilian legislation on the workload of courses for teacher training and Resolution Nº 2/2002 specifically, which states the need for "400 (four hundred) hours of practice as part of the curriculum, experienced throughout the course". These practices could be inserted as a set of activities provided for by the syllabi of different subjects, as in the composition of specific subjects for teaching practice, with the most varied topics on the syllabus. However, very little of this was found in the syllabi.

The separation found between content in specific areas of Biology and teacher training show historical elements since the appearance of Biological Sciences courses in the joint teaching degree with a bachelor degree (SELLES; FERREIRA, 2004).

In many of the courses analysed, the graduate is given the titles of Biologist and Biology teacher. This aspect may be linked to the fact that a teaching degree graduate is also able to seek professional registration with Regional Biology Councils and to the provision in the guidelines for Biological Sciences that, even in the case of a Bachelor's degree, this graduate should be "aware of his responsibility as an educator in the varied contexts of professional activity".

b) The focus of courses

The focus of courses is not teacher training. Some centre on the evolutionary theme, others on the environment and others on a dispersed approach that makes it impossible to identify their focus.

Integration of universities with schools and State and municipal systems is provided for in the syllabi of very few institutions, although this is a requirement of the Curricular Guidelines for Teacher Training. As work placement plans are not listed on the material analysed, it could be that this is revealed in further research. As already studied by Ayres (2005), universities must establish institutional links for interaction with schools, forming partnerships to train future teachers. However, this is not the case today in the majority of courses.

The social role of Science teaching, integrated with forming citizens, as well as an understanding of Sciences for human activity managed in specific socio-cultural contexts is provided for in the Science PCNs curricular guidelines and recent theoretical references in the field (e.g. KRASILCHIK; MARANDINO, 2004). This view is also found in guidelines for ENADE 2008, which establish, as a benchmark, a professional profile "with awareness of the importance of scientific dissemination, of his role as an educator, of undertaking ongoing development and of being an agent for transforming reality,

understanding science as a social activity with potential and limitations" but such a profile is rarely observed in the syllabi analysed, where there are practically no topics on the role of Science in society.

A different proposal found was that of a single curriculum showing integration between universities and schools in the syllabi for projects. From the first semester production of knowledge by means of research activities and academic projects linked to primary and secondary schools was already encouraged. Each semester, the subject proposes a theme to generate student research projects, dealing with issues successively, such as: the profile of a Biology and Science teacher, difficulties with Science and Biology content, integration of students with special needs, profile of schools, investigations of the environmental theme and environmental education, studies within health and sexual orientation. In these subjects, it was possible to observe a focus on research in the field of science teaching, which is currently one of the possibilities for academic research, enabling a theoretical-practical foundation for "the use of participatory research to solve problems as a philosophical and methodological alternative for Science education", provided for in the guidelines for Biological science as a requirement for a teaching degree in the field.

c) Other aspects for consideration

In most of the courses analysed, there was no understanding of the area of Science teaching[21] as a possibility for academic research. When research is mentioned, it is always integrated with the basic areas of Biology.

Integration with new technologies for mediation of Science education did not appear on the syllabi of any of the courses analysed.

Supervised work placements are generally proposed from the second half of the course, as recommended by Resolution Nº 2/2002 (BRAZIL. MEC/CNE, 2002a). Details on work placements are only

21 Research in the field of Science education has existed in Brazil since the 1970s. There are currently several *stricto sensu* graduate courses with this line of research, which is also an area evaluated within CAPES/MEC.

found in a few of the courses. By way of an example, in one syllabus, it involves the monitoring of experiences of non-formal education in the first semester in which it is offered. In the next semester it is dedicated to mapping and diagnosing schooling in the region, with a view to preparing proposals for teaching Sciences and Biology. Subsequently, there is a supervised work placement in classrooms in primary and secondary schools and, finally, a work placement as a teacher in Science and/or Biology classes.

One innovation encountered was the presence of bio-ethics in 25% of courses, which integrates with current scientific findings. However, the syllabi focus on the role of ethics in biological research and make no mention of the treatment of themes that involve basic bio-ethical issues in primary or secondary school classrooms.

5. SUMMARY AND OBSERVATIONS

For Education courses, which are responsible for training primary school teachers, it was possible to find that a fragmented curriculum is proposed in such courses, showing a highly dispersed set of subjects.

The proportion of hours dedicated to subjects relating to specific professional training is 30%, with 70% being left for other kinds of subjects offered at the training institutes. It should be noted that in an analysis of syllabi, in the subjects for professional training, there is a predominance of theoretical references, whether sociological, psychological or of another nature and associated in only very few cases, with educational practices. Thus, subjects relating to specific professional training have syllabi that register concern with justifying 'why teach', which, to a certain extent, contributes to avoiding these subjects becoming merely prescriptive. Nevertheless, they only include 'what and how' to teach in a very insipient manner. It is possible to infer that the portion of the curriculum that enables development of specific teaching abilities for working in school classrooms is very small. Thus, the ratio of theory to practice, as proposed in legal documents and discussions in the field, is also found to be compromised by this formative basis.

In these teacher training courses, the content of subjects to be taught in primary and secondary school (Literacy, Portuguese, Mathematics, History, Geography, Sciences and Physical Education) appear only sporadically; in most of the courses investigated, they are approached in a generic or superficial manner within teaching methodology and practice subjects, suggesting a fragile association with teaching practices. The weakest syllabi are those associated with teaching Science, History and Geography for primary schools, as they fail to detail the content.

Very few Education degrees propose subjects that enable deeper reflection and training for abilities in the field of nursery schools and even fewer with regard to forms of education (EYA and special education), whether through optional courses or special topics and projects. The optional subjects offered by courses tend to refer more frequently to theoretical foundations of education and other knowledge (often including transverse themes with reference to the National Curricular Parameters of 1996).

The work placements, which are compulsory, are only vaguely recorded, with very few exceptions. There is no actual project or plan for a trainee, or indications of the field of practice or supervisory activity. One final observation: the school, as a social and pedagogical institution, is almost entirely absent from the syllabi, which leads one to think of more abstract and poorly-integrated teacher training, in terms of the concrete context in which the professional teacher will work.

With regards to the other teaching degrees with curricula analysed – Portuguese, Mathematics and Biological Sciences – which correspond to initial training of teachers who will work with secondary school students, the following was found:

- Curricula are dominated by specific subject knowledge, to the detriment of training teachers for these areas of knowledge.
- There is considerable dissonance between pedagogical projects formulated and the structure of sets of subjects and syllabi, often seeming that the former document has no relation to actual course delivery.

- Very few institutions specify what work placements entail and how they are monitored, or if there is any agreement with public schools, amongst other aspects.
- The issue of teaching practice, required by curricular guidelines, is problematic. This is because they sometimes seem to be built into diverse subjects, with no clear specification, and at other times they appear separately but with very vague syllabi.
- In most of the syllabi analysed, there was no integration between subjects for specific training (subject area content) and teacher training (pedagogical content).
- Knowledge relating to technology in teaching is practically absent.
- Curricula include many hours dedicated to complementary or cultural activities, seminars etc, but without specification of what they refer to, if they are activities accompanied by teachers, their objectives, etc.
- Teaching degrees in Languages and Biological Sciences show a percentage of approximately 10% of subjects linked to training for classroom teaching.
- Teaching degrees in Mathematics are different as they exhibit a slightly higher percentage of subjects relating to specific knowledge for teaching.
- Subjects from the category "knowledge relating to educational systems" are almost non-existent in all the teaching degrees analysed. When this category is broken-down, it is possible to note that most subjects related to the structure and functioning of teaching; with aspects related to curriculum, school management and the job of teaching shown as minimal percentages.
- Some of these teaching degrees promote early specialisation in aspects that may be approached in specialisation courses or graduate studies.

6. WHO ARE THE UNDERGRADUATES IN CAREERS THAT LEAD TO TEACHING?

In order to learn about the characteristics of Brazilian students who attend courses which lead to teaching, a socio-economic questionnaire from the National Examination of Courses (ENADE) was applied by MEC's National System for Evaluating Higher Education to those beginning and concluding Face-to-Face Education Degrees[22] and Teaching Degrees[23] in 2005. Although Education is also a Teaching Degree, it was considered separately because of its specific characteristics.

In addition to Education students, the 2005 ENADE tests were taken by those attending the following courses: Biology, Physics, Chemistry, Mathematics, History, Geography and Languages. For the purposes of this sample, a total of 137,001 students were analysed. The source used

22 ENADE tests were only applied to students atn Education courses, although there were other training courses for primary and nursery schools, such as Teacher Training Colleges.

23 The term "Teaching Degree" is a generic term that was used to include all the titles adopted for teacher training courses, that is: Teaching Degrees *per se*; Teacher Training; one-off Technological Training and Bachelor's Degrees. Technological training was included as it qualifies chemistry teachers, which are a component of general curricula in secondary schools. The Bachelor's degree was considered because it can constitute the first stage of training which ends with a teaching degree, whether offered by the same institution or otherwise. In view of the ambiguity that can be generated by course nomenclature, as some courses train other professionals and not teachers, in order to further refine the profile of students regarding expectations of teaching jobs, it was decided to consider as subjects only those who responded positively to the question "Do you wish to be a teacher?", as well as those who stated that they were undecided about teaching. Amongst students of Education, around 8.5% stated that they "do not want to be a teacher" and amongst teaching degree undergraduates, this percentage increased to 10% (table A1).

for organizing the data tables was: Microdata CD-ROM – ENADE – MEC/INEP, 2005. Tables prefixed by the letter "A" can be found annexed to this publication.

1. BASIC CHARACTERISTICS

1.1. Choices by area of training

In this group of courses, Education students correspond to 28.7% of the subjects. However, it is observed that Language students are also highly numerous, almost equalling Education undergraduates in quantity.

Nevertheless, it was necessary to include students of the Portuguese Language and foreign languages under Languages, as the generic nomenclature adopted by some courses makes it impossible to identify the type of training given, leading to a loss of information. Nevertheless, it is know that 72.7% of the total Language students are those from courses specifically for training Portuguese Language teachers and that 21.8% of the total study in courses which only train foreign language teachers. Also worthy of note is the relatively small percentage of Mathematics students in ENADE, above all when one considers that along with Portuguese Language, Mathematics is the subject with the highest number of classes in primary and secondary school, which suggests a probable lack of teachers in the field, as already indicated by studies from INEP and the National Education Board. Yet more critical is the proportion of 'hard' Science students: Physics and Chemistry, areas which are traditionally short of teachers for the school system, not only in Brazil but also in several other countries (AGUERRONDO, 2004). Students in these areas can certainly find better job offers outside of teaching. However, it is worth repeating that curricular components in the Science field appear only in a fragmented way in upper secondary schools, where there is a relatively small number of students, compared to primary and lower secondary education (19% of all primary and secondary school enrolments).

TABLE 6.1 – Teaching degree undergraduates – ENADE, 2005

		N	%
Education		39,359	28.7
Other Courses	Biology	17,718	12.9
	Physics	2,840	2.1
	Geography	9,459	6.9
	History	15,587	11.4
	Languages	38,770	28.3
	Mathematics	9,320	6.8
	Chemistry	3,948	2.9
	Sub-total TDs	97,642	71.3
Total		137,001	100.0

Source: MEC/INEP/DEAES, 2005. *ENADE*.

1.2. Expectations in relation to the course

When questioned about the main reason leading them to opt for a teaching degree, 65.1% of Education students attributed their choice to the fact that they wanted to be teachers, whilst this percentage drops to approximately half amongst undergraduates taking teaching degrees.

TABLE 6.2 – Main reason for choice of teaching degree – ENADE, 2005

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	Because I want to be a teacher.	25,625	65.1	47,469	48.6	73,094	53.4
(B)	To have a second option if I can't do something else.	5,222	13.3	23,319	23.9	28,541	20.8
(C)	Family influences.	2,036	5.2	3,374	3.5	5,410	3.9
(D)	Because I had a good teacher who acted as a model.	2,595	6.6	13,265	13.6	15,860	11.6
(E)	I do not want to be a teacher.	1,898	4.8	5,174	5.3	7,072	5.2
(F)	It is the only course near my home.	1,153	2.9	3,684	3.8	4,837	3.5
	Null	784	2.0	1,260	1.3	2,044	1.5
	Void	46	0.1	97	0.1	143	0.1

Source: MEC/INEP/DEAES, 2005. *ENADE*.

It should be noted, however, that the choice of teaching as a kind of 'unemployment insurance' and as an alternative in case it is impossible to perform another professional activity is relatively high, above all

amongst teaching degree undergraduates in areas other than Education. Amongst Education students, 28.2% already work in the field and 16.6% work in another area but intend to seek an activity in the field of their degree; however, among teaching degree undergraduates, only 15.6% work in the area. This is exceeded by the percentage of those who intend to work as teachers: 23.5%. The high percentage of students from both groups who intend to undertake an academic activity and seek a graduate course is surprising (31.8% and 33.3% respectively, table A2).

1.3. Age

Another unexpected piece of data is that less than half the students are in the ideal age range of 18-24 years old: (46%); just over 20% of them are located in the 25-29 age range and a similar proportion are between 30 and 39 years old. It is possible, however, to draw a distinction between students of Education and others: the former tend to be older. Whilst only 35% of Education undergraduates are in the ideal age range, this proportion increases for students on other teaching degrees, with 45% of Languages and Humanities students and 51% and 65% of Sciences and Mathematics students being within the ideal age range. Students of Education are also more numerous in the older age groups, from 30 to 39 or over 40, according to table 6.3.

TABLE 6.3 – Undergraduates by age group – ENADE, 2005

	Up to 17		18 to 24		25 to 29		30 to 39		40 to 49		50 to 64		65+		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Education	20	0.1	13,671	34.7	8,610	21.9	10,466	26.6	5,380	13.7	1,189	3.0	23	0.1	39,359	100.0
Biology	209	1.2	11,546	65.2	3,112	17.6	2,003	11.3	719	4.1	125	0.7	4	0.0	17,718	100.0
Physics	32	1.1	1,719	60.5	633	22.3	322	11.3	110	3.9	24	0.8	0	0.0	2,840	100.0
Geography	35	0.4	4,206	44.5	2,083	22.0	2,044	21.6	900	9.5	188	2.0	3	0.0	9,459	100.0
History	80	0.5	7,069	45.4	3,297	21.2	3,267	21.0	1,496	9.6	369	2.4	9	0.1	15,587	100.0
Languages	254	0.7	17,762	45.8	8,370	21.6	8,183	21.1	3.413	8.8	771	2.0	17	0.0	38,770	100.0
Mathematics	72	0.8	4,737	50.8	1,875	20.1	1,823	19.6	675	7.2	134	1.4	4	0.0	9,320	100.0
Chemistry	4	0.1	2,242	56.8	968	24.5	553	14.0	156	4.0	25	0.6	0	0.0	3,948	100.0
Total	706	0.5	62,952	46.0	28,948	21.1	28,661	20.9	12,849	9.4	2,825	2.1	60	0.0	137,001	100.0

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

The age difference between students of Education and those of other teaching degrees may be explained in part by the following: compulsory certification of primary and nursery school teachers used to be at upper secondary level until approval of Law Nº 9394 in 1996. Once graduated, teachers generally used to begin teaching and then move on to a higher education degree. Data relating to the period in which the group of students completed upper secondary school show that only 37.6% of them entered current degree courses soon after finishing upper secondary education. In other words, late entry to courses for teachers constitutes the rule rather than the exception (table A3).

While also being older, just over half the Education students are single (53.6%), whilst this percentage increases to 68.7% amongst those from other areas (table A4).

1.4. Women and men

The first piece of data that stands out in table 6.4 is the female bias in the teaching profession: 75.4% of students are women. As is well-known, this is no recent phenomenon. Since the creation of teacher training colleges at the end of the 19th century, women began being recruited for teaching basic reading and writing skills.

Women's own upper secondary level education occurred because of the expansion of teacher training colleges and permeated by the representation of teaching as a continuation of maternal duties and as the natural choice for a woman's education. As a strong determining factor for the entry of women into the employment market, teaching careers expanded by means of a highly-segmented pattern from a gender point of view, both in relation to other careers and in terms of the teaching career itself. For many years teaching gave access to managerial functions in education systems (managers and supervisors) only to men, whilst women remained restricted to the classrooms.

Especially predominant in primary and nursery school teaching, women also constitute the absolute majority of Education undergraduates: currently 92.5%.

TABLE 6.4 – Teaching degree undergraduates by sex – ENADE, 2005

	Men		Women		Total	
	n	%	n	%	n	%
Education	2,939	7.5	36,420	92.5	39,359	100.0
Biology	4,911	27.7	12,807	72.3	17,718	100.0
Physics	2,024	71.3	816	28.7	2,840	100.0
Geography	4,337	45.9	5,122	54.1	9,459	100.0
History	6,779	43.5	8,808	56.5	15,587	100.0
Languages	6,661	17.2	32,109	82.8	38,770	100.0
Mathematics	4,237	45.5	5,083	54.5	9,320	100.0
Chemistry	1,799	45.6	2,149	54.4	3,948	100.0
Total	**33,687**	**24.6**	**103,314**	**75.4**	**137,001**	**100.0**

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

The feminisation process of other teaching degrees, which took place slightly later than that of primary school teachers, occurred with the expansion of upper secondary schools in the 1950s and 1960s and popularisation of the 8-year primary and lower secondary school period, after Law Nº 5692/71. This was followed by a relative loss in prestige for teachers and those with teaching degrees in particular, added to a worsening of working conditions and remuneration. However, in this teaching segment(that of the specialist teacher), men still maintain a significant presence, representing almost half the students in several courses and over 70% of Physics students. In Languages, a strong female presence has been confirmed in previous studies (ROSEMBERG; AMADO, 1992; SETTON, 1994) and in Biology, a course with a younger student profile, recently graduated from upper secondary school, where women are also numerous.

Despite feminisation of the teaching profession, gender relations in the composition of specific segments of training and organisation of teaching work only recently came to be the object of further studies in Brazil (DEMARTINI; ANTUNES, 1993; ALMEIDA, 1996; ROSEMBERG; AMADO, 1992; BRUSCHINI; AMADO, 1988; CARVALHO, 1996).

1.5. Socio-economic situation

Studies on teachers tend to describe them as a relatively homogenous category, mainly originating from the middle classes. Nevertheless, more recent research has pointed to noteworthy income differences between teachers according to the school level they work in, region of Brazil, public versus private establishments and the rural versus urban location of schools, which is also reiterated in the present study by data presented below (FANFANI, 2007; UNESCO, 2004; SAMPAIO, 2002).

TABLE 6.5 – Teaching degree undergraduates: monthly family income – ENADE, 2005

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	Up to 3 minimum salaries.	16,473	41.9	37,237	38.1	53,710	39.2
(B)	From 3 to 10 minimum salaries.	19,340	49.1	49,758	51.0	69,098	50.4
(C)	From 11 to 20 minimum salaries.	2,483	6.3	7,564	7.7	10,047	7.3
(D)	From 21 to 30 minimum salaries.	4961.3	1,599	1.6	2,095	1.5	
(E)	Over 30 minimum salaries.	221	0.6	791	0.8	1,012	0.7
	Null	295	0.7	581	0.6	876	0.6
	Void	51	0.1	112	0.1	163	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

The majority of students currently in higher education who are preparing to be teachers (50.4%) are in the average family income bracket, that is between three and ten minimum salaries. Slight variations favour students from other teaching degrees in relation to students of Education in different higher income brackets, as indicated by table 6.5. A clear trend towards the lowest income group is observed. The percentage of students with a family income of up to three minimum salaries (29.2%) is significant and there are very few subjects in the highest income brackets. This may suggest, as do Pucci, Oliveira and Sguissard (1991), that a proletarization process of education workers is taking place but it may equally be interpreted as a form of social ascension for the population strata to more qualified careers.

Another indicator of the modest social origin of a good number of these students appears when one observes table 6.6. It indicates that, on average, only 26.2% of students do not work and are entirely supported by their families. That is, these are students who are mainly workers.

TABLE 6.6 – Teaching degree undergraduates: study, work and family support

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	I don't work and my expenses are paid by my family.	8,240	20.9	27,714	28.4	35,954	26.2
(B)	I work and my family helps me.	10,643	27.0	27,148	27.8	37,791	27.6
(C)	I work to support myself.	4,342	11.0	11,508	11.8	15,850	11.6
(D)	I work and contribute to supporting my family.	12,936	32.9	23,109	23.7	36,045	26.3
(E)	I work and am the primary supporter of the family.	3,093	7.9	7,914	8.1	11,007	8.0
	Null	66	0.2	154	0.2	220	0.2
	Void	39	0.1	95	0.1	134	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

Regarding the relationship between study, work and family support, it is possible to detect more marked differences amongst students of Education and teaching degree undergraduates in other areas, probably highly associated with age groups but also bearing in mind that many students already work as teachers. Differences may also be due to differing working regimes between multidisciplinary teachers and those who teach specific school subjects. Amongst students of Education, 40.8% work and contribute to support their families and, amongst these, 7.9% are the primary supporters of their families, whilst of the other teaching degree undergraduates, the percentage who work and contribute to family support drops to 31.8%, although a similar proportion to that of the Education undergraduates are also heads of a family.

As for the weekly workload of those who work (table 6.7), those who work a full Schedule (40 hours) in both groups represent 43.3% of responses; those who work more than 20 hours and less than 40 hours

per week are 23.3% amongst students of Education and 20.1% amongst students from other teaching degrees. Therefore, these students mostly spend their timeon occupations other than studying and do this in working activities.

TABLE 6.7 – Teaching degree undergraduates: remunerated activity workload

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	I don't work and my expenses are paid by my family.	8,240	20.9	27,714	28.4	35,954	26.2
(B)	I work and my family helps me.	10,643	27.0	27,148	27.8	37,791	27.6
(C)	I work to support myself.	4,342	11.0	11,508	11.8	15,850	11.6
(D)	I work and contribute to supporting my family.	12,936	32.9	23,109	23.7	36,045	26.3
(E)	I work and am the primary supporter of the family.	3,093	7.9	7,914	8.1	11,007	8.0
	Null	66	0.2	154	0.2	220	0.2
	Void	39	0.1	95	0.1	134	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

Considering that most Face-to-Face teacher training courses belong to private enterprises, it is no surprise that entry of students from poorer income groups to higher education has been encouraged by policies or institutional initiatives that support covering tuition fees. Around 35% of students receive scholarships or some kind of full or partial funding, whether from the Federal government, through the Student Funding Programme (FIES) (3.3%), from the institutions behind the courses themselves (13.8%) or elsewhere (table A5).

1.6. Cultural background

Parents' level of schooling (tables 6.8 and 6.9) may be seen as an important indicator of the cultural background of students' families. In a country with late schooling like Brazil, around 10% are from homes with illiterate parents and, if we add to these those parents who only attended primary school, we reach approximately half of all students.

This denotes a clear process of a generation's ascension to the highest levels of education. However, it is noted that there is a proportion of students, which is not insignificant when considering the population's schooling standards that have parents with upper secondary schooling. When added to those with a degree, the heterogeneity within student bodies themselves is shown.

TABLE 6.8 – Teaching degree undergraduates: parents' school levels

		Education		Teaching degrees		Total	
		n	%	n	%	n	%
(A)	No schooling	4,326	11.0	8,196	8.4	12,522	9.1
(B)	Primary	18,303	46.5	38,587	39.5	56,890	41.5
(C)	Lower secondary	6,203	15.8	17,371	17.8	23,574	17.2
(D)	Upper secondary	7,240	18.4	22,151	22.7	29,391	21.5
(E)	Higher	2,982	7.6	10,583	10.8	13,565	9.9
	Null	255	0.6	648	0.7	903	0.7
	Void	50	0.1	106	0.1	156	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

TABLE 6.9 – Teaching degree undergraduates: mothers' school levels

		Education		Teaching degrees		Total	
		n	%	n	%	n	%
(A)	No schooling	3,910	9.9	7,087	7.3	10,997	8.0
(B)	Primary	17,046	43.3	34,477	35.3	51,523	37.6
(C)	Lower secondary	6,722	17.1	18,206	18.6	24,928	18.2
(D)	Upper secondary	8,204	20.8	24,515	25.1	32,719	23.9
(E)	Higher	3,367	8.6	13,055	13.4	16,422	12.0
	Null	77	0.2	227	0.2	304	0.2
	Void	33	0.1	75	0.1	108	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

The parents of Education undergraduates systematically have less schooling than those of students of other courses. If family income differences are only slightly higher for other teaching degree undergraduates, they are much more accentuated in favour of the latter when it comes to the cultural background of the students' family.

In a comparative study undertaken by UNESCO on the teaching profession, using representative samples of teachers from primary and secondary schools in Argentina, Brazil, Peru and Uruguay, the lower position of Brazil regarding family cultural capital proved to be even more accentuated. In the other countries, teachers come from families in which the majority of parents had upper secondary education or a university degree (FANFANI, 2007).

In any case and especially in the case of Brazil, teacher training brings cultural capital to students which seems to be an important social distinction above income.

1.7. Students' previous schooling and knowledge of foreign languages

Students primarily enter Teaching Degree courses from public schools. That is 68.4% studied in a public upper secondary school and 14.2% in a public school for part of the time (table A6). The proportion of students who only underwent upper secondary schooling in a private school is lower amongst Education students (14.3%) than those from other Teaching Degrees (18.3%).

As can be seen in table 6.10, the kind of upper secondary course taken varies considerably between the two groups. Whilst amongst Education students the proportion of those who received teacher training at upper secondary level (41.8%) is slightly higher than those who took general courses, amongst students of other Teaching Degrees, 57.9% studied in this form and 14.1% took technical courses at upper secondary level.

The percentage of students from supplementary (evening) classes is around 6% in both groups.

Knowledge of a foreign language has in turn been an important barrier for access to the most sought-after degree courses (BORGES; CARNIELLI, 2005). Although the dominant foreign language is English in upper secondary schools, it has been found that approximately 60% of Education students do not have even a basic understanding of this language, which is the case of 40.3% of students in other teaching degrees (table 6.11).

TABLE 6.10 – Teaching degree undergraduates: type of upper secondary schooling

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	Normal or general, in regular school.	15,665	39.8	56,528	57.9	72,193	52.7
(B)	Technical, vocational (electronics, accounting, agriculture etc) in regular school.	3,801	9.7	13,768	14.1	17,569	12.8
(C)	Vocational teacher training for Primary education in regular school.	16,461	41.8	19,501	20.0	35,962	26.2
(D)	Supplementary (evening classes).	2,603	6.6	6,067	6.2	8,670	6.3
(E)	Other courses.	6471.6	1,446	1.5	2,093	1.5	
	Null	81	0.2	151	0.2	232	0.2
	Void	101	0.3	181	0.2	282	0.2

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

TABLE 6.11 – Teaching degree undergraduates: knowledge of English

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	I read, write and speak well.	918	2.3	7,064	7.2	7,982	5.8
(B)	I read, write and speak reasonably.	5,330	13.5	23,236	23.8	28,566	20.9
(C)	I read and write, but don't speak.	3,429	8.7	11,376	11.7	14,805	10.8
(D)	I read, but don't write or speak.	6,260	15.9	16,357	16.8	22,617	16.5
(E)	Virtually nothing.	23,335	59.3	39,323	40.3	62,658	45.7
	Null	57	0.1	180	0.2	237	0.2
	Void	30	0.1	106	0.1	136	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

Approximately 30% of teaching degree undergraduates in areas outside of Education read, write and speak English but this percentage drops to half within Education students. Similarly, amongst those who report a reasonable knowledge of a foreign language in written form, teaching degree undergraduates form the largest group.

In summary, with regards to cultural background in the form of schooling, it is possible to state that in a general calculation Education

students have a slightly less solid cultural background than other teaching degree undergraduates.

1.8. Consumption of culture

Important mediators in the transmission of systematised culture, more than teachers know, feel and think and how they act in schools has has not simply to do with the narrow experience of school life they have but with their own life experiences and the broadest ways in which they are inserted in contemporary society and interact with cultural products. The interest, expressed in many recent studies in obtaining information about the consumption of culture by teachers arises from this point (UNESCO, 2004; FANFANI, 2007; CNTE, 2003). With regard to this issue, it is important to bear in mind that the provision of cultural produces varies according to location, in addition to the fact that studies have advised that consumption differs according to teachers' social strata and the education levels they teach at.

Regarding students' reading habits (table 6.12), the frequency with which students read books is similar amongst Education and other teaching degree undergraduates. On average, 28% report having read at least two books in the past 12 months and 35% between three and five books, excluding school books.

TABLE 6.12 – Teaching degree undergraduates: number of books read per year, excluding school books

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	None. (Go to question 19)	2,898	7.4	10,014	10.3	12,912	9.4
(B)	Maximum of two.	11,538	29.3	26,887	27.5	38,425	28.0
(C)	Between three and five.	14,913	37.9	34,111	34.9	49,024	35.8
(D)	Between six and eight.	4,904	12.5	11,992	12.3	16,896	12.3
(E)	More than eight.	4,887	12.4	14,137	14.5	19,024	13.9
	Null	202	0.5	422	0.4	624	0.5
	Void	17	0.0	79	0.1	96	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

However, there are a reasonable percentage of undergraduates who have read no books other than those required by their courses and the most numerous are students from the other teaching degrees, not Education. As for text types, literary works seem to be the preference of teaching degree undergraduates from other areas, when compared to those in Education (46.7% against 27%), whilst technical or self-help books seem to interest more students of Education (35.95% against 24.6%, table A7).

Approximately half the students reported to reading a newspaper several times per week or daily but 35% of them do so rarely (table A8). Nevertheless, the most frequently used medium for keeping up to date on contemporary matters is television (58.3%). Reinforcing the image culture that predominates within new generations, the Internet (19%) which bypasses newspapers (12.8%) is amongst these new means of communication table A9).

Cinema is the preferred cultural activity for most students (42.8%), followed by shows or musical concerts (23.9%), then theatrical spectacles (16.9%) and dance (10.5%) (table A10). Even considering that the time available to most students is not the same as for fully-fledged professionals, although many of them already work, the number of responses to this question does not allow for the inference that frequency of such activity is equivalent to the preferences indicated. Studies of urban teaches, such as those by UNESCO, show similar indicators to those found in this research but reveal that film rental is a very common practice amongst them (CNTE, 2003; UNESCO, 2004; FANFANI, 2007).

1.9. Computer use

Considering that new information and communication technologies (ICTs) greatly expand opportunities for access to culture, responses from university undergraduates offer a positive image with regards to their access and capacity for using them. On average, only 5% of students report not using computers and 63.7% use one frequently. Around 81.3% have access to the Internet and 87.6% consider themselves competent in ICT.

This data contrasts with inequality of access and use of computers/ Internet by practicing teachers, leads one to conclude that institutional facilities partly favour intensive use in training courses, which did not happen to the same extent with use of technology amongst teachers in primary and secondary schools, to which the studies mentioned make reference.

It is likely that the most frequent use of computers amongst students is for writing papers for school (92.6%, table A11) but they are also highly used for e-mail communication (69.7%), professional work (62.1%) and entertainment (59.8%). There are no significant differences regarding use amongst the two student groups.

2. EDUCATIONAL CONDITIONS OFFERED BY TEACHER TRAINING COLLEGES

The ENADE questionnaire also includes items relating to educational conditions offered by courses, which enables creation of a national panorama, representing important aspects of the training received. To analyse these data, only answers from students who graduated were considered, comprising a total of 68,955 subjects, as only they would be able to assess the course as a whole. Information contained in these items, however, must be interpreted with considerable caution, as they are susceptible to the bias of answer desirability. Regarding the number of students per class (table 6.13), Education courses tend to have larger classes than other teaching degrees.

TABLE 6.13 – Teaching degree undergraduates: approximate number of students per class

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	Up to 30.	5,234	25.2	18,403	38.4	23,637	34.4
(B)	Between 31 and 50.	11,626	56.0	23,809	49.7	35,435	51.6
(C)	Between 51 and 70.	2,883	13.9	4,436	9.3	7,319	10.7
(D)	Between 71 and 100.	873	4.2	980	2.0	1,853	2.7
(E)	Over 100.	86	0.4	133	0.3	219	0.3
	Null	46	0.2	80	0.2	126	0.2
	Void	26	0.1	40	0.1	66	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

In general, approximately half of the students attend classes with between 31 and 50 students but there is a large proportion of small classes with up to 30 students and smaller proportions of very large classes with over 70 students. Approximately 25% of courses do not have a laboratory according to students. Amongst those who responded that there were laboratories, around half reported that they are up to date and well-kept, with more favourable opinions which tended to come from Education undergraduates (table A12).

It is not known, however, exactly what type of laboratories they are, particularly in Human Sciences and Education.

Just under half of the students use the institution's library reasonably frequently; around a quarter uses it a lot and a similar proportion rarely does so. It is a small percentage but a further 1,521 students claim there is no library at the course where they are enrolled. There are also students who report that they do not use their institution's library. This data is shown in table 6.14:

TABLE 6.14 – Teaching degree undergraduates: frequency of use of institutional library

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	The institution has no library.	379	1.8	1,142	2.4	1,521	2.2
(B)	I never use it.	607	2.9	1,220	2.5	1,827	2.7
(C)	I rarely use it.	5,167	24.9	10,816	22.6	15,983	23.3
(D)	I use it reasonably frequently.	9,724	46.8	21,760	45.4	31,484	45.9
(E)	I use it very frequently.	4,841	23.3	12,806	26.7	17,647	25.7
	Null	24	0.1	87	0.2	111	0.2
	Void	32	0.2	50	0.1	82	0.1

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

Although between 60% and 70% of subjects in both groups consider the library's stock to be up to date or average, teaching degree students apart from those on Education courses tend to be more demanding with respect to the issue (table A13). Both groups seem to be satisfied regarding the appropriacy of opening hours at the library for their needs (table A14).

With respect to computers to meet the needs of undergraduate courses, 28.5% of students claim full access to them and 57.2% use computers with limited access. The others do not use computers at university, either because there are none because they are not available or because they consider that their course does not require this kind of resource (table A15).

2.1. Students' assessment of teaching and course curriculum

With a view to obtaining an assessment from students of the social aspect encompassed by the courses, undergraduates were asked the extent to which taking part in the course had enabled them to reflect on the reality of Brazil in the following aspects: illiteracy; socio-economic inequalities; unemployment; housing; discrimination by race, gender and minority status; regional diversity; security and criminality and child and adult labour. Around 70% of students declared that courses contributed to an understanding of these issues either broadly or partially but that the social element of the Education course seems to be clearly higher than in other teaching degrees (tables A16 to A23).

Regarding integration of curricular components, around 85% of students considered that subjects are fully articulated or that they are linked by area of knowledge. However, according to the understanding of Education students, the most integrated courses are those of other teaching degrees. In general, few students admit to lack of integration in the curriculum (table A24). Around 75% of them consider that the guidance contained in the course contents are relevant for course delivery (table A25) and for 84.4% of students teachers have proven to be up to date and have a good knowledge of the subjects they teach (table A26).

On the teaching strategies used by most teachers (table 6.15), teacher-centred classes predominate and, according to students, most of these involve their participation. In Education, there is also use of group work in the classroom (31.3%).

TABLE 6.15 – Teaching degree undergraduates: predominant teaching techniques used by most teachers

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	Teacher-centred (lecturing).	1,203	5.8	9,367	19.6	10,570	15.4
(B)	Teacher-centred, with student participation.	12,088	58.2	28,587	59.7	40,675	59.2
(C)	Practical classes.	447	2.2	1,361	2.8	1,808	2.6
(D)	Group work performed in class.	6,506	31.3	7,306	15.3	13,812	20.1
(E)	Others.	444	2.1	1,098	2.3	1,542	2.2
	Null	46	0.2	88	0.2	134	0.2
	Void	40	0.2	74	0.2	114	0.2

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

As, in primary and secondary school teaching practice, teachers tend to reproduce experiences from their lives as students more than the theories with which they come into contact. A worrying piece of data is the considerable imbalance in teacher training courses between abundant teacher-centred lectures and an absolute lack of practical classes in all courses. Nevertheless, a significant number of students report performing research activities as a learning strategy in many subjects (67%) (table A27).

Despite this statement, a course based on background reading and abstracts, with copies of passages or chapters from books is basically the training content for most current teachers, whether in Education courses or other teaching degrees. This is the most commonly-used type of material, according to 67% of students (table 6.16).

One is led to believe that students have almost exclusive contact with highly fragmented textual material. Judging by students' answers, articles from specialized publications, where research results in disciplinary reference areas circulate most intensely, do not go beyond insignificant complements. Regarding the evaluation tools used by teachers,

TABLE 6.16 – Teaching degree undergraduates: type of material most used during the course

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	Textbooks and/or manuals.	5,150	24.8	14,697	30.7	19,847	28.9
(B)	Readings and abstracts.	8,270	39.8	15,840	33.1	24,110	35.1
(C)	Copies of passages or chapters from books.	6,914	33.3	15,054	31.4	21,968	32.0
(D)	Articles from specialist publications.	261	1.3	782	1.6	1,043	1.5
(E)	Class notes and notebooks.	109	0.5	1,279	2.7	1,388	2.0
	Null	43	0.2	148	0.3	191	0.3
	Void	27	0.1	81	0.2	108	0.2

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

(table 6.17), Education courses are dominated by group work (50.4%) and followed by discursive writing (31.7%), whilst in the case of other teaching degrees, written tests are by far the most commonly-used evaluation tool (68.6%), followed at a distance by group work (19.1%). Other evaluation forms are almost non-existent.

TABLE 6.17 – Main evaluation tools used by teachers

		Education		Teaching Degrees		Total	
		n	%	n	%	n	%
(A)	Discursive written tests.	7,697	37.1	32,860	68.6	40,557	59.1
(B)	Objective tests.	832	4.0	2,317	4.8	3,149	4.6
(C)	Group work.	10,470	50.4	9,129	19.1	19,599	28.5
(D)	Individual essays.	1,112	5.4	1,781	3.7	2,893	4.2
(E)	Practice tests.	548	2.6	1,470	3.1	2,018	2.9
	Null	38	0.2	187	0.4	225	0.3
	Void	77	0.4	137	0.3	214	0.3

Source: MEC/INEP, 2005. *ENADE socio-economic questionnaire.*

It should be noted that half the Education students probably fail to undergo individual evaluation throughout the duration of their respective courses.

7. SPECIAL FORMS OF TEACHER TRAINING

Several different initiatives for training and qualifying teachers have developed due to the demand from public authorities responsible for managing educational systems. This entails training their teachers under Law Nº 9394/96 (LDB), a requirement placed on universities who responded to the challenge of providing special training for teachers who are already in-service in the public system but do not have a degree. There were also programmes implemented by the education management authorities themselves, with assistance from university staff and other consultants. These teacher training programmes, which awarded qualifications, were generally considered special, had a predetermined duration and were duly licensed by the government (National Education Board and State Education Boards). Even before the new LDB, some initiatives had been implemented in this regard in universities, with support from government bodies. These programmes demonstrated innovations that are worthy of consideration. Soon after approval of the LDB in 1996, some regulations were imposed on conditions for offering distance courses and blended learning, opening-up the possibility of offering special courses to complement training teachers for upper secondary schools. In other words, they were aimed at lay teachers in the system and to complement the training of teachers at degree level for those who only had upper secondary level education and were teaching in classrooms. As they were in-service, training possibilities for teachers were made available, without the need for them to pay for their studies. The programmes were subsidised by Federal, State or municipal authorities and teachers did not need to leave the

classroom. In the 1990s FUNDEF (The Fund for Developing Primary and Lower Secondary Education), dedicated a fixed percentage of its resources to teacher development, which made these initiatives possible.

Specific legislation was prepared at Federal level and in some States, such as Mato Grosso, São Paulo and Minas Gerais. With these special training processes it was hoped that a significant number of teachers in service in the network would become more qualified. It was calculated that the time necessary to complete in-service teacher training at upper secondary or degree level, would be several decades with existing degree courses, due to the volume of teachers requiring such training. The justifications for so many programmes affirmed that public teaching systems could not wait that amount of time to attain higher qualified teachers. Through the many special initiatives implemented, it is estimated that almost 100,000 teachers were qualified in such programmes, either at upper secondary or degree level, in a period close to four years. This type of training is still offered but the availability of these special public programmes has declined, as many public sector teachers have already been qualified and new entrants must already have this basic training upon entry. However, the demand for complementary training is still great in primary and secondary education and is especially high in kindergartens. On examining curricular proposals and materials developed and implemented by some of these programmes, innovations are found which coincide with more recent theories on curriculum, with regards to curricular matrices and modes of delivering content and activities. Several evaluations of these programmes signal this, as they indicate participants' satisfaction with the type of course and contents. This also indicates significant learning by institutions, resulting from the challenge of creating new approaches, teaching materials of different kinds, experimenting with new technological resources and developing new processes for the relationship between teacher trainers (tutors or monitors) and trainees (NICOLAU; KRASILCHIK, 2006; DUARTE, 2004 and FUNDAÇÃO CARLOS CHAGAS, 2003).

Amongst these proposals, we can quote *Proformação* (MEC); the *Veredas* Project (SEE-MG); *PEC Formação Universitária* (SEESP);

PEC Municípios (USP; PUC-SP); *Pedagogia Cidadã* (UNESP); *Licenciaturas Plenas Parceladas* at Mato Grosso State University (UNEMAT); the Project *Licenciatura Plena em Educação Básica: primeiros anos*, which is a SEE-MT/UFMT/UNEMAT/city hall partnership; the *Angra dos Reis* Project at *Universidade Federal Fluminense* (UFF) in partnership with the city hall and the Municipal Teachers' Degree programme at the Amazon State University (UEA).

In addition to those mentioned above, other programmes were and are offered, largely by a variety of organisations contracted by public authorities. There was, and is, to a certain extent, a movement in the public sector to progressively qualify teachers, at levels compatible with their function. There is evaluation data on some of these programmes but on others, which are the majority, no information was obtained to evaluate the process and results. What is unknown is whether or not appropriate training is being given for these diplomas, and if they are based on solid foundations.

1. DETAILING SOME PROPOSALS

The following introduction seeks to highlight approaches used in some programmes applied in the public sector, enabling reflection on their respective contributions.

• *Proformação*

The Programme for Training In-Service Teachers (*Proformação*) was developed by the Ministry of Education from 1997, with a view to offering a teaching diploma at upper secondary level to lay teachers. Proposed in modules, with multimedia and curriculum organized into thematic areas, it addressed around 30,000 teachers in the Midwest, North and Northeast. This is a distance learning programme, used self-access materials (printed and video material) which were specifically produced for the course, individual and collective activities and a service to support

learning, performed by a team of teacher trainers from training agencies (schools/universities in the region) and tutors. The course is divided into four semesters, each semester corresponds to one module, involving Face-to-Face phases and extra classes for bimestral tests (96 hours), individual activities from the study guides and workbook exercises (192 hours), fortnightly meetings on Saturdays (72 hours), teaching practice (320 hours), narrative writing (40 hours) and work & foreign language projects (80 hours). The curriculum comprises a basic core, which is divided into thematic areas: Languages and Codes; Identity, Society and Culture; Mathematics and Logic and Life and Nature and a teacher training core which has two areas: Foundations of Education and Organizing Teaching Work. The areas are interconnected by a central axis in each module, creating an interdisciplinary field, where the content of the two different areas are articulated around the experiences of teachers on the course. There are four integrating axes (one per module) which serve as an aggregating element for all areas. These common core areas are complemented by a foreign language and work project, which is an investigation and/or pedagogical activity undertaken by the trainee with regard to some aspect of their work at school. Using appropriate subjects, special attention was dedicated to training trainers and tutors. Curricular innovation was clear, distinguishing the course programme which was regularly offered. An external evaluation clearly indicated that these teachers, who were already in the classroom but had no specific training, were able to develop towards more complete professionalization. The innovative curriculum was essential (in which pedagogical practices are taken as the axis connecting knowledge), as were high quality support materials and continuous support of tutors and contact with teacher trainers (PLACCO; ANDRÉ; GATTI, 2003, p. 82).

Even with some restrictive factors in a few locations, it was found that these were overcome by programme design at articulated levels, by appropriate management, the type and content of materials used, effort and motivation aroused in trainee teachers and teacher trainers at all levels, and respect for the trainee teacher at his specific starting point, through partnerships developed. It should be noted that the evaluation system included bimestral tests, amongst other elements, which were considered

positive. Also deemed positive was the parallel remedial support offered to teachers throughout the semester and exam preparation just before the test. Narratives and work projects were also considered essential elements to develop learning. The fortnightly written narrative, which was a report on trainee teachers' daily experiences in different phases of the course with tutor feedback, was considered a precious tool to analyse or develop trainees' writing skills, based on a sequential analysis of these texts (PLACCO; ANDRÉ; GATTI, 2003). The positive effects of this programme and cultural and attitudinal changes, as well as those in the classroom, were also found in Morais' study (2001). On analysis, this data, from a psychosocial viewpoint (GATTI, 2003), led to the observation that although a small proportion of trainees failed to complete the course and identified problems with the language of the curricular guides and local management issues, most of them successfully concluded their training, showing how it had become an integral part of their lives and professional experience. The effectiveness of the process stems from the integration built into the programme format, reinforcing the idea that "for changes in educational concepts and practices of teachers to occur, programmes must seek educational innovations, improvements and updates with a concrete link to the psychosocial environment in which these professionals work and live". It is not just a matter of technical rationality but it is necessary to match thinking with feeling and desire, which requires one to deal with personal and social representations, as well as the feelings associated with them.

• *PEC – Formação Universitária*

The Continuing Education Programme: *PEC – Formação Universitária* by the São Paulo State Education Secretariat was developed in partnership with USP, UNESP and PUC-SP. This programme, although sharing a common platform, took on different characteristics when offered by each institution, with their own content, activities and materials. Approximately 8,000 teachers were qualified in the State network. External evaluation and other studies (CARLOS CHAGAS FOUNDATION, 2003; NICOLAU; KRASILCHIK, 2006) showed

that many trainee teachers considered that the programme's approach revealed new forms of presenting and developing content in the classroom, with considerable acceptance by trainees of both classroom and external activities. These were supported by high quality printed materials. What is found in the studies is that trainee teachers were in some ways affected by *PEC – Formação Universitária*, as their values and attitudes were challenged and because they acquired new knowledge. Statements collected throughout field investigation (CARLOS CHAGAS FOUNDATION, 2003, v. 3) indicated that from trainee teachers' viewpoint *PEC – Formação Universitária*'s greatest contribution was an altered vision of teaching practice, which became more critical. According to the trainees themselves, the aspects of the programme that had the most impact were theoretical clarification on pedagogical practice and, above all, greater knowledge of learning processes amongst children, leading to increased confidence in the workplace.

- ***PEC – Municípios***

PEC – University Training was offered to municipalities, with a few adaptations, generating *PEC – Municípios* (USP and PUC-SP), and, later it gave rise to the Pedagogy for Citizenship Programme at UNESP. These programmes basically serve the municipalities of São Paulo State.

With regards to *PEC – Municípios*, its curricula structure comprised an introductory module aimed at training student teachers in ICT and four other modules which focused on specific training, developed through integration with practical experiences in the following axes: a) experiential, reflexive and ethical dimension; b) teacher training in schools, including the current political-pedagogical scenario, contents and methodology from curriculum areas; c) curriculum, involving space and time for collective decision-making; d) the school as a link in the network of a knowledgeable society.

The programme was developed in learning environments with the necessary distance learning equipment, using video conferences and with interaction between various classrooms and teachers and between each other, so forming a network; tele-conferences for debate and

clarifications; monitored work, focusing on aspects of the classroom, with tutor support; educational experiences and cultural workshops. Teaching materials were generated to support student teachers. Studies on changes in attitude amongst course participants, encompassing 17 simulations with problem situations and answered by a sample of 1,272 participants at the beginning and end of the programme showed that 30% of student teachers underwent modifications to their profile for the attitude studies (towards those proposed by the programme). It was found that at the end of the programme participants were more likely to "control and plan teaching situations involving basic content from the areas of knowledge, recognize and use resources and technology appropriately for the teaching-learning process and make use of theory to guide teaching practice".

Another group of student teachers only partially developed the attitudes expected, although they did show positive changes. One small group maintained more traditionally embedded attitudes (DAVIS et al., 2007, p. 227-246). It was also found that recognising teaching practices that promote meaningful learning in students seems to be simpler than demonstrating skill in "articulating theory and practice" and "appropriate action in the teaching, learning and evaluation process" (DAVIS et al., 2005, 2008). Based on these analyses, once again it is observed that technical aspects alone do not create the conditions for effective changes in values, attitudes and practices. Teacher training processes towards developing knowledge, skills and attitudes that overcome prejudice and more embedded ways of thinking about aspects of learning-teaching, the school, classroom, students and the community they belong to, demand extra curricular activity that covers trainees' life experiences in relation to new knowledge and ways of thinking about and seeing people in their social and educational relations.

- ***Pedagogia Cidadã***

Regarding the *Pedagogia Cidadã* programme, conceived and developed by the State of Saõ Paulo University (UNESP), aimed at teachers working at nursery and primary schools and preferentially

linked to municipal school systems, was implemented with Face-to-Face action by staff at UNESP and in conjunction with university coordinated professionals. It also encompasses the use of multimedia for distance learning, this being performed in a modular fashion, defined using broader areas for training (UNESP, 2001). The infrastructure foreseen suggests 875 classrooms distributed throughout the countryside of São Paulo State, ten to generate video conferences and 20 to receive them. The curriculum comprises Foundations of Education, Subject Content and methodology, Organisation of School Work, Teamwork and Democratic Administration, Curricular Management, Planning and Evaluation, Complementary Studies, Professional Experiences Introduction to ICT and Interactive Media, Communication Studies, Methodology for Educational Research, Teaching Practice, a Work Placement and Final Paper. Modules may be structured by thematic areas. The module duration may be variable and subjects redistributed, provided that the total workload is fulfilled. Course documents recommend that subject fragmentation is avoided, as well as isolated modules, a rigid workload and standardization. That is, it is a flexible programme, readily adjusted to local realities and while maintaining an inclusive perspective. In the evaluation process, capacity for systematizing knowledge to deal with classroom practice is sought. Final evaluation is through analysis of students' portfolios, which should contain coursework, exam papers, protocols from observations and self-assessed teaching practice in the light of theoretical content studied. No external evaluation of the proposal was found.

- ***Veredas*** **Project**

Another similar initiative is the *Veredas* Project – Higher Education for Teachers, developed in partnership with the government of Minas Gerais and several universities and higher education colleges in that State, with a view to public sector primary school teachers attaining degree level qualifications in four years. Using a variety of technologies, and characterized as in-service training, the project was defined as a distance learning course but with Face-to-Face elements. In 2001, the

potential universe of trainees was estimated at approximately 30,000 teachers (MINAS GERAIS, 2001). Its curricular structure is based on a matrix and guided by a philosophy of education similar to that proposed by *Proformação*, yet incorporating the elements necessary for a solid university education. Training themes, interdisciplinarity, integrated content, different types of substantial teaching materials and trainer training are elements that gave the *Veredas* project its high quality and good results (MIRANDA; CAIAFFA, 2003).

1.1. Contributory factors

Collective and democratic curriculum planning, within clear paradigms for the professional profile desired, show its innovative potential, as the process can be broken down into many possible course formats, as was observed in experiments undertaken in different regions around the country. These programmes stand out for their care with curriculum, subjects and contents, showing the possibility of structuring a course for a given professional profile of teacher, in which general culture, knowledge of foundations relating to educational processes and, particularly, to teaching and learning, converge for teacher training. They also build the necessary basis for acquisition of basic professional skills for working in schools and classrooms. Such abilities are the object of specific treatment, in the form of training which is full of awareness and reflections for impact when working with students. By offering theoretical and practical sustainability in primary and secondary schools, such courses allow for the emergence of creativity amongst trainee teachers and their autonomy with some degree of consistency, as a result of the training given.

Another important aspect is involving professional teacher trainers in the entire training proposal, which enabled more integrated work with these trainers. This meant moving away from the traditional "patchwork quilt" approach, which leaves it entirely up to teaching degree graduates to discover or establish links between knowledge offered in a static perspective, often according to the whim of each teacher trainer, their personal interests or working conditions and engagement.

The teaching and reading materials used, focusing on the course proposal and within a formative philosophy, allied to care with adaptation to course objectives and the professional profile desired and while giving special attention to language. These all constitute a framework that enables integration of the teacher trainer, tutor or monitors with the curricular themes and work with trainees. This framework lends meaning to the training process in a synchronous way. The use of multimedia, printed materials, CDs, videos or DVDs, Internet etc, mobilized trainers and trainees, offering broader sources of information and enabling them to comfortably attain a command of these tools. Trainees will undoubtedly transfer this knowledge to their places of work. In regular courses at higher education institutes trainers do not generally make use of such resources and trainees do not have the opportunity to attain their potential for working in the classroom. Answers to the ENADE questionnaire show this, as do others which are mentioned above. The presence of personalised exams, which are highlighted in two of the projects analysed, alongside other forms of assessment, seem to be worthy of consideration when these exams take on formative value as a result of their careful preparation, preparation of students, with revision and extra activities and through elucidation and discussion of the evaluation undertaken, using clarifications and complements. That is, the exam is used as a teaching-training resource.

2. PRECURSORY INITIATIVES

As shown, proposals from the early to mid-1990s should be highlighted, as they also proved to be innovative and signalled the need to pursue new teacher training paths, whether for primary or secondary schooling. We shall cover four such proposals below.

The State of Rio Grande do Norte government took the initiative of creating the President Kennedy Institute of Teacher Training (IFP), which had three roles: qualification, continuous development and being a centre of excellence. To develop training for qualifications, IFP began by offering a course in Education for kindergartens, primary and lower secondary schools. In order to set up the course, the first step was

to define a profile for the teacher trainer, who should bring together academic competence and experience of the reality of State sector nursery, primary and lower secondary teaching. Once candidates were selected who were all linked to the public teaching system, they took part in a Further Study Cycle, grouped by areas, under the guidance of a specialist from the Federal University of Rio Grande do Norte (UFRN). This cycle lasted three months, encompassing seminars and workshops to ensure a firm grounding in the basic bibliography, for planning and delivering classes and presenting a work plan for the training.

After this cycle, the teachers that had the best performance were selected to comprise the training staff and worked full time; the Federal University was responsible for continuous development of the teacher trainers, so implementation of the course also meant an agreement with UFRN. The target clientele for the Teaching Degree in Education for kindergartens, primary and lower secondary Schools was in-service teachers from the public sector (State and municipal) in Natal, who had an upper secondary certification in teaching. The course was condensed into two years and with a 2,930 hour duration, in which 200 teachers were trained in 1994/95, another 200 in 1995/96 and 200 in 1996/97. Students take the training course and continue teaching in the classroom at another time of the day. Through its dynamic structure the course enables insertion of trainee teachers in activities that seek to develop autonomous, personal work, enabling analyses of classroom situations, based on curricular content covered in primary and lower secondary schools, alternating between theory and practice, providing multidisciplinary professional training, complementary interdisciplinary training and an initiation in scientific investigation. The proposal was to perform teacher training through seminars for those in full-time work, for which there was a system for alternating between trainees in order to cover regular classes in the school system. Also in kindergarten and secondary school classes for IFP these trainees experienced teaching activity through preparation and planning undertaken with the teacher trainers. The multidisciplinary training takes place in the form of classes, projects, conferences, laboratory activities and workshops. Complementary training may refer to revision of content through

interdisciplinary workshops or further investigation of areas, themes or contents and, in this case, through introduction to research. Trainee teachers sign up for workshops according to their tutor's guidance, based on what will give them the best opportunity to overcome any difficulties. There is a weekly meeting between tutor and trainees in a mediation session. This is when practice is integrated with theory, in which multidisciplinary issues are discussed, in both the horizontal and vertical sense. Mediation has an important role for the tutor to monitor trainee teacher development, as it is his responsibility to accompany student practice in the school laboratory, guiding activities undertaken there, as well as professional narrative for trainees. Assessment of the work performed with the first group is highly positive and pointed to some adjustments in the course design, which is far from conventional. In an analysis by Maranhão, the following can be identified:

> The course, by contemplating a specific methodology, required less conventional organisation and activities. Assimilation of these aspects, which would guarantee successful implementation of the proposal, was slow, both on the part of teacher trainers and trainee teachers (MARANHÃO, 1996).

The proposal for a Teaching Degree in Primary Education was for interdisciplinary and inter-institutional work, with participation by UFMT, UNEMAT and Mato Grosso State Secretariat of Education teaching degrees and city hall involvement (UNEMAT, 1996). The course was developed by combining distance learning and Face-to-Face learning, with a minimum duration of four years and maximum of five, in two to five phases. In the first phase, comprising three stages, methodological orientations on the process of teaching-learning at a distance were given, along with content linked to subjects from Foundations of Education, with a view to analysis and reflection on the educational reality that the students experienced. The third stage of this phase is conducted Face-to-Face and performed through seminars on the reality of Brazilian education. In this phase, students have the opportunity to raise doubts about contents studied via distance learning methodology, as well as to discuss pedagogical activity – teaching practices. In the second phase,

students are offered further knowledge of basic sciences and studies about teaching these subjects at primary level. In the first module of this phase, contents and methodology from areas of knowledge from primary schools are presented. In the second, there are seminars on teaching. The basic course material includes handouts on different themes and their distribution is planned so students have control over their studies. There is bibliographical and video reference material and students are encouraged to do background reading and the activities proposed at the end of each unit. Thus, it is possible to perform self-assessment and plan one's own progress. For course development, two centres are planned, one at the university, called the HQ, and another in the host municipality, called the Support Centre. The latter has a team of academic ddvisors who perform personalised and continuous development with the students, guiding and supervising them on their teaching-learning process. Pedagogical resources and diverse materials for exploring content are used. Seminars are also held in the support centre. At the HQ, there are also academic advisors who interact with the Support Centre, when there is no local solution. As for evaluation, during work with handouts, students will perform self-assessment, through understanding the content studied and resolution of exercises and issues. At the end of each handout, a written evaluation is proposed and its completion is a condition for students to progress, by means of a minimum grade of 7.0 (seven). Students only receive new handouts on themes when they complete these partial evaluations. Involvement in the course, participation in seminars, contact with academic supervisor (teacher-tutor), research and use of material from the support centre, etc, are all evaluated.

Another programme worthy of note is the Modular Teaching Degree at Mato Grosso State University (UNEMAT). It comprises a continuous training project for in-service teachers requiring a degree. The university has several campuses and teachers taking part in the programme were professionally affiliated with municipal or State school systems near the campuses. Activity on the teaching degree curriculum has two phases: basic training and specific training, with research, understood as a pedagogical tool defining each stage as the theme integrating the two phases and the subjects that support them.

In basic training, pedagogical activities are planned based on an initial diagnosis from university entrance exams and the regional context. In this stage, emphasis is given to subjects which comprise blocks: Social and Natural Sciences, Introduction to Mathematics, Statistics, Composition and Reading and Foreign Languages. Basic training lasts for eighteen months and is divided into three phases. This training ends with a seminar on the process of preparing and executing research and on its results. This process develops integration between subjects. Specific training corresponds to the qualifications offered and has a three and a half year duration. Here there is further research and undergraduates, guided by teachers, examine the local reality and bottlenecks in the teaching process. Research leads to transformation of their teaching practices and helps towards making their educational activity a continuous investigative practice. In this phase, trainee teachers become involved in the courses themselves (Education, History, Geography, Mathematics, Biological Sciences or Languages). Undergraduates in Education are seen as a multi-skilled educator, who will be responsible for introductory areas of Language, Social Sciences, Natural Sciences and Mathematics at primary level.

Other courses seek to train an educator with further knowledge on an area, relating to the subjects which form the secondary school curriculum. Evaluation is ongoing and integrated with all activities, with a systematic record of monitoring and guidance given to students, enabling verification that they have met objectives at each stage, prior to advancing further. The course is divided into intensive and intermediary learning modules. Intensive modules take place on campus during school holidays, in the months of January, February and July and cover 75% of course activity. Intermediary modules occur during the school year, with time earmarked for personal support and guidance for teachers in each municipality. This support is given by a team of teachers and trainees in each geo-educational region, which is understood as a campus. In these intermediary modules, practical field research, bibliographical study, reorientation of research projects as well as complementary instruction in subject content and re-elaboration of concepts in study groups is performed.

It is important to highlight the care taken with preparing teachers for activity within this modular teaching degree. Each stage of the modular course is preceded by training teachers by means of short courses for improvement or by group discussions in which objectives are met, pathways defined and self-study undertaken. For this teacher improvement, specialized advice is given by teachers from other universities. Evaluations show that this is a promising way forward to make up for shortcomings in training, even when considering some implementation issues.

The teacher training course developed by UFF with the city hall of Angra dos Reis as a pilot was a time bound experiment, with integrating characteristics and a totally redesigned curriculum. There were clear goals regarding the population served, with its core based on research and teaching practice (ALVES; GARCIA, 1993). Its foundations, structure and functioning may provide elements for reflection and proposal of new foci in teacher training. It was born of a collective discussion involving a group of teachers and was detailed in partnership with an Education course which sought to train kindergarten and primary school teachers, teachers of school subjects who only had upper secondary training, educational administrators, supervisors and counsellors. For execution of course activities, acquisition of knowledge was seen as a permanent quest and a practical endeavour, built through the activity of subjects which interact with the objects of study. Thus, according to the authors mentioned, social practice is brought to the fore as a guide for pedagogical practice, as understanding the reality requires something beyond what the fragmented eyes of philosophy sociology, psychology or anthropology are able to see.

Training requires an appropriate integration of the different areas of knowledge in an interdisciplinary process across networks. Seeking to break with the separation between theory and practice, in which theory traditionally precedes practice (the latter often only appearing late work placements) a decision was made to place research at the centre of the entire course. This would guarantee a constant relationship between theory and practice, by means of reflective learning about trainees' own

practice. All of this is linked to a holistic view of training for these professionals, considering several spheres, that is daily teaching practices and collective teaching practices, government policy and educational research. The proposed curriculum for this course was based on the logic of developing content with increasing complexity, variation of paths, articulation and collective construction. The curricular proposal is that of an open spiral, in which generalities and specificities in training criss-cross with revision sections in the form of interdisciplinary seminars, with participation of teachers, students and others who may enrich the process. All subjects on the course are compulsory as they are considered indispensable for training. The possibility of selective options arises in the choices of content and method within research topics and specific activities for training, as well as cultural activities. There was an integrative theme concretized by the Centre for Pedagogical Studies and Activities (NEAP), according to the following topics: 1. Education and Society: analysis of structure and relations. 2. Education, History and Knowledge: the historic process of collective construction of knowledge and its internalisation. 3. World View and Science Teaching: Science as a space for debate and the importance of socialisation of scientific knowledge. 4. Popular Education and Work: the central role of work in the history of mankind and the private appropriation of its results. 5. Literacy training and Language: appropriation of a different language as a possibility for access to knowledge of statement of autonomy. 6. Daily construction of the School: the conflict between public and private in school and curriculum reorientation. 7. Daily School and Classroom Life: school as a space for constructing new relations and knowledge. 8. Teaching Practice I: theory and practice of primary and lower secondary schooling. 9. Teaching Practice II: theory and practice of primary and lower secondary schooling. 10. Teaching Practice III: theory and practice for education professionals. 11. Teaching Practice IV (by qualification): daily routine at kindergartens, primary and secondary schools, the routine of school administration, educational supervision and counselling. 12. Research and 13. Cultural Activities.

At the end of each NEAP, teachers and students will evaluate the subjects of the process (students and teachers), the process itself

(methodology, content, relations, theoretical and practical integration, content and method, vertical and horizontal integration etc) and individual and collective production. Evaluation, as described in the course design, comprises a possibility for development of critical and creative thought, which are indispensable conditions for training education professionals.

3. HIGHLIGHTING CHARACTERISTICS

Reflecting on the positive effects observed with developing the special programmes evaluated and described above, we found that there are some common characteristics amongst them which are worthy of note. The first is the concern expressed in the programmes with courses for trainers, with some including specific moments and materials for this purpose. Certain obstacles encountered in assessing these programmes relate to cases in which the trainers or tutors did not correspond to trainees' needs and, in this sense, some local differences were found.

For example, it is interesting to observe that the Ministry of Education sought to increase teacher training through *Proformação*, publishing Bill 81 of MEC's Secretariat of Distance Education on 8th December, 2006. This refers to the qualification of trainers for *Proformação*, which has existed since 1997. Although the content of this bill was aimed specifically at this programme, upon implementation it consolidates a path to be followed by other similar projects, also guiding evaluation by public authorities of proposals for continued distance education, relating to trainer qualification. This Bill regulates the general terms of the Continuing Training Programme for Course Supervisors, Trainers and Tutors in *Proformação*. It provides for continued training for collaborators who work in the *Proformação* Learning Support Service on contents and methods, theoretical-methodological content for implementing distance learning, with a view to improving teaching practices and increasing the level of knowledge of the teachers who work on the programme. In summary, as stated by the Bill, to "value the teaching professional by means of professional training of teachers and

to increase the quality of teaching". Thus, there must be a programme and forms for training trainers who will work on the project. Without a doubt, the Federal authorities give an important example by turning attention to better qualification of trainers working on this continuous education programme and proposing more specific training for them.

Evaluations showing the importance of teachers and tutors on these programmes resonate with this Bill and other regulations that begin to appear. The second point is the existence of a curriculum design with a clear focus on teacher training, with neither dispersion nor matching for other types of undergraduate. The translation of this proposal is based on clear concepts of the formative processes and objectives sought, which are shared amongst coordinators, teachers, tutors and undergraduates. By implementing training activities, they present a curriculum in matrix format and not a list of unrelated topics, with the integration of areas and knowledge, foundations, methodology and practices. From the matrix and teaching activities proposed, it can be seen that there is a balance in treatment of foundations, which are basic concepts in the field and pedagogical training.

Other points that should be highlighted are:

- Integration of experiences in schools and personal experiences.
- Formative evaluation, without forgoing tests of knowledge.
- Well prepared, tested and revised didactic, textual and electronic materials which use appropriate language.
- Continuous supervision and accompaniment of curricular implementation by the acting coordinating group.
- Development of adjustments, if necessary.
- Continued training for trainers due to the philosophy and aims of the course.

8. CONTINUOUS DEVELOPMENT ON THE AGENDA

Interest in the theme of continuous development has spread in recent years, involving policymakers in education, researchers, academic, educators and professional associations. There is considerable mobilization regarding the issue, the amount of literature on the topic is growing, official and unofficial events lead to debates and there is reasonable circulation of analyses and proposals, with education systems investing increasingly in testing alternatives for the continuous development of teachers. Nevertheless, results obtained from students, from the standpoint of their performance in school subjects, have not yet proven satisfactory. This fact has led to a questioning of the continuous development process in Brazil.

It has been observed that continuous development has received substantial attention. Indicators reveal the high number of teachers taking part in activities or courses with this objective. According to data from the 2003 Census of Primary and Lower Secondary School Teachers, analysed by Catrib et al. (2008), 701,516 of these professionals from a total of 1,542,878, participated in an activity or course, whether Face-to-Face, blended or at a distance, in the past two years, offered by government institutions, through the States and municipalities or by public or private higher education institutions, NGOs, trade unions or the schools themselves. Amongst the institutions that provide training, the highest numbers of teachers qualified is to be found amongst municipal education Secretariats, when compared to State and Federal government authorities. Similarly, more training is offered by private higher education institutions than public and the Northeast and

Southeast regions also show higher figures than other regions of Brazil. Most of the training activities that teachers take part in are Face-to-Face courses. This is despite the growing trend towards serving large masses of professionals by use of blended or distance learning, with support from printed material and together with modern information and communication technologies. With these indicators, it is important to consider that designation of Face-to-Face continuous development covers a highly heterogeneous set of activities, the nature of which varies from more institutionalized formats that grant certificates and have a predetermined duration and formal organization to less formal initiatives which seek to contribute to teachers' professional development. These occupy working hours or take place in the form of exchanges between peers and study groups and reflect on daily routine in schools and classrooms.

1. TRAINING PURPOSES AND PROCEDURES

In general, continuous development offered in recent decades has been aimed at updating and furthering the knowledge required for work in view of advances and changes in the field of technology, the rearrangement of productive processes and their social repercussions. Several teacher training programmes for teachers of Science, Mathematics and Portuguese were implemented in the country by government authorities or groups of specialist university teachers who were involved with issues surrounding teaching. Some such programmes lasted over a decade, with isolated repercussions for work in schools. During this time it was found that some interesting projects were often beyond the learning capacity of trainee teachers, requiring teacher trainers to invest much more in terms of diagnosis, planning and development than budgets, time allocated or availability of personnel allowed.

With growing problems in early teacher training courses, the idea of continuous training for professional development has also been spreading to include extra training to fill the gaps left by initial training. The indicators arising from evaluating training courses and student

performance demonstrate the insufficiency or even inappropriateness of initial training acquired in higher education institutions, which have been expanding rapidly, especially in the private sector from the 1980s onwards. It has been found that the curricula for these courses pay little attention to the need for training which provides the indispensable tools for raising teachers' awareness of foundations, with a solid initiation in practices and open to constant revision and improvement (GATTI; NUNES, 2008).

With the curricular reforms of the 1990s, the change of knowledge paradigms in the different theoretical domains at the base of the primary and secondary school curriculum brought challenges to teacher training institutions which were not appropriately solved by them in their teaching degree curricula. That is where the development of intense continuous development programmes partly began, with the aim of providing training for implementing educational reform. Some of these initiatives were concentrated on disseminating the foundations and principles of reform, seeking legitimacy with the body of in-service teachers and delaying or transferring the task of finding ways to implement them to the teachers themselves. Others covered details relating to teaching practice in specific areas, such as the literacy training process.

Aguerrondo (2004), in a debate on the challenges of teacher training policies, examines several continuous development processes which occurred throughout the policies and practices adopted by school systems in different countries and considers that they are not always successful. On the contrary, it was not uncommon for such initiatives to be greeted with scepticism and even received severe criticism by teachers. Since the 1980s, the continuous development processes, whether for updating/complementing knowledge or preparing implementation of educational reform, did not produce the desired effect. Amongst reasons given are the difficulty of mass training, brevity of courses, lack of sufficient funding and problems, for the reasons provided, of offering tools and the support necessary for desired changes to come about.

Another reason commonly given in critical studies of continuous development is the limited or zero participation of teachers in defining teacher development policies, as a professional category and in the formulation of projects with schools and teaching at their core. In these conditions, they do not get involved, do not take the principles on board, do not feel motivated to change their practices through construction of alternative actions and refuse to act as mere executors of external proposals.

The training model often follows the characteristics of a 'cascade' model, in which a first group of professionals is trained and these trainees become the trainers of a new group, which, in turn, trains the next one. Through this procedure, which generally passes through the different hierarchical levels of large teaching systems, technical-pedagogical staff, supervisors and specialists, although allowing the involvement of quite high numbers of trainees in numeric terms, has proven to be far from effective when it comes to disseminating the foundations of a reform, with all its nuances, depth and implications.

Teaching to teach requires more complex, long-term strategies than the quantity of training resources available, both in terms of intermediary trainers and teachers operating at the system's basis. It should also be considered that the body of trainers who are those responsible for the programmes need to be involved and learn from their own development.

2. REDESIGNING CONTINUOUS EDUCATION

More recently, there was a movement to redefine continuous education as a result of research aimed at investigating issues related to teachers' professional identity. Proposals inspired by the concept of training gave way to a new paradigm, centred more on the teachers' potential for self-development and growth, recognising a foundation of pre-existing knowledge in the baggage of professional resources and as a basis on which to build new concepts and options. The representations, attitudes and motivation of teachers come to be seen as essential factors in considering implementation of change and production of innovations

in educational practice. The teacher's central role came to be valued and integrated into continuous development projects. New models seek to replace the logic of training processes which ignore a teacher's trajectory during the course of his professional practice.

Within this perspective of training as a continuum throughout professional life, the underlying concept is that of professional development. The process of training is defined as a movement towards responding to the variety of challenges that present themselves during different phases of professional life: early career, development and consolidation of professional experience.

The idea of continuous training as professional development is at the core of two widely accepted models defended in the most recent educational literature: workshops for reflection on practice and training centred on institutional improvement.

When analysing the two models, Rego and Mello (2002) consider that the model of reflection on practice in small groups is a highly valuable training strategy and has produced interesting effects. Greater proximity to the teacher's reality is possible, as well as closer attention to the repertoire of practices in diverse school cultures, whether to legitimise, redefine or overcome them. However, when limited to the dimensions of a school, it fails to respond to the systemic need for inducing change with a certain social urgency and amplitude to reach all teaching staff, which is a considerable number of people. Although supported by more recent government policies, its effects, in terms of the system as a whole, do not reach the desired levels. On the other hand, introducting training processes that use critical reflection on practices in the context of a commitment to strengthening the school, as a socially responsible institution, which is relevant and challenging in today's world, implies environments conducive to teamwork, participatory management and availability of pedagogical resources and appropriate materials. Both models, which are the institutional strengthening of the school and reflective practice, presuppose transformations which go beyond issues of involving teachers in continuous development *per se*, as they demand appropriate institutional and structural conditions.

In this sense, one should remember experiments performed in municipalities with a political profile that was more clearly committed to quality education. They have been investing in these models of continuous development with interesting results since the 1990s. The Training Groups Project implemented by the Municipal Secretariat of São Paulo between 1989 and 1992 addressed all schools and adopted a continuous development paradigm which favoured the central roles of the teacher and the school. The most favourable factor for implementing the project was creating a teaching statute which provided for 40 hours of paid work per week, with 20 in the classroom and 20 dedicated to study, planning and training.

Studies on continuous development processes with a similar profile and implemented in municipal systems reveal its high potential to induce significant changes in local education. However, its positive effects may be limited as a result of alternations in power between political parties and government programme changes.

3. TWO WIDE-REACHING PROGRAMMES: PROCAP AND PEC

In the 1990s, two programmes (developed in Minas Gerais and in São Paulo States) used innovative in-service training methodology to enable identification, with greater clarity, of elements which favour and inhibit large scale professional development. Both programmes, executed between 1996 and 1998, reached approximately 100,000 professionals from the State and municipal system, in a wide variety of municipalities and schools. Both were financed with external funds from the World Bank, showed some common characteristics such as involvement of higher education institutions and division of the State into training clusters, yet they defined different operational strategies. PROCAP, the teacher training programme implemented by the State Secretariat of Education in Minas Gerais in partnership with regional offices, universities and municipal town halls, was aimed at State and municipal primary school teachers and had a more centralised profile. The State Secretariat of Education formulated the programme proposal

and was responsible for its supervision and management, defining curriculum content, producing the teaching materials and videos used and providing the operational logistics necessary for holding Face-to-Face activities in the school itself and distance learning activities. A learning support system was created, enabling integration of local, regional and State level activities with the presence of facilitators to work in schools. They were chosen from among staff, regional monitors, responsible for training facilitators, and higher education institutions licensed to prepare the monitors. Face-to-Face activities included analysis of printed material, discussions based on videos and reflection on teaching practice which teachers were encouraged to hold with their own students, using a Pedagogical Activity Plan formulated by them. This 120 hour voluntary programme was developed and the issue of certificates and credits towards a career plan, in addition to assistance with costs for participants and facilitators were adopted as incentives.

The Continuous Education Programme (PEC) developed by the São Paulo State Education Secretariat for all teachers in primary and lower secondary education, focused on the needs of schools and their teachers, with a decentralised form of Face-to-Face training. The programme was delivered through 19 clusters, in partnership with universities and training institutions which were required to plan their activities based on the demands identified by the network and regional teaching boards. The training institutions had autonomy to execute their proposals and develop the teaching materials required, based on a common platform and guided by the principle of action-reflection-action. The programme aimed to train teachers to diagnose problems, prioritise them, propose interventions collectively and systematically evaluate the work undertaken. Participants were instructed to take the actions planned for the four modules, each with a 24 hour duration and totalling 96 hours of training, in their places of work, bringing experiences for group discussion with the theoretical foundations studied. Given the decentralised nature of the programme, the initiatives implemented showed considerable diversity.

Analyses of the effects of these programmes carried out by Vanda Catarina Duarte (2004), through the examination of documents and external evaluations and by Vanise de Castro Duarte (2006) in research undertaken with PROCAP participants, contribute to consolidating several consensuses on continuous training and raises concerns about structures, procedures and methodologies that do not favour teachers' professional development. The PEC activities in São Paulo which received the highest praise were those resulting from careful negotiation between training institutions and regional teaching boards and involving head teachers, teachers and technicians but which nevertheless made space for inserting the teacher as an active subject and for training focused on integration of theory and the challenges faced by teachers. Another positive aspect was the flexibility for adaptation throughout the programme, demonstrated by some clusters. In turn, despite identification of characteristics and needs of the network, undertaken by the regional teaching boards to support the programme, some of these diagnoses failed to show sufficient depth for an appropriate analysis of the programme, due to time limitations and a lack of technical competence. As a result, in these situations teachers had difficulties keeping up with the training content or did not perceive an answer to their specific challenges in these activities. The most obvious effects observed were: greater awareness, opening of perspectives for interpretation of educational challenges, recognition of the importance of affective relations for students' development and valuing teamwork, amongst others. What occasionally led to a sense of frustration was the fact that the Education Secretariat at the time was implementing a policy to reorganise its physical structure and centralised allocation of classes which, independently of its legitimacy, made the school teams' work harder.

The greater heterogeneity of the Minas Gerais programme, led to fewer questions from teachers than the decentralised São Paulo programme. Continuous development centred on the school, adoption of external incentives and a more passive attitude from primary school teachers in respect to the training seem to have contributed to wider acceptance of the programme. Both contributed more to awareness-raising with

regard to basic aspects of teaching, dealing more appropriately with individual differences between students, using diversified pedagogical-teaching materials and valuing teamwork, than sustaining significant changes in teaching practice.

In the years that followed, the provision of continuous development grew. State and municipal networks, mostly with encouragement and financial support from the Ministry of Education, took responsibility for continuous development initiatives of the most varied nature and formats.

4. A NATIONAL NETWORK

In 2005, the Ministry of Education created the National Network for the Continuous Development of Primary and Secondary School Teachers, integrating research centres from several universities. The network grew as a result of the observation that continuous development has increasingly become a part of the equation for teachers, schools and educational managers at different levels, notwithstanding the result of analyses of continuous development that showed the excessive dispersal of initiatives, their superimposition and, often their superficiality. With the institutionalisation of the network, several training centres linked to universities were licensed, specialising in several areas of knowledge. This led to development of diverse teaching materials in universities which were well-founded and validated and aimed at in-service teachers. This is an activity that was far from institutionalised research in academia, bringing a contribution to instruments for educational practice in the classroom. Many specific actions were undertaken in States and municipalities by such centres. The integration of continuous education activities also advances with expansion of the Articulated Action Plan (PAR). Around 75% of Brazilian municipalities have already formulated plans and continuous development has been demanded and delivered through these, often by National Network Centres and integrating with other Ministry of Education initiatives, such as *Pró-Infantil* (aimed at kindergarten teachers) and *Pró-Letramento* (aimed at primary school teachers) as well as a programme which addresses teachers of Portuguese and Mathematics at lower secondary level.

The centres perform the role of course coordinators within specialities and are responsible for preparing teaching materials and pedagogical proposals. The centres aim to serve as a benchmark for school systems which, in turn, would receive support for the continuous education of their teachers through training offered by universities. This qualification is better-defined than those offered in the general market for such courses.

5. WHAT THE STUDIES AND RESEARCH INDICATE

Theoretical and empirical findings on the continuous development of teachers indicate that there have been considerable advances but that they are still modest when compared with expectations for raising students' performance in educational systems.

Studies on teacher training in Brazil carried out by André et al (1999) and André (2004) illustrate growing interest on the subject in Brazil. According to André (2004), in the 1990s the majority of theses and dissertations (76%), see the focus of initial training as upper secondary and degree level; 14.8% deal with the theme of continuous development and 9.2% look at the issue of identity and teacher development. Studies on continuous development in the period cover a broad spectrum of issues relating to teaching contexts, procedures and resources used.

In turn, an analysis of the studies found in periodicals indicates that continuous development appears in 26% of articles and basically cover three topics: the conceptual issue, proposals for continuous development and the role of teachers integrated with the place of research in their development. The prevailing concept is that continuous development is a critical-reflexive process of teaching knowledge.

Training proposals prioritise the emancipating political aspect and active role of teachers, as subjects in the construction of their own knowledge, based on investigation into their own practice throughout their careers and preferably in the school environment. In comparative terms, the tone of the articles is more political and broader, whilst academic research is found to be of a more technical-pedagogical nature.

Evaluating studies on the production of academic papers in the early 1990s and those subsequent to 2000, André (2004) found that in the 1990s, the most frequent object of study was pre-service training; ten years later, the themes selected for investigation were the teacher and construction of his identity. There is an interpretation which is widely-known in academic circles, according to which emphasis on studies on continuous development which has resulted from policies that prioritise in-service training and, encouraged by multilateral bodies, which, stimulate this type of training through funding.

An analysis of more recent theses and dissertations between 2000 and 2008, registered in the CAPES National Digital Library on the Acervus Database at the Unicamp Library System and the Dedalos System at the Faculty of Education at USP, accessed between 15th and 22nd December 2008, showed that interest in the theme continues to grow and there is an opportunity for a preliminary overview of the trends which marked continuous development policies and actions for teachers in Brazil. In total, 30 academic studies (theses and dissertations) were identified, the titles of which specifically refer to continuous development programmes in municipal and State school systems. Even without being able to count the number of papers on teacher training in a variety of forms, it is a significant number, especially when one considers the fact that although it is not mentioned in the study title, continuous development is a teacher training topic which appears in most papers in the area.

One of the themes present in academic papers is interest in analysing a possible relationship between the continuous development offered and teacher teaching practice. Some studies examine the presence or otherwise of content and activities that can guide a teacher towards successful classroom practice whilst others, although rare, seek to monitor the effects of training on the daily practice of teaching. In most cases, there is evidence that teacher teaching practices demonstrate some of the intended transformations during the training process. Nevertheless, once it is over, the tendency is for a reduced permanence of new practices or even appropriation which makes the content unrecognisable.

Other themes that can be identified in theses and dissertations include: continuous development policies; continuous development and new information and communication technology; monitoring and evaluating continuous development projects for primary teachers and teachers of youths and adults and training subject specialist teachers, which are cases where the emphasis is usually on content.

Provided the studies identified for consideration under this study have usually been performed under the guidance of higher education institutes located in the most advanced clusters in Brazil, it is possible to verify that several regions are well represented in terms of academic literature produced on the topic. This is due to the fact that several of these studies select issues relating to the States and municipalities of origin of Master's and Doctorate candidates. In summary, the investigation reflects the national scope desired.

Approximately 50% of the studies refer to the implementation of continuous development programmes in municipal school networks located all over Brazil: Cuiabá, Santa Maria, Natal, Campinas, Imperatriz, São Paulo, Uberlândia, Dourados, Barueri, Maringá, Caxias do Sul, São Luís, Pelotas and Poços de Caldas. The same amplitude of regions is found in studies on State school initiatives. The variety of training processes and their results is as vast as the range of political, social and economic contexts in which the programmes are conceived and implemented. However, this fact does not prevent some recurring aspects from being identified, the analysis of which may support formulation of educational policies in this field.

In general, studies adopt a qualitative approach to research, in which the use of questionnaires and interviews is prioritised, in addition to an analysis of literature and bibliographical research as a foundation. A few, by using observation, consider the variables within the classroom and the school in relation to the community and the system and educational policy in force, to measure the effects on teaching practices.

Three papers were identified that specifically focused on the programme for literacy teachers, *Programa de Formação de Professores*

Alfabetizadores (PROFA). One was located in the municipal network in Porto Velho (TAMBORIL, 2005) and two in the São Paulo State network (ALTOBELLI, 2008; RIGOLON, 2008). This programme resulted from an initiative by the Primary and Lower Secondary Education Secretariat at MEC in 2000, which was pressured by indicators showing low school performance at primary level raised by INEP. A programme was created to further teacher training, focusing on the teaching of writing, supported by substantial material for methodological guidance, collections of texts, a catalogue of summaries, videos and texts specifically for trainers. When implemented, it reached over 100,000 teachers in almost all States of Brazil.

This was one of the continuous education programmes which was most highly-rated by teachers, as a result of its view on the training process, the quality of material produced and because of some implementation procedures. However, the analyses made in academic studies quoted point out some limiting factors which are worthy of special attention.

In the State of São Paulo, the programme was implemented between 2003 and 206 in all 89 regional teaching boards, under the Language and Life Teacher Training Programme. Organised in the form of three modules of approximately one semester each, the programme was conducted with weekly 3 hour Face-to-Face meetings. The trainer, in turn, was monitored by programme coordinators at the State Education Secretariat in meetings of an eight hour duration every two weeks. It was not, therefore, an accelerated programme profile.

It was the trainer's responsibility to complete the agenda provided in the trainer's manual, mediate discussions arising from texts and videos, supervise activities proposed for participants (planning, reflective reports on practice and development of some activities with their students) and perform a final evaluation of each module.

Teachers interviewed by Altobelli (2008), who had taken part in several programmes for training literacy teachers in the past 20 years in the São Paulo State network, some with 60 and others with a 90 hour duration, stated that they still felt insecure about modifying their classroom practices. They advised that they had changed their

conception and ideas about literacy training, but that this did not mean that the course influenced their practices. Teachers complained that the programme did not provide opportunities for exposure in which they could report their difficulties and concerns.

Rigolon (2008) had the opportunity to further analyse the programme when performing *in loco* observations and interviews. According to the researcher, teachers evaluate the programme positively and seek to apply the recommended principles. However, there are many difficulties. Once the principles are assimilated, teachers are in doubt about how to select possible actions and how to align principles with actions in the contexts experienced by them. Difficulties were aggravated because to the contrary of what the programme assumptions state, teachers were not asked about their experiences, previous knowledge and conceptions. According to participants on these courses, the trainer's action revealed little autonomy for opening-up space for discussions that were not provided for in the agenda for each class. Furthermore, they questioned whether or not the trainers themselves had assimilated the principles of the proposal, as they exhibited difficulties in implementing them in practice. The trainers were teaching professionals in different positions in the local and regional administration and took on this function as another responsibility amongst the tasks they continued to perform. They felt that they needed more time for their own studies, revealing the limited development of the trainers themselves.

5.1. Factors to maintain new acquisitions

Observations about maintaining the effects of continuous development processes seem to indicate that one of the relevant factors for this to occur is in the continuity of exchanges, discussions and testing of alternatives that are defined through the collective nature of school work. The system does not support such activities when the programme finishes when the expiry date coincides with the end of the course.

This situation reveals that policies managed at Federal level, however legitimate they may be, may encourage municipal and State networks to

apply continuous development with no conformity to the appropriate policies, formulated in their Secretariats of education, with participation of their staff and adhesion from directors and the community. The lack of policy for sustaining professional development processes is aggravated by the excesses of some school networks which, encouraged by training policies stimulated by MEC and the external funding made available, offer a profusion of simultaneous programmes, which generate more problems than solutions.

Tamboril (2005) describes a situation in which students who are still taking special programmes to obtain a degree, may be found as participants on *lato sensu* graduate level specialisation courses, in an incessant quest for qualifications above their actual level in order to ensure employability in higher positions outside of the classroom.

Another source for examining the advances and difficulties in performing continuous development and maintaining its effects is in the formulation and implementation of programmes which seek to introduce innovations into the school system. This is the case of the adoption of learning cycles, centred on curriculum integration, a superior service for students and continuous progression. A study performed by Campos (2007) in municipal schools in Cuiabá between 1998 and 2005 points to difficulties encountered with the introduction of cycles, including fragmentation of the continuous development offered, both in its conception and the turnover of teachers and managers in municipal administration.

The events associated with implementation, debates, meetings, the publication of documents and assistance with school work from the municipal Secretariat of Education have slowly diminished, whether by inertia or by having to compete with other programmes that seek to improve education in the view of alternating administrators. This situation recurs in studies on implementing the cycle regime in several States in Brazil.

The training model adopted in Cuiabá allowed for co-responsibility between the schools and the Secretariat of Education. In the period

covered by the study it was possible to verify moments in which the school was responsible for most of the training initiatives and times in which actions began in the municipal Secretariat of Education. Analyses indicate that this variation had to do with the prevailing model for financing training. The schools used resources from the school fund, *Fundescola*, to finance school development plans, *PDEs-Escola*, which included training seminars, whilst the Secretariat invested their own resources. Nevertheless, the use of *Fundescola* resources prevented the possibility of collaboration between more qualified public university lecturers, given their experience of researching primary and secondary education. A memorandum from the National Treasury Secretariat (Nº 1/1997) prohibits the payment of a civil servant for consulting or technical assistance services in such agreements.

From the researchers' point of view, what was missing, in the case of continuous development in the Cuiabá network, was a project design integrating the many training activities.

The mode of training adopted by schools was that of independent meetings organised sporadically for the study of a text or specific agenda item and the form adopted by the State Secretariat was that of workshops and cycles of talks from specialists. In the training meetings held at schools, the calendar of training courses failed to meet the needs identified during the cycles and instead served the agenda of the *Fundescola* programme. Similarly, the content of lectures and brief support offered by the State Secretariat failed to satisfy the demand for teacher training.

Another study performed by Cunha (2007) in a school under the cycles regime in the São Paulo municipal network implemented from 1992, revealed that many difficulties persist amongst teachers, despite the training offered and that, equally, the possibilities for training centred on the issue of cycles diminish as time goes by, being substituted by more specific challenges, such as literacy training. During the hours of collective work, with one of the main objectives being to provide an opportunity for professional development, activity is fragmented, follows no sequence or closer link to the challenges of implementing cycles in the classroom.

An interesting study on the introduction of an innovative proposal by means of a process of continuous development was performed by Falsarella (2004). It concerns *Projeto de Reorganização da Trajetória Escolar – Classes de Aceleração*, a project developed in the State of São Paulo between 1996 and 1998. The objective was to prepare teachers to incorporate new teaching practices, with motivating activities and meaningful challenges for students, in higher-level teaching whilst at the same time capable of correcting the age and grade discrepancy of students who have repeated several years of primary education. The project proposed significant alterations to curriculum organisation, classroom dynamics, teacher-student relations and relations between students and evaluation procedures. In the long term, it was intended that these pedagogical dimensions be disseminated to other teachers in the group of schools during normal work routines. Teacher training was carried out based on specific material and the teachers were given the possibility of working with a smaller number of students in the classroom, a collection of books to be used in class and subscriptions to pedagogical and cultural publications.

The training process was organised into five meetings per year, with 24 hours of work each and providing a total of 120 hours of training. Participants included senior teachers, pedagogical coordinators of the schools involved and specialists from the regional teaching boards, as the aim was to disseminate teaching practices more appropriate to the needs of students in general. Evaluation of the programme's impact was positive. Teachers took on-board innovative teaching practices and student advances in their learning.

Monitoring class work and the performance of students that leave school indicate that teachers' preparation during the course of the programme sustained the work and was reflected in the positive results achieved. The researcher indicates that positive factors include the selection and responsible training of the trainers themselves and mobilisation that were possible with all those involved around a common objective: enabling students to learn.

One of the aspects that stood out when implementing the programme was selection and preparation of the group of trainers, especially oriented for work on the project, with a profile of involvement and commitment to issues relating to public education and experience with literacy training and group coordination. Their preparation was based on the principles of integration between theory and practice, valuing teacher knowledge and strengthening autonomy, self-esteem, interaction and creating bonds between participants. The fundamental point which oriented the training process was causing the teacher to embody concepts from the pedagogical proposal prevailing in the State school system, show knowledge of the support material, work with the curriculum considering the students' reality, apply different methodologies to heterogeneous classes, promote the capacity to learn amongst students and develop the habit of recording and re-planning activities.

The training was organised in the form of workshops aimed at covering support material and experiences of activities grounded in the 1996 State Curriculum Pedagogical Proposal, highlighting issues of literacy training and followed by theoretical reflection. The training sessions comprised a special space for teachers to manifest their ideas and difficulties and to exchange experiences about successes and advances with their students. The main concern was strengthening competence and self-esteem of each teacher and the group as a whole, in a secure and supportive environment for the teacher in view of his difficulties whether with understanding or transposing training experiences to classroom situations. The benchmark for discussions and reflections was the social function of the school and its professionals.

Participation of other staff from schools and regional administration, in addition to teachers, was a requirement of the São Paulo State Education Board which on approving the project understood that it would be more appropriate to have the school as a unit to be trained and not just individual teachers.

Four years after the end of the acceleration programme which held in-service teacher training as its main pillar and which sought not only to respond to a demand in terms of improving schooling but also to offer

support for a pedagogical practice capable of preventing school failure to teachers and schools in general, the research shows that, although the initial objective of serving a specific contingent of repeating students had been reached, the purpose of disseminating new practices was unsuccessful. Without the enthusiasm of the time, programme guidance survived with adaptations in work that was carried out at schools with students catching up following grade repetition.

As time went by, under a test of practical utility and working conditions, it was possible to recognise that some of the alterations proposed had remained, whilst others had been modified and incorporated into knowledge that teachers built up throughout their professional experience and other proposals were lost. The study indicated the few survival possibilities that the proposals would have in a real school with large classes, a lack of support material and no monitoring of teachers' work, generally guided by a culture which prefers a homogeneous view of a class full of students. The challenges of teaching systems would lie, therefore, in solving the relationship between quality education and issues of structure and destination of resources, as well as continuity in training support.

5.2. Evaluation of policies

In relation to the studies that aim to examine continuous development in municipal school networks, work by Moraes (2007) is noteworthy, as it seeks to perform a diagnosis of teacher training policy in Greater Campinas. According to information gathered for this work, the 19 municipalities studied develop a highly diversified and comprehensive teacher training policy, applying significant budgetary resources to this. One examination of continuous development initiatives in these municipalities reveals that most prefer short courses, although a significant number have developed programmes of over 80 hours, such as PROFA and Parameters in Action, in partnership with MEC. Face-to-Face training still represents the vast majority of courses offered and also attracts greater teacher participation, even when teachers are

invited to take part outside their working hours. From the towns in the region, 27% have used distance learning resources.

Participation in these programmes reaches 100% when offered during work hours but drops to 20% when activities are held outside working hours. Participation is also higher, at around 90%, when the municipal authorities directly remunerate teachers for participation in the form of overtime rather than indirectly, such as through certificates, classification points and class allocation. Some of the municipalities that directly remunerate participants through continuous development only cover an average of 16%. The reason for this variation may lie in teachers' level of interest or in the presence or lack of remuneration for participation but primarily it is related to the fact that they have to work double hours in the same municipality or in neighbouring towns.

In addition to the high number of partnerships with the Ministry of Education, these municipalities show close links to public universities in the region. This, according to the researchers, has contributed to breaking down the historic barrier between academic knowledge and the daily practice of policies devised in the public school system.

An interesting study of the role of evaluating continuous development policies examines the advances and limitations in the use of results from a system to analyse students' performance at school, adopted in the São Paulo state school system (SARESP), to inform teachers in schools in the capital of that State of continuous development activities (BAUER, 2006). The State Education Secretariat created a mechanism for accessing evaluation data for schools, encouraging them to use such data for both planning and teachers' continuous development. For this purpose, the regional teaching boards were involved, given responsibility for continuous development based on SARESP results, training teachers to understand the principles of the evaluation programme and to work with quantitative indicators and pedagogical interpretations of students' performance. According to research findings, the evaluation-training correlation proved to be positive only in cases in which the regional boards effectively had the opportunity to prepare for training teachers and when this activity was integrated into the context of a

continuous education programme (PEC). This aligned the results of SARESP with other data, such as school dropout and repetition rates, diagnosis and evaluation of conditions and needs of schools under their responsibility, performed by the school itself and the board. That is, the initiative was positive when responsibility for demand and monitoring fell to the regional boards which took part directly in data analysis and proposals for action. This also meant actions closer to schools' political-pedagogical projects. The work of some teams, however, was hampered by difficulties in interpreting evaluation results pedagogically.

Other factors that limited possibilities for a positive contribution to evaluate students' performance in order to assist teacher training were: use of evaluation for the purpose of system management, centralisation of continuous development actions and an elevated proliferation of training activities that negatively affected school dynamics. Such factors appeared at different moments in State education management.

With regard to the continuous development of upper secondary school teachers, Semtec/MEC, in the context of the Programme to Expand and Improve Upper Secondary Schooling and in partnership with several States in Brazil, promoted the National Benchmark Programme for Continuous Development of Upper Secondary Teachers, using external funding. Its objective was to further subject knowledge and their scientific foundations, consider pedagogical subjects that are the basis for practice, make interdisciplinary teaching viable, train teachers to use information and communications technologies and give attention to demands for preparing to exercise citizenship and democratic participation. Training activities of a 120 hour duration were developed, with teachers being released from the classroom during working hours. Training activities were the responsibility of the selected higher education institutions, in view of their experience in continuous education and in compliance with a project presented to State Education Secretariats.

In a study performed by Pinto (2008) in the municipality of Pelotas, teachers manifested a positive view of the programme which valued teamwork, offering the opportunity for greater integration of subjects and knowledge of alternative proposals, in addition to enabling

strengthening of professional relations which have repercussions for self-esteem. For the same reasons, the Upper Secondary School Network which developed in São Paulo using distance learning tools, received positive assessmentfrom participants: for the opportunity for relationships between peers, for the quality of the material and for the fact that the course took place in the school environment where teachers worked. Obstacles to development of the programme were due to shortcomings in structure and organisation.

5.3. Distance Learning

Many continuous development initiatives use distance education as a resource. In several centres within the Ministry of Education's National Network for Continuous Development of Primary and Secondary Education, courses make use of web tools to establish a relationship between trainers and teachers in school networks and for dissemination of materials. The virtual platform TelEduc, developed by UNICAMP, has been widely used for training processes.

As an example of an institutionalised initiative at government Secretariat level, there is the recently-created State of São Paulo Virtual University (Univesp), which has already been mentioned, focusing on both continuous undergraduate qualification and *lato sensu* training. Plans for professional development activities for in-service teachers in the State include a Specialisation course in Primary and Lower Secondary Teaching. The Univesp programme provides for development in the teaching of Physics, Chemistry, Biology and Mathematics, for which it intends to develop preliminary models for the pedagogical design of courses and a design for learning Units that define the concept of the course and guide preparation of pedagogical support material.

The use of distance education in continuous training programmes has grown as a form capable of responding to the challenge of providing professional development to a large contingent of professionals in locations far from where training institutions are located. It has a series of advantages but also several limitations. From the academic literature

encountered, it is possible to infer that teachers mostly evaluate this form positively, especially because it enables investment in training without leaving the work environment.

There are projects of this kind in several other States, such as Paraná and Minas Gerais and programmes developed by many private institutions which openly offer training and qualifications, or associate themselves with municipal authorities for developing their programmes in these networks.

5.4. Recurring conclusions

In studies which focus on continuous development initiatives for teachers in the public sector, it is possible to identify some recurring conclusions, despite the diversity of situations examined. In general, teachers value the potential of continuous development opportunities, not only from the point of view of professional development but also with more immediate objectives, such as improved classroom performance. Nevertheless, enthusiasm frequently coexists with a feeling of wariness or rejection, in view of the situations which are experienced.

In a non-unanimous manner, teachers indicate positive aspects, such as the opportunity to increase their knowledge and access to new concepts, which expand their capacity for analysing teaching situations, interaction with peers and contact with trainers. However, there is a general agreement regarding complaints:

- continuous development is organised with little synergy to the needs and difficulties of teachers and the school;
- teachers do not participate in decisions on the training processes to which they are submitted;
- the trainers have no knowledge of the school contexts and the teachers they are training;
- the programmes do not provide for monitoring and systematic support of teachers' pedagogical practices, as they have difficulty understanding the relationship between the programme and their daily school activities;

- even when the effects on teachers' practices are clear, they find it difficult to proceed with a new proposal after the programme has ended;
- the discontinuity of policies and guidelines from the system makes consolidation of advances difficult;
- legislation assuring teachers' rights to continuous development is not complied with.

It is not uncommon for researchers to identify an externalist attitude amongst teachers towards knowledge, which they believe to be ready in the studies and research undertaken at universities and research centres. They understand that the solution to their problems lies in knowledge produced outside the school space and attribute the competence to resolve such problems to the trainers. They have ambiguous expectations in relation to continuous development: they ask for single, ready answers, at the same time that they advocate respect for their own experience, creativity and the power to decide.

Studies and research in general analyse the issue of continuous development with the political-social context in which it takes place as a reference. Those which are based on a more critical perspective accentuate the State's interest in control, aligned with a lack of commitment to offering effective conditions for teachers' professional development. In these cases, the difficulty that continuous development programmes have in meeting their objectives is seen as a consequence of a regulatory authority which imposes limits on autonomy and critical reflection by teachers, so provoking rejection.

6. ADVANCES IN LEGISLATION ON CONTINUOUS DEVELOPMENT

In the mid-1990s, the Law of Guidelines and Foundations of Education (LDB), Law Nº 9,394/1996, which reflects debates about the importance and challenge of continuous development and based on experiences developed more intensively from the 1980s onwards in some Brazilian States, stipulated in Article 67 that school systems should promote teaching professionals' increased value, and under the

terms of their Statutes and teaching career plans offer them continuous professional development, including periodic paid leave for this purpose. The State's obligations on this issue are further emphasised in Article 80, which states "Public authorities will encourage development and delivery of distance learning programmes at all levels and forms of teaching and continuous development" and in the terms of Article 87, paragraph 3, item III, the duty of each municipality is said to be "to offer training programmes for all active teachers, including the use of distance education resources for this purpose".

An impetus was provided by the new legislation, expanding the public authorities' responsibility for teachers' professional development and increasing demand from social sectors, as well as regulation on allocation of resources to the education sector. At the time, the Fund for Maintaining and Developing Primary and Lower Secondary Teaching and the Fund for Promoting the Value of Teaching (FUNDEF), which for the first time in Brazil gave legal support to systematic funding of training for in-service teachers, contributed enormously to the increased provision of continuous development in the public sector.

Other proposals for continuous development were the Face-to-Face or distance learning specialisation courses, known as *lato sensu* graduate courses. Of a generic nature, as they do not qualify teachers for specific functions in other fields of work, these courses began to attract the attention of State authorities who, through their many departments, sought to define guidelines to ensure higher quality in these training processes. In June 2007, the National Education Board published Resolution Nº 1/2007, which, without limiting the necessary flexibility in provision and delivery, established parameters guiding licensing institutions interested in offering such courses: subject to evaluation by government bodies on conditions for offering *lato sensu* graduate courses by distance learning and the composition of teaching staff on these courses. They must be professionals with Master's or Doctorate degrees obtained in *stricto sensu* graduate programmes, duly licensed by the Coordination Department for Improving Higher Education Personnel (CAPES).

This special attention to training trainers was also being adopted in other public bodies, which had been alerted by studies showing the importance of teachers and tutors for the quality of continuous development courses.

The most recent step towards concentration of efforts in Brazil to qualify continuous development courses, as already indicated in chapter II of this publication, is a set of specific norms on the subject to be found in the National Policy for Training Primary and Secondary School Teachers, recently established by Decree Nº 6,755, of 29th January, 2009. This document orients the possibility of articulating continuous development activities for teachers across the three levels of authority: Federal, State and Municipal. Decree nº 6,755/2009 seeks to organise, in the form of cooperation between government levels, the provision of initial and continuous development training in teaching for the public school system. Amongst the principles of continuous development are equity of access, its essentially vocational nature for professionalization teaching and the imperative need for integration with school life and considering teachers' knowledge and experience. Its aims include reinforcing continuous development as a regular practice at schools that responds to the cultural and social characteristics of the region. The Decree determines that addressing the need for continuous development through Face-to-Face and distance learning should occur in accordance with the design of school units and teaching systems and networks. It also provides financial support for developing programmes and research into continuous development. These are fundamental conditions for Brazil to continue advancing in the provision of support during and after training activities. It is necessary that the positive effects, which generally occur during the continuous development process, are effectively appropriated and incorporated into teaching practice and not subject to successive interruptions, as we have seen over the past 20 years.

As has been noted thus far, there is a range of initiatives linked to continuous development in Brazil, expressed in the successive programmes of this nature promoted in the public arena, to meet the growing demand for improved qualification and greater opportunities

for teachers' professional development. Its effects on daily teaching practices, identified in the evaluation processes that accompany them, are manifold. This situation which has been critically analysed in educational debates and studies and research on the matter, has alerted educators, politicians and administrators in the field to the need or a concerted effort nationwide, as a strategy for qualifying teacher training and including continuous development.

7. INSTITUTIONALIZATION OF TEACHERS' PROFESSIONAL DEVELOPMENT

This is the most contemporary demand. Vaillant (2007) states that there are no recipes but the fundamental ingredients are given: attention to teachers' social and cultural context, working conditions, increased value of the professional and management, with emphasis on democratic participation and responsibilities of teams leading central and intermediary administration, to which the factor of integrated and sustainable policies can be added. The most relevant issues regarding teachers' continuous development are in the details of these ingredients.

7.1. Integration between initial training and continuous development

One of the limitations of policies and practices for continuous development, understood as professional development, which is the subject of constant warnings in the bibliography and studies on the topic, is the lack of relationship with initial training. There is no tradition of commitment from higher education institutions, responsible for initial training, with monitoring, support and continuous development of the teaching professionals they qualify. Efforts in this field are more recent and isolated.

Some analysts demand articulation of continuous development with initial training with respect to theoretical foundations and pedagogical guidance. It is not uncommon to find new theories being taught in traditional ways of transmitting knowledge, when the act of teaching a profession cannot be limited to teaching a theory but must be complemented by teaching how to think, decide and act.

Another aspect which is beginning to be emphasised in the link between initial training and continuous development is the need for support for those who are beginning to teach. This concern is greater when one understands that a teacher's professional career comprises moments in which his needs for guidance and support are varied and require more focused attention in terms of objectives.

7.2. Introduction of continuous development stages

According to Aguerrondo (2006), the fact that teachers undergo various stages of professional development should correspond to different responsibilities and, consequently, procedures for continuous development that take such differences into consideration. Thus, from a teacher starting out at the beginning of his career, one should expect knowledge and capacity acquired in initial training to be put into practice and that such teachers would be dedicated to diagnosing their difficulties and learning from peers. Some advocate that on hiring teachers new to the profession, less classroom time should be allocated to them, so they are free to study and carry out work placements with more competent professionals, while receiving support for their work from tutors. From teachers further along the career path, one should expect a repertoire of different strategies that help their practice and an investment in expanding and diversifying this repertoire.

On a more advanced professional level, one would encounter teachers with the ability to generate innovation, find solutions to more complex problems and perform tutorial monitoring of peers, while strengthened by support from training institutes. Each of these stages involves more complex capacities and would demand, at the end of the day, different training proposals and procedures. The commitment of training institutions to teachers' professional development and not only their involvement in initial training would alleviate unrealistic expectations and the pressure arising from having to teach everything, or nearly everything which should be known during this training phase.

It is important that teachers' career plans incorporate the possibility of periodic work placements for teachers in different institutions, such

as public and private schools with innovative projects, universities with teaching laboratories and centres working with formal and informal education etc.

7.3. Priority of connecting to schools' realities

Rego and Mello (2002) include amongst the most relevant lessons from initial and continued studies on teacher training, the need for an organic system which can replace the ad hoc, non-systematic and fragmented nature of short-term interventions and establish a link between training and primary and secondary schools' realities. This would overcome the distance that separates training bodies and the trainers who work for them, from the schools' realities. Today there is a consensus on the need to raise the level of teachers' professional development, integrating theoretical-scientific training and strengthening professional practices. Training institutions are required to conceive and develop continuous training programmes which articulate, in an organic way, further investigation into the field of political, social and pedagogical foundations of school education, knowledge of content areas and specific methodologies, with themes relating to the challenges of the school reality and identified through joint work with school systems and their teachers.

The expectation is that new models of continuous development are generated, guiding and supporting teachers in the development of a critical-reflexive posture regarding their teaching activities and, at the same time, enable them to construct knowledge and accumulate a wealth of resources that allow the development of initiatives to face professional challenges. "There are few experiences that integrate the pedagogical plan of the training institution and that of the schools in the same conceptual and practical universe" (REGO; MELLO, 2002).

Still in the context of considering the need for greater adherence of continuous development to schools' realities, it is possible to state that emphasis on concrete problems that emerge during daily work is one element adding professional and personal value, as this implies the need for integrated action from the group of educators to construct new alternatives for teaching activities.

7.4. Integration of assessment processes and continuous development

This is one of the most controversial topics under continuous development for teachers: that of standardisation and professional development. On one hand, teachers are encouraged to show greater autonomy in helping their students to develop the capacity that will qualify them to participate constructively and critically in a fair society, in which knowledge is paramount. Teachers are pressured to substitute traditional processes for transmission and reproduction of knowledge with teaching styles that allow students to develop more complex cognitive forms, master basic knowledge, use new technology and develop values and attitudes that prepare them to learn cooperatively. The purpose is to offer an education that prepares students to independently construct their continuous learning process and to exercise a critical and participatory stance in social life. This concept of teaching demands teaching practices and, consequently teacher training more closely aligned to local needs and urgencies.

On the other hand, there is growing awareness that education is a public asset, a citizen's subjective right and responsibility of the State. This concept, which is legitimate in its terms, has pressured the public authorities to define with greater clarity the criteria that enable measurement of teachers' performance at a given moment in their professional careers and to meet demands for continuous development. As a consequence, this expectation implies construction of indicators to guide continuous development policies to be obtained through the establishment of professional profiles, based on the definition of basic competences and values the use of student performance data obtained from systemic evaluations by official teaching systems.

Avalos (2002), analyses the "new professionalism" which is sought in the teaching profession and which involves developing the teacher to use abilities and skills that allow for the desired preparation of students, highlights that this new professionalism should encompass, in addition to training, the working conditions and policy of incentives necessary for high-level teacher performance. In this sense, it is understood that to emphasise responsibility for results, externally controlled by evaluation

systems, is not the best way to strengthen teacher performance but that one must assume that teachers take responsibility for students' learning in different contexts and with different capacities. The responsibility is theirs, despite being shared with the system, the family and, above all, the training institutions.

For some authors the issue is not in defining standards or abilities but in the existence of a social agreement that involves teachers on the validity of these benchmarks and their limitations so as not to hinder teachers' professionalism.

It is also important to consider, with regard to assessment, inherent responsibility for formuling continuous development policies which ensure evaluating the effectiveness of such processes.

7.5. Training teacher trainers

Studies and investigations on training processes for teachers' professional development indicate that the topic of trainer training requires special attention. The quality of initial training and teachers' professional development is related to preparation of those professionals who act as teacher trainers, their conceptual and practical competence and involvement and commitment to educator training.

One aspect to be considered when analysing this issue is that of the *locus* of responsibility for teachers' continuous development. Those who defend the participation of higher education institutions as being mainly responsible for both initial training and continuous development, argue that the central administrative bodies of school systems are incapable of implementing mass training strategies, as they lack structure, managerial competence and appropriate knowledge. Thus, it is up to higher education institutions to commit to guiding teachers throughout their career. For this purpose, contact with schools, their culture, daily practices, work in cooperation with their staff in experimenting with new alternatives for teaching appropriate to the specifics of each context, without diminishing the important of teachers' initiatives and professional experience are all indispensable.

The expectation is that teachers responsible for training hold a high level of knowledge and experience acquired through research, university teaching and participation in the processes of formulating, developing and evaluating teacher training programmes. In short, preparation of teacher trainers should be a result of investment and commitment to teachers' initial and continuous training.

Despite some isolated initiatives, there is a long path to be followed:

> Institutionalizing the possibility of permanent professional development for all teachers in a school system is, without doubt, a considerable challenge, as it requires an education system organised around institutions who currently lose interest in their students as soon as they graduate, being transformed into one which can offer varied training experiences, which will only be validated if they are flexible enough to adapt to the complex and changing needs of teachers in different stages of their professional life (AGUERRONDO, 2004, p. 21).

In regard to this issue, there are many who advise of the disciplinary and departmental divisions that exist in higher education. This factor is a clear obstacle when the expectation is for broad teacher training, in which their knowledge of several scientific and cultural dimensions is enriched by a solid pedagogical background, which is generally considered less important than subject-specific knowledge.

Still with regard to involvement of the system itself in the continuous development of its teachers, using technical staff located in various departments of its administrative organisation, it is necessary to consider that this training model has some limitations. The first of these is that continuous development undertaken exclusively by the teaching system will be subject to administrative interruptions (changes of political parties in power), with all the negative effects arising from this. On the other hand, even when these professionals are able to master

some knowledge or interest in teacher training, they need space for their training and support in the task of counselling teachers. This is a limitation that integrated work between institutions of higher education could overcome.

In the debate on the challenge of training teacher trainers, the discussion gains prominence when the issue of the *locus* of teacher training does not obscure the main issue. This is the need to reformulate the concept of continuous development for teachers and, consequently, that training institutions focus on analysing the diverse demands of the school and educational reality, making an effort, with academic and social responsibility, to search for improvements in training and student performance in their schools.

7.6. The psycho-social dimension of continuous development

Fanfani (2005) observes that an increasing number of teachers work in situations in which the distance between the professional ideal and reality of work tends to increase as a result of the complexity and multiplicity of tasks which they are required to perform. The new situation increasingly requires that the teacher is prepared to exercise a contextualised practice, while attentive to specifics of the moment, local culture, a diverse student body and expectations of the school community. This practice depends not only on cognitive competences for teaching, but also values and attitudes favourable to an open professional posture, capable of creating and testing alternatives for the challenges that present themselves.

Upon analysing continuous development from this perspective, Gatti (2003) and Géglio (2006) draw attention to the limitations of programmes centred on individual cognitive aspects alone. Such programmes fail to consider teachers as essentially social beings, immersed in group relations from which they derive values and attitudes which give meaning to personal and professional choices and serve as a reference for their actions.

Subject to diverse political, social and cultural influences, teachers construct concepts about teaching, students, the social value of their work and teaching practices. It is based on these representations and values that teachers interact with the knowledge to which they have access. That is, the continuous development processes that seek to modify concepts, attitudes and practices cannot ignore what teachers think and know, or the influences of the socio-cultural environment in which they live and work.

For this purpose, it is not sufficient to gather information on participants in a continuous development process, or even perform preliminary mapping of their knowledge and needs. Teachers demand much more. They wish to be heard in the process and to be able to express their doubts and professional expectations in a working environment in which it is possible to establish socio-cognitive, affective and motivational bonds with their trainers, tutors and peers. These bonds will open the door to new ideas, concepts and alternative paths. They wish to find, in their trainers and training processes in which they take part, signs of respect for, and interest in their work, as well as commitment to a common goal, which is the improvement of students' learning and development.

Fanfani (2005) analyses the same issue from the standpoint of principles that structure continuous development: instrumental rationality, allied with technical control and organic rationale with cultural, ethical-moral and political components, which trusts the self-control resulting from the autonomy and responsibility of the teacher and teaching staff.

The new working conditions for teaching require teachers who are more able to teach. They require personal qualities and attitudes such as interest, passion, patience, motivation, conviction, creativity and others which cannot be standardised or developed in formal courses and training sessions. In these conditions, it is the teacher as a person, with his way of being, living and interpreting the world, who becomes involved in the quality of his work and does not merely fulfil a function defined at the systemic level.

There is, however, a clear tension in teaching work in view of these two structuring principles. The challenges of the moment require, at the same time, a more contextualised and autonomous teaching practice and quest for efficiency and effectiveness in meeting teaching objectives legitimately defined by public authorities and society. The challenge lies in weaving commitments that incorporate elements from both rationales.

Furthermore, with regard to the subjective dimension of teachers' professional development, Tedesco (2005) notes that ethics and the political dimension of teaching work are the pillars of teachers' identity: believing in the educational plan and students' capacities.

7.7. Access to culture

Recent investigations and the data analysed in this study indicate an elevation in the group of teachers excluded from certain basic cultural manifestations. We have seen expansion of teacher recruitment in the less privileged segments of the population, with insufficient cultural wealth for the job of teaching due to lack of opportunities to access culture in the form of newspapers, literature and artistic events.

The processes of continuous development cannot fail to include strategies which facilitate access to culture by teachers. In addition, the teacher training institutions themselves can be converted into spaces for cultural production and diffusion, involving teachers from primary and secondary schools.

7.8. Mechanisms encouraging professional development

Vaillant (2007) and Fanfani (2005) agree that, although teaching is becoming ever more complex, its social prestige has tended to diminish, affecting feelings of personal fulfilment and self-confidence amongst teachers. Research shows that teachers feel this loss of social prestige and that this loss is real when one considers the opinion of different

social segments regarding the teaching profession. It is possible to state that expectations are high, but the value attributed is low. Despite advances resulting from creation of education funds (FUNDEF and now FUNDEB), there is no appropriate incentive structure to support and strengthen teachers' professional development. Some incentive schemes tested with the purpose of motivating teachers to become involved in their own professional development, fail to cause an impact due to their short duration which are due to political and administrative reasons.

7.9. Investment in research

Studies carried out at the Brazilian Digital Library of Theses and Dissertations and using other university databases show that in recent years, training institutions have expanded the focus of their investigations towards continuous development. A considerable part of this academic literature is produced in the form of Master's dissertations that select, as an object of study, a vast and varied sample of aspects relating to training used in teachers' professional development. These may be promising if the studies are furthered throughout graduate students' academic careers. Nevertheless, mapping these studies, however preliminary, shows that there is a considerable spread, making it hard to increase knowledge on the topic.

In this sense, we must encourage the choice of some issues relating to continuous development, as a focus for further investigation within the context of higher education institution training policies.

7.10. Integration between policies and their continuity

One of the most commonly shared ideas on teachers' professional development is that it should not occur in a contextual vacuum. Vaillant (2007) defends integration between professional development and career and assessment and remuneration. In education, no change or intervention brings immediate results. The time necessary to obtain

results in a given direction must be considered. For this reason, discontinuity of policies and actions that interrupts processes which begin to make a difference is damaging, making consolidation for those involved in school education very difficult.

8. HIGHLIGHTING CERTAIN CONSIDERATIONS

What can be found through the reflections expressed here, is that there is a considerable set of ideas on teachers' continuous development and alternatives which have already been tested in teaching systems, through initiatives by several levels of government. These can support the formulation of general or local policies for continuous development. Diversity is considerable, as are its effects. The current demand for unity around certain consensuses, without failing to consider the importance of plural approaches is, at the same time, a response to the obligatory results and social contexts in which education takes place.

9. PRIMARY AND SECONDARY SCHOOL TEACHERS' CAREERS AND SALARIES

It makes sense to discuss teachers' careers and salaries here in order to reflect on these professionals' working conditions and the attractiveness of the profession to new generations. Aspects such as lack of teachers in some regions and in some subjects and career dropout rates demonstrate the importance of considering real conditions for teacher development (LAPO; BUENO, 2003; MOTTER, 2007).

Brazil is a federation, with distribution of its responsibilities divided between three levels – the Federal District, States and municipalities – with each having their own autonomy. When one considers that many integration processes provided for in the 1988 Constitution were not given political-normative consideration, as provided for in the legal document itself, the degree of autonomy of each regulatory authority for teachers' careers and salaries in the public sector shows us the difficulty in obtaining a more precise snapshot of education workers' careers and salary conditions. The private school sector is also considered here.

Upon analysing these issues, we come across many different examples of legislation, resources and budget sources. Brazil has 5,561 municipalities, 26 States and one Federal District, each with their own school systems and regulations. The situation is highly heterogeneous and complex with regard to teachers' careers and salaries, differing between States and municipalities (according to region, population characteristics, regional and local productive system, financial capacity, Federal or State funds and political and cultural traditions etc).

In the public sector career structure, there is differentiation of jobs and functions, with implications on how to fill vacancies and for salaries, which is reflected in the diverse options at each government level when it comes to incorporating teachers into the system and career progression.

Below we present some data and information on career issues and salary conditions for primary and secondary school teachers, seeking to indicate aspects which are characteristic to each context. It should be remembered that, as far as teachers' careers and salaries at primary and secondary level are concerned, for many the public sector is considerably larger than the private sector. The percentages shown in table 9.1, estimated from the 2006 PNAD/IBGE, give an idea of the public sector's responsibilities.

TABLE 9.1 – Percentage of teachers in the public and private sector by level of Education

Level of Education	Administrative Category	
	Public	Private
Kindergarten	57.1%	42.9%
Primary & lower secondary	83.8%	16.2%
Upper secondary	76.1%	23.9%
Brazil	79.1%	20.9%

Source: IBGE, 2006. *PNAD*.

1. CONTEXTUALIZING THE ISSUE

The study of several professional careers in contemporary societies shows characteristics linked not only to the specialization associated with doing this work but also connected to the symbolic and social value attributed to them, which varies over time and spaces, as a result of aspects pertaining to culture, education and politics in regions where a given profession exists. What is found by such studies in the field of sociology of labour is that the real social value of a professional area is reflected in its career and salary structures and/or working conditions.

In Brazil, the value placed on the teaching professions in the social community environment varies according to the region of Brazil, yet there is a generic discourse on the value of teachers in all States and municipalities present in career plans and salaries, which reflects the rhetorical importance attributed to this profession.

To a certain extent, the representation of teaching as a "vocation" and "mission" has distanced the teaching profession socially from the idea of a professional class of workers who fight for survival and with the concept of "selfless dedication" prevailing. This has meant, in many cases, that teachers find it difficult to fight for salaries in the social and political sphere, as well as in the inter-category culture. This representation is associated with the historic genesis of the profession and carries weight not only in the material dimensions of school systems but also in the "minds of teachers, their identities and practices", as explained by the authors (TEDESCO; FANFANI, 2004, p. 68-73). Today, teaching work is increasingly placed in the context of a progressive professional specialisation, yet this view has not always prevailed in local or regional policies when it comes to the teaching profession and its issues. On the other hand, the education sector has the largest volume of jobs and a high proportion of professionals have civil service jobs, thus generating a considerable burden on public authorities. Several solutions have been proposed for this problem (such as tax redistribution policies) but the solution – a career plan congruent with the profession's social relevance and attractive salaries – has not yet been found.

Differences between municipalities and States with regard to career structures and remuneration of teachers in different regions of Brazil are enormous, as we shall see below.

With regard to a teaching career in primary or secondary education, although the discourse that salary increases do not lead to greater quality is currently common, in certain quarters it is important to remember that unattractive careers in salary terms are not popular with new generations, and are especially unattractive to those considered to have the best grasp of knowledge or better chances in other activities. Of course, this is a generalisation. Data, to a greater or lesser extent,

that tends to sustain the discourse that increasing a teacher's salary does not lead to improved teaching is passive (also considering the margins of error in the statistical models used) because it relates to those who are already in the system. It fails to take into account the movement around initial job-seeking and the characteristics of this demand, as well as turnover in the activity. The starting salary for teachers has generally been low when compared to other professions that require a university degree (as shall be seen below) and this has implications for the nature of demand for this job. Amongst other factors, a career plan and salaries that are associated with a lack of professional prestige certainly play a role in lower demand for these courses, as well as entry and permanence in the profession.

We have found that this problem is common to several Latin American countries. Rivas and Lavarreda on quoting a study by Morduchowicz and Duro, indicate that with data collected the authors showed that teachers' salaries were inferior in absolute terms to those of salaried and non-salaried professionals and specialists, even though higher than those received on average by all of those employed (MORDUCHOWICZ; DURO, 2007 apud RIVAS; LAVARREDA, 2008, p. 17-18).

The data shown later in this study makes it clear that teacher remuneration in Brazil has been highly unequal in kindergartens, primary schools and the other levels of secondary schooling and also between regions and administrative categories. On average, remuneration cannot be considered attractive when compared to other professions that require a degree. When assessing the universe of data relating to salaries, it is found that there are regions in which teachers' salaries have been systematically lower. Of course, it is important to consider the number of job vacancies. However, for a certain group of young people teaching is not a career that encourages applications.

In States and municipalities with greater economic development indicators, salaries are slightly higher. However, in view of the context of other job opportunities in these regions, these salaries are far from competitive. Furthermore, in relation to the cost of living in these regions, teachers' salaries are a cause for concern.

2. SALARIES

With the recent establishment of a minimum monthly salary for teachers at R$950.00, an improvement in the remuneration of teachers is now expected. An understanding of the situation prior to 2008 may give some idea of the importance of this adjustment in teaching salaries, although it is not yet possible to determine what the true impact will be.

The source chosen for discussing the salary issue is the 2006 PNAD study. The National Survey by Household Sampling seemed to be the most reliable source for this information. Tables 9.2 and 9.3 summarise data relating to average and median monthly salaries per level of education, region and years of study. Calculation of medians enables an understanding of the heterogeneity of salaries provided, as the average is affected by extreme values (higher or lower). The median assists interpretation of data by indicating the point at which 50% of the values are above or below a given sum.

Table PN2 shows the average and median monthly salaries of teachers in Brazilian currency. It is possible to see that salaries grow in proportion to levels, from kindergarten through primary and lower secondary to upper secondary school, which correspond to the basic career structure, as indicated in the topic to follow. For the group of primary and secondary school teachers (total in Brazil) the average salary was R$927.00 but the median was R$720.00, showing that 50% of teachers receive salaries below this amount. The highest average salaries when considering all categories of teachers in primary and secondary schools are in the Midwest and Southeast regions. Nevertheless, in the Midwest, 50% of teachers received less than R$1,000.00 per month and in the Southeast less than R$900.00.

Teachers working in kindergartens, representing 13% of all teachers in the sample, receive the lowest salaries (average of R$661.00). Those working in upper secondary schools (16% of all teachers) on average earned the highest salaries (R$1,390.00). The large group of teachers in primary and lower secondary schools (71% of teachers) has an average salary of R$873.00 (but it should be noted that the median is much lower at R$700.00).

TABLE 9.2 – Monthly income statistics for teachers by region and school grade taught (in Brazilian Reais)

Region	Level of Education				Total
	Statistics	Kindergarten	Primary & lower secondary	Upper secondary	
North	Average	557	870	1,424	906
	Median	412	750	1,400	772
	N	19,755	156,683	24,752	201,190
	% C	6.4%	9.2%	6.5%	8.4%
	% L	9.8%	77.9%	12.3%	100.0%
Northeast	Average	390	585	1180	635
	Median	350	440	1,000	450
	N	70,916	545,559	82,770	699,245
	% C	23.1%	32.1%	21.8%	29.3%
	% L	10.1%	78.0%	11.8%	100.0%
Southeast	Average	809	1,008	1,503	1,066
	Median	664	850	1,300	900
	N	153,847	637,210	181,134	972,191
	% C	50.0%	37.5%	47.8%	40.7%
	% L	15.8%	65.5%	18.6%	100.0%
South	Average	586	1,018	1,239	993
	Median	500	850	1,100	800
	N	48,338	229,821	57,721	335,880
	% C	15.7%	13.5%	15.2%	14.1%
	% L	14.4%	68.4%	17.2%	100.0%
Midwest	Average	807	1,178	1,548	1,215
	Median	551	933	1,200	1,000
	N	14,770	131,100	32,710	178,580
	% C	4.8%	7.7%	8.6%	7.5%
	% L	8.3%	73.4%	18.3%	100.0%
Total (Brazil)	Average	661	873	1,390	927
	Median	500	700	1,200	720
	N	307,626	1,700,373	379,087	2,387,086
	% C	100.0%	100.0%	100.0%	100.0%
	% L	12.9%	71.2%	15.9%	100.0%

Source: IBGE, 2006. *PNAD*.

TABLE 9.3 – Monthly income statistics for teachers, by grade taught, region and years of schooling (in Brazilian Reais)

Level of education	Region	Schooling (years of study)							
		Upto 8 yrs		9 to 11 yrs		12 to 14 yrs		15 to 17 yrs	
		Average	Median	Average	Median	Average	Median	Average	Median
Kindergarten	North					471	370	859	800
	Northeast					349	350	580	550
	Southeast	350	350	750	800	626	500	1,066	800
	South			65	65	455	400	776	700
	Midwest					509	450	1,245	820
Primary and lower secondary school	North	332	350	373	350	683	570	1,097	1,000
	Northeast	270	350	272	300	477	362	789	640
	Southeast	429	350	498	180	690	600	1,151	1,000
	South	450	450	325	350	664	550	1,134	1,000
	Midwest			644	644	746	600	1,363	1,100
Upper secondary school	North					1,210	860	1,436	1,400
	Northeast					1,292	1,100	1,166	1,000
	Southeast					1,184	650	1,518	1,300
	South					884	970	1,253	1,100
	Midwest					1,076	800	1,573	1,300

Source: IBGE, 2006. *PNAD*.

On breaking-down the levels of education, it is observed that the highest average salaries in kindergartens are in the Southeast and Midwest (R$809.00 and R$807.00, respectively) and the lowest average salaries are in the Northeast, followed by the North region.

At primary and lower secondary school level, the highest averages are in the Midwest and South (R$1,178.00 and R$1,018.00, respectively). However, it should be noted that in the Midwest, 50% of these teachers receive less than R$933.00 and in the South less than R$850.00.

In upper secondary schools, the highest average salaries are found in the Southeast and North at R$1,503.00 and R$1,424.00 respectively. Once again, it should be noted that 50% of these teachers earn less than R$1,300.00 in the Southeast region and less than R$1,400.00 in the North. In this latter region, upper secondary schools are where the closest proximity is found between average and median salaries.

Considering teachers' average monthly salary against the number of years they have studied (table 9.3), it is found that this number, which considers successive levels (upper secondary, degree, graduate studies) has positive weighting for income in all regions and for any level of education, which is coherent with career plans. What is most notable in this data is the existence of teachers who claim to have eight years of schooling, which corresponds to primary and lower secondary school level. This means they are lay teachers. There is another group who have studied up upper secondary school level, who work in kindergartens and primary and lower secondary schools in all regions, with the exception of the Midwest.

The data in table 9.4 and graph 4 highlight the structure of teaching salaries considering division into quintiles, which gives a good understanding of the unequal distribution of such salaries and showing that only a small percentage of them receive salaries above R$2,000.00. In the Northeast, 60% of teachers earn less than R$530.00. It can be seen that in this region most teachers' salaries are systematically lower than elsewhere for all levels of education.

Regarding the sector in which primary and secondary school teachers work (public versus private) table 9.5 indicates that:

1. In kindergartens, teachers in the private sector have a lower average salary than in the public sector, with university graduates receiving higher average salaries and teachers with upper secondary training receiving a salary almost 50% lower in both the public and private sector.

2. In primary and lower secondary schools, the same is found: average and median salaries for teachers in the private sector are lower than those encountered in the public sector. When specifying by training level, teachers with a degree working in primary or lower secondary schools in the public sector have a higher average salary than those in the private sector. Salaries for those working at this

level that only have upper secondary training are much lower. 50% of teachers in the private sector receive less than R$400.00 and in the public sector, less than R$516.00.

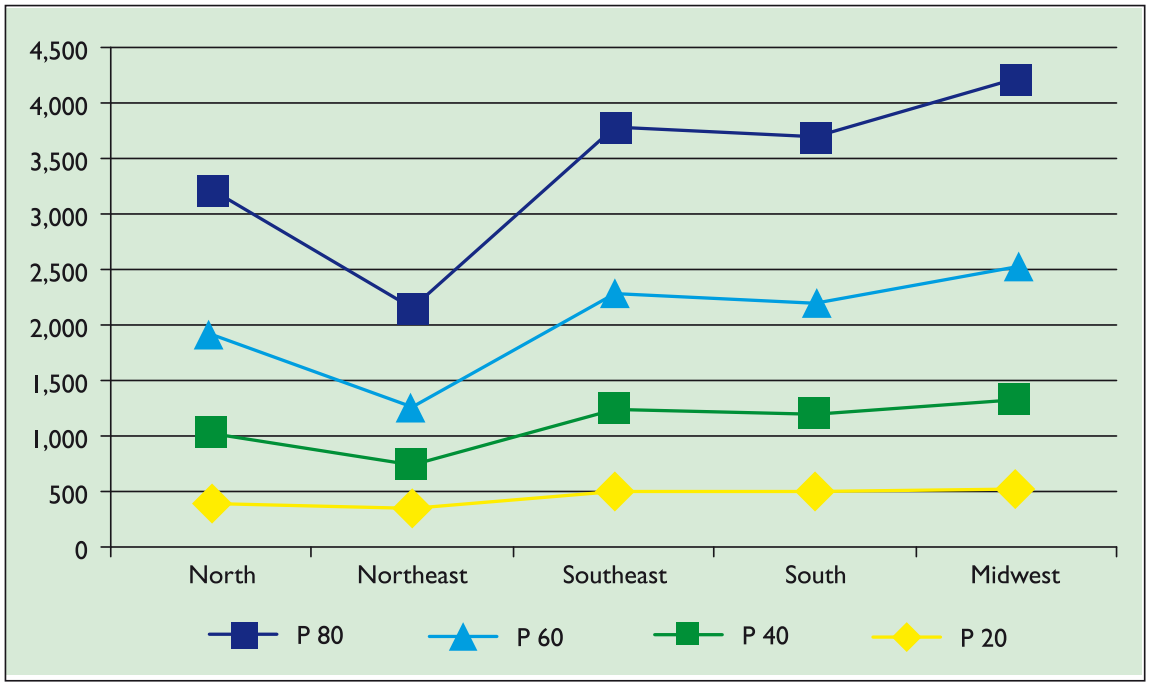
3. At upper secondary schools, average salaries are equivalent in both sectors yet when considering medians, the situation changes: 50% of teachers in the public sector receive less than R$1,300.00, whilst 50% of those in the private sector receive less than R$1,000.00.

TABLE 9.4 – Quintiles of teacher income – Brazil, 2006 (in Brazilian Reais)

Level of Education taught in main job	Region	Quintiles of monthly income from main job			
		P 20	P 40	P 60	P 80
Kindergarten	North	350	364	500	800
	Northeast	217	350	350	425
	Southeast	400	550	740	1,200
	South	350	457	600	800
	Midwest	350	470	600	1,000
Primary & lower secondary	North	400	602	870	1,250
	Northeast	350	375	500	800
	Southeast	500	700	1,000	1,448
	South	500	700	1,000	1,500
	Midwest	550	800	1,100	1,700
Upper secondary	North	950	1,200	1,680	1,900
	Northeast	600	900	1,200	1,700
	Southeast	800	1,200	1,500	2,037
	South	700	970	1,205	1,700
	Midwest	830	1,200	1,500	2,200
Total (prim. & second.)		P 20	P 40	P 60	P 80
	North	400	620	900	1,300
	Northeast	350	380	530	900
	Southeast	500	730	1,050	1,500
	South	500	700	1,000	1,500
	Midwest	526	800	1,200	1,700

Source: IBGE, 2006. *PNAD*.

GRAPH 4 – Distribution of teachers' monthly salary by quintile and region (in Brazilian Reais)



Source: IBGE, 2006. *PNAD*.

TABLE 9.5 – Teachers' income by grade taught, administrative category and level of Education – Brazil, 2006 (in Reais)

Level of education	Occupation / Schooling	Sector			
		Private		Public	
		Average	Median	Average	Median
Kindergarten		559	400	739	568
	Teachers with a degree	898	670	1,120	900
	Teachers with upper secondary level	460	350	613	500
Primary and lower secondary		735	525	912	745
	Primary teachers with a degree	814	600	1,017	800
	Lower secondary teachers with a degree	997	800	1,106	970
	Lower secondary teachers with upper secondary level	549	400	696	516
	Lay teachers in primary or lower secondary education	498	350	574	400
Upper secondary		1,403	1,000	1,403	1,300

Source: IBGE, 2006. *PNAD*.

As can be seen, salaries received by teachers are barely compensatory, especially when one considers the tasks attributed to them. When compared with average salaries in other professions which also require a degree, it is found that teachers have a much lower average income. For comparison purposes, some occupations were chosen which, in addition to requiring a degree, have a high proportion of women. Table 9.6 below exemplifies this.

TABLE 9.6 – Average monthly income in Brazilian Reais – Various professions

Profession	Average monthly income
Architects	2,018
Biologists	1,791
Dentists	3,322
Pharmacologists	2,212
Nurses	1,751
Lawyers	2,858
Journalists	2,389
Teachers (primary and secondary school)	927

Source: IBGE, 2006. *PNAD*.

Even when considering the number of working hours per week, the average salary of primary and secondary school teachers is well below that of other professions. As shown in chapter 1, given that a teacher's average working week is 30 hours, the salary increase that could result if we considered a 40 hour week would still mean that their average salary would be well below the others (i.e. approximately R$1,200.00).

3. CAREER PLANS

The existence of career plans for teaching is a principle that was consolidated by the 1988 Constitution. The 1996 Law of Guidelines and Foundations of Education and Article 67 establishes that school systems must promote the increased value of educational professionals by means of Statutes and career plans which guarantee: entry by public

examination and with proof of qualifications, continuous professional development with paid leave for this purpose, a minimum salary, career progression based on qualifications and evaluation of performance, a period reserved for study, planning and evaluation and adequate working conditions.

What was, in fact, observed in the data consulted is that this profession, up until the late 1990s, had no benchmark in most municipalities and States. This came to be the norm on a larger scale in the second half of the 1990s when the Federal government began implementing the Fund for Developing Primary and Lower Secondary School Education, which today is Fundef/Fundeb and the requirements imposed as a condition for receiving financial support for State and municipal school systems. Therefore, in most levels of public education management, there was no political concern with teachers' career statute, whether at kindergarten, primary or secondary school level.

The following discussion is based on a study undertaken by CONSED (2005), encompassing 25 states of Brazil and, in addition, a study conducted by us in 2008, relating to ten States and 30 municipalities from different regions of Brazil.[24] This data was obtained via direct information and in some cases from sites and documentary information.

Amongst the career plans examined, it was found that only 23% dated from before 1997. Therefore, many plans were prepared or revised in the late 1990s, as already shown.

In the sample data accessed, the first observation is that of the differences between States and municipalities, in that the former have more complex legislation and norms governing the career. Furthermore, smaller municipalities (under 30,000 inhabitants) have very simple

24 In 2008 we consulted data from the States of Acre, Bahia, Ceará, Mato Grosso, Minas Gerais, Paraná, Piauí, Rondônia, São Paulo, Sergipe, and the following municipalities: Água Boa (MT), Amargosa (BA), Barra do Garça (MT), Belém (PA), Belo Horizonte (MG), Castanhal (PA), Campinas (SP), Campo Grande (MS), Congonhas (MG), Corumbá (MS), Cuiabá (MT), Curitiba (PR), Dourados (MS), Fortaleza (CE), Goiânia (GO), Governador Valadares (MG), Itanhaém (SP), Manaus (AM), Mandaguaçu (PR), Novo Hamburgo (RS), Passo Fundo (RS), Petrolina (PE), Recife (PE), Ribeirão Preto (SP), Salvador (BA), Santa Maria de Jetibá (ES), São Paulo (SP), São Sebastião do Paraíso (MG), Sobral (CE) and Vitória (ES).

norms, failing to incorporate continuous development, for example. Most career plans provide both for teachers' and specialists' careers (that of educator, coordinator, supervisor and counsellor etc), with this latter group receiving better salary proposals.

The general structure for teachers' careers shows three levels of qualification, corresponding to different salary scales and in accordance with their level of training: upper secondary, university degree or graduate studies. These levels define vertical progression, which is complemented in the regulations examined, by factors such as years of service and other qualifications in licensed institutions. In the larger States and municipalities, career plan legislation considers continuous development as horizontal progression, combined proportionately with the basic requirements for training and years of service. However, in general, other factors of teaching qualifications are not incorporated into the career, being regulated in Brazilian States and municipalities. For example, although national legislation requires performance evaluation as a factor for progression, this is barely mentioned in career plans. Continuous development activities are considered in only a handful of cases (15%). CNE Resolution Nº 3/1997, which deals with the formulation of teaching career plans, as well as aspects already mentioned, proposed that in the career plan "periodic evaluations of knowledge in the subject area taught by the teacher, as well as pedagogical knowledge" be considered. This proposal was not considered in 89% of plans examined and in the remaining 11% there was no information on the implementation of this item, except in two States. Thus, as noted in the CONSED study (2005, p. 36-37), with regard to consideration of performance and knowledge "which involves teachers' evaluation processes, when provided for in the law, they lack regulation for implementation". This is indeed a controversial point with low acceptance in school networks and trade unions. These evaluations imply delicate issues, which are not to be underestimated but which must be considered with due care. It is observed that years of service continue to be the main factor in promotion and that when returning to the CONSED study, although "years of service in teaching and qualification in licensed institutions constitute national directives,

deserving preservation as elements of progression in new career plans, the latter must be adapted to new paradigms and evolve, overcoming outdated conceptions of entitlement".

Some of the initiatives in certain plans examined could be taken into consideration by other administrations, such as those relating to conditions and limits to leave for professional development and the provision of continuous development with individual assessment of knowledge. At the time of print, the National Education Board was debating the reformulation of Resolution Nº 3/1997, mentioned above, towards preparing new National Directives for Career Plans and Remuneration of Primary and Secondary School Teachers. A CNE committee was formed to investigate the issue. Proposals were made and public hearings held, with participation by CONSED (National Council of State Education Secretaries), UNDIME (National Union of Municipal Education Leaders), representatives from several councils and teachers' associations and other stakeholders. These discussions resulted in a document published in December 2008 (CNE – Career Directives), in which Reporting Councillor Maria Izabel A. Noronha summarises the points debated, adding the legal bases for these directives, social and educational assumptions of the new resolution to be proposed and the systemic nature of primary and secondary school teaching careers, amongst others. She also presents a draft of the resolution on such directives as a second text for debate. As this proposed text is still in draft form, we have chosen only a few points for consideration: access to the career by public examination (as stipulated in the Constitution) with analysis of qualifications appropriate to the professional profile; salary progression to include experience, years of service, performance and continuous professional development; preference for a full-time job, with part of this time destined towards continuous development activities, including studies, planning and evaluation and a proposal of criteria for the teacher-student ratio according to level and age, etc. As for performance evaluation, there are several stipulations that leave open problematic issues relating to feasibility, effectiveness and efficiency of school networks. In Item XIX of Article 5, the proposal is to "elaborate

and implement, with staff participation, an evaluative process in parallel with a two year probational work placement between appointment and acquisition of tenure in the post", which is an important aspect when considering teaching qualifications. Discussion of the draft was due to take place in 2009, in order to lead to a final resolution.

4. POINTS TO CONSIDER

Considering that the status attributed to the teaching profession is dependent on teacher training, conditions and salary attached to the job, as well as concrete working conditions in schools, policies that seek to contribute to professional development (competence and higher qualifications) require that certain obstacles be overcome in order for teaching to truly improve the preparation and learning of future generations. Many studies refer to these issues (GATTI; NUNES, 2008; RIVAS; LAVARREDA, 2008; FANFANI, 2005; UNESCO; CONSED, 2007; CONSED, 2005; VAILLANT, 2007; RASMUSSEN, 2008 and ZEICHNER, 2008, amongst others).

Based on the research, a few points can be highlighted:

1. For a teaching career to be valued, the first aspect highlighted relates to care with undergraduate training. Prestige may begin in initial training, where a clear emphasis must be placed on the need to reformulate and remain constantly up to date, making use of well-prepared teacher trainers to ensure their students (future teachers) learn how to teach. That is, to start by better qualifying future teachers at undergraduate level. As suggested by Rasmussen, a teacher of Mathematics or Languages must have expertise in that field but this is far from saying that he is professionally ready to teach: "The efficient and professional teacher who works to allow his students to learn needs an appropriate combination of professional and didactic knowledge" (RASMUSSEN, 2008, p. 12). This is a highly problematic aspect in university courses in Brazil, as recent analyses have shown.

2. The second point emphasised as a value is the existence of a public examination for entry to the career, this being considered the primary mechanism for detecting qualifications for candidates to become teachers. Entrance examinations for public sector teachers are compulsory under Brazilian legislation. However, these examinations are either not held, with temporary teachers being hired, or they are inappropriate and rudimentary in both conception and execution, as shown in the study by Gatti and Nunes (2008), which makes them inadequate for verifying minimum professional qualifications.
3. An important issue indicated in the CONSED study (2005) and which is still pending, as can be seen from our examination of a sample of career plans, is that even though the Law makes provision for this, evaluation of performance in a probational work placement has not yet been regulated and is never practically implemented. In the text, the following question is raised:

> What stops the education authorities from complying with the Constitution and State law regulating and implementing performance evaluation during a probational work placement? Isn't this the necessary and essential experience which leads to a discussion of the process of teaching performance evaluation as an element for promoting the status of the profession? This would also represent recognition of the 'probational work placement as the ideal period for the trainee teacher to learn, during which monitoring and guidance from experienced teachers would be essential to complement the professional training process' (CONSED, 2005, p. 62).

The probational work placement, when properly executed, creates an aura of responsibility and public image of professionalism, as it offers parents a perceived guarantee of professional competence. It would, without doubt, add to the status of the career.

4. Policies aimed at better qualifications in primary and secondary schools depend on pre-service and in-service teacher training but also on constant renewal of motivation for the task of teaching. This is achieved through satisfaction, with remuneration and career progression, which necessarily implies implementation of several teaching personnel management processes in an integrated way. Isolated policies and individual actions which are not interconnected for a common purpose, aimed at building social and professional status do not achieve sufficient impact for improved learning through school systems. Analyses of the low impact of individual initiatives or their failure over the past 30 years allowed for a clear perception of the need for integrated and long-lasting policies.

5. A variety of types of action relating to professional development of teachers would need to show improvements in career prospects and alter the collective image of this profession, both in general society and amongst teachers themselves, which involves, according to Vaillant, returning to these professionals their self-confidence, possible by means of appropriate long-lasting policies (VAILLANT, 2007, p. 8-9). It is necessary to consider here what Fanfani highlights: "teachers are not social automatons whose actions obey only external stimuli, such as laws, decrees, circulars and regulations" (FANFANI, 2005, p. 279-280). They are people with ideas, imagination and representations who enjoy a certain autonomy, even if this is partial. Hence, "the importance of knowing the subjectivity of social actions in order to understand what they do and why they do it" (FANFANI, 2005, p. 279-280). Public policies cannot ignore this fact. Changes in perspective and values are constructed in connected vessels and not by the ink of regulation. Teachers' feelings of low-worth, expressed in so many studies, is related to low salaries and poor career prospects, as indicated by research (JESUS, 2004).

6. The differences found in career plans do not show any real possibility for teachers to 'progress' without leaving the classroom. This discourages good candidates from becoming teachers, not to mention demotivating good teachers, who feel under-valued and end-up seeking another function outside the classroom in order to attain a significant promotion. This also creates the idea that becoming a teacher leads to a career which is neither socially nor financially rewarding.

10. FINAL REFLECTIONS AND CONSIDERATIONS

The data in this study supplies a highly complex scenario considering, on the one hand, aspects relating to the work of teachers, their characteristics, in-service and continuous development as elements that comprise the sphere of teaching-learning activities in Brazil's schools and, on the other, the normative stances, training and socio-cultural background of graduates from various teaching degrees, indicating prospects for the future quality of education. There are many challenges to overcome in this regard, as indicated by the analyses performed.

We began by remembering that the demands for training in accordance with legislation vary enormously depending on levels of education and different regions. In policies for action, it is impossible to ignore these differences, providing projections and plans of a generic nature. Taking into consideration the unequal distribution of the public and private provision of degree courses for teachers within each region, it is immediately obvious that there is a need to adopt an articulated strategy for action across different levels of government responsible for training teachers and those who hire them. Given the complexity of this matrix, there must be some central control in order for results to be obtained. This will only be possible if the more radical and competitive party political interests are overcome and through a consensus on the course of education in Brazil, and training structures for primary and secondary school teachers and their respective curricula.

Education professionals are amongst the most numerous and important occupational groups, both in terms of size and role, with the

public sector being by far the largest employer in the field. This relates to issues of public funding for education, professionals' careers and salaries, as well as the necessary conditions for school infrastructure, as the best qualification for education is also dependent on these aspects, which are not given the same priority as the demands made on schools and their staff.

The data is clear: the discourse that education does not require further investment is not sustainable. On the other hand, as analyses have shown, it is impossible to allocate funds without an integrated plan which takes into account the diversity of conditions in different regions and without intense monitoring.

Unattractive salaries, as disclosed in chapter 9 and career plans structured in such a way that they fail to offer clear, promising and worthwhile pathways for teachers interfere with young people's professional choices and in the representation and social status of teachers. It is for a reason that when teaching degree undergraduates were asked about the main reason they chose an education degree, 65% attributed their choice to the fact that they wanted to be teachers, whilst this percentage drops to approximately half that amount in the case of other teaching degrees. Even though Education undergraduates mostly stated an option for teaching, the remaining 35% did not select this career, even though they are taking that course.

Policies aimed at better qualifications for primary and secondary school teachers depend on pre-service and in-service teacher training but also on constant renewal of the motivation to teach through satisfaction, with remuneration and career progression, which implies implementation of several actions for the integrated management of teaching staff. Isolated policies and individual activities which are not interconnected by a common purpose towards building the social and professional status of teachers do not cause significant impact.

Thus, actions of different kinds related to teachers' professional development would need to show improvements in career prospects and change the collective image of this profession, both in society at large and amongst teachers themselves.

Adding to the normative dimension of systems, it is important to consider that legislation relating to different aspects of school education requires profound revision and changes in attitude relating to the core functions of the school and its needs. Curricula need to be better balanced across the different levels of education, particularly teacher training. Momentary urgency, favoured by pressure groups, generates consequences which are not generally foreseen by legislators and such groups in the light of space-time conditions affecting school activity and its basic social function. Successive interferences in primary and secondary school curricula from different legislative sources also contribute to the fragmentation of a more consistent pedagogical design, with goals to be met in terms of knowledge and values, affecting formative processes in turn affected by a thousand and one factors, further fragmenting this professional development process.

There is a wide range of resolutions and norms which end up generating amendments to teacher training processes, generating an entropic process which eventually maintains forms and content which have been exhaustively analysed and found to be useless when it comes to quality education.

With regard to teacher training, a true revolution in institutional training structures and the curriculum of training programmes is necessary. There are many and varied syllabi and formative fragmentation is clear. This training must be integrated by joined institutions, which focus on this primary objective. Teacher training cannot be thought of based on science and its diverse subject fields, as an add-on to these but based on schools' own social function: teaching new generations accumulated knowledge and consolidating values and practices coherent with civil life. The strong subject-oriented tradition that characterises teachers in Brazil and leads future teachers in their training to tune in more to the requirements emanating from their subject area than the general demands of basic schooling, causes not only professional but also scientific bodies to resist solutions of an interdisciplinary nature for the curriculum, despite such measures having met with success in several other countries. Professional teacher training for primary and

secondary education must start with the field of practice and add to this the essential knowledge considered valuable, the necessary foundations and methodological mediations, above all because it relates to education of children and adolescents.

It was found that the process of offering teaching degree courses in Brazil enables one to infer that the state of teacher training, in general, is still far from satisfactory and demonstrates that preparation of teachers for primary school teaching at degree level is being conducted ineffectively. In higher education institutions that offer teaching degrees, it can be seen that there is no clear profile for teachers. Curricula do not cover issues relating to professional practice, its methodological foundations and ways of working in the classroom. They continue to emphasise almost exclusively the subject area to the detriment of pedagogical knowledge *per se*.

Work placements, which are compulsory, have proven to be weak, being listed in curriculum proposals without planning or a clear link to school systems and without specifying how they will be supervised. Added to this is the observation that these courses, according to information from undergraduates themselves, are largely based on photocopied material, abstracts and passages or chapters from books, with it being clear that there are gaps in the knowledge supplied. The background of students is also worth considering here as they mostly come from public schools. 68.4% took the entire upper secondary level of education in the public sector and 14.2% study part of the time at a public school. Training institutions and policies must make use of this data.

Also worthy of attention is the enormous gap in teacher training for kindergartens, as this is the first level of education which covers several years of learning by small children and where, as shown, there is a concentration of the highest percentage of teachers with inadequate training. Following the tradition of upper secondary teaching diploma courses, current education degrees tend to simultaneously prepare teachers for kindergartens and primary and lower secondary schools. The suspicion is that it was understood in the past more as a complement to training teachers for primary schools, so the training given does not

duly address the specifics of educating children in kindergartens and nursery schools.

Once again, we must reiterate what has been stated in several studies about teaching degrees: that in the Brazilian university system, they are given second place. Within this context, teacher training is considered a less important category and those dedicated to this field are undervalued. A hierarchical order in university academia arises from here; research activities and graduate studies have status and emphasis and dedication to teaching and teacher training presupposes a loss of academic prestige.

Some reflections on distance education for teachers must be made. The expansion of courses and network at the turn of the millennium and increasing involvement of IHEs in DL, above all for teacher training, shows that this form of teaching has gained new ground in Brazil and taken on increasing importance for educational policy making. Reorganisation of the field of distance education by public authorities allowed for the accelerated growth of higher education in this format over the past ten years.

This growth has been taking place at outstanding proportions and concerns have already been raised about the quality and adequacy of this system in given conditions; such as students who leave upper secondary school with a very poor standard in Portuguese language, as international evaluations have shown. Distance education almost always requires the individualized reading and interpretation of texts. In addition, there are numerous indicators that the multiplication of consortia and clusters that provide teaching degrees at a distance is taking place without a consistent political-pedagogical plan for teacher training, with national and local integration, which is developed and shared and without basic operational structures working adequately.

From the point of view of operating these courses, it is observed that special in-service teacher training projects were, as a rule, closely accompanied by external evaluations. The majority of teachers , assessed the form positively and the results obtained seem to be representative. Nevertheless, when implementing a permanent DL policy with equal

status to Face-to-Face courses, one must consider that the Federal government does not have the necessary apparatus for monitoring, supervising or inspecting distance learning courses.

Tutoring, in turn, has been one of the most vulnerable aspects of the DL experience. As indicated in this study, examination of several syllabi released for promotion of DL courses showed the weakness of their activities. The tutor appears to be one of the most fragile elements in a process for transforming and eroding teaching work, despite dependence on so-called "self-study" materials and technologies used for their production and dissemination. Models for hiring and paying tutors, provided for in the consortia, are not compatible with the establishment of a regular education system, which requires permanent funding to ensure stability of staff. The conditions which are being proposed for hiring tutors make their commitment to the programme highly vulnerable and do not allow for systematic investment in in-service tutor development.

It is also important to consider teacher training work placements. Certainly, greater attention should be given to the requirements for work placements in primary and secondary schools in this new format. Some studies point to other aspects such as outdated teaching materials, systematic and personalised services for trainee teachers and development of reliable systems for assessing the training process.

The education community's unease in the face of this scenario is that insertion, in the proposed format, of a form of teacher training that is offered with even poorer quality than Face-to-Face courses, instead of contributing to solving the crisis in teacher training may make the process even weaker and destabilise those experiences with Face-to-Face training that have proven successful.

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ANNEX

Tables from the 2005 ENADE Questionnaire

A. TABLES RELATING TO GRADUATING AND ENTERING STUDENTS WHO TOOK ENADE 2005

TABLE A1 – Intention to be a teacher

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Yes.	31,075	79.0	67,959	69.6	99,034	72.3
(B)	No.	3,264	8.3	9,715	9.9	12,979	9.5
(C)	Not yet decided.	4,898	12.4	19,527	20.0	24,425	17.8
	Void	81	0.2	359	0.4	440	0.3
	Invalid responses	41	0.1	82	0.1	123	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A2 – Future professional prospects

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	I already work in the field and intend to remain.	11,114	28.2	15,242	15.6	26,356	19.2
(B)	I work in another field but intend to seek activity in my field of training.	6,538	16.6	22,904	23.5	29,442	21.5
(C)	I will enter academia and seek a graduate course.	12,517	31.8	32,483	33.3	45,000	32.8
(D)	I will take exams for a civil service job.	5,424	13.8	13,518	13.8	18,942	13.8
(E)	I intend to work in the private sector.	1,788	4.5	2,618	2.7	4,406	3.2
(F)	Not yet decided.	1,749	4.4	10,234	10.5	11,983	8.7
	Void	104	0.3	426	0.4	530	0.4
	Invalid responses	125	0.3	217	0.2	342	0.2

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A3 – Concluded upper secondary

	Before 1990		1991 to 1995		1996 to 2000		2001 or later		Total	
	n	%	n	%	n	%	n	%	n	%
Education	7,523	19.1	5,571	14.2	13,264	33.7	13,001	33.0	39,359	100.0
Biology	1,182	6.7	1,374	7.8	6,857	38.7	8,305	46.9	17,718	100.0
Physics	197	6.9	258	9.1	1,114	39.2	1,271	44.8	2,840	100.0
Geography	1,372	14.5	1,174	12.4	3,636	38.4	3,277	34.6	9,459	100.0
History	2,268	14.6	1,797	11.5	5,696	36.5	5,826	37.4	15,587	100.0
Portuguese/ Languages	5,582	14.4	4,900	12.6	14,006	36.1	14,282	36.8	38,770	100.0
Mathematics	1,159	12.4	1,073	11.5	3,295	35.4	3,793	40.7	9,320	100.0
Chemistry	274	6.9	412	10.4	1,571	39.8	1,691	42.8	3,948	100.0
Total	19,557	14.3	16,559	12.1	49,439	36.1	51,446	37.6	137,001	100.0

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A4 – Marital status

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Single.	21,089	53.6	67,042	68.7	88,131	64.3
(B)	Married.	14,443	36.7	23,705	24.3	38,148	27.8
(C)	Separated/divorced/	2,094	5.3	3,591	3.7	5,685	4.1
(D)	Widow(er)	341	0.9	440	0.5	781	0.6
(E)	Other.	1,322	3.4	2,722	2.8	4,044	3.0
	Void	32	0.1	68	0.1	100	0.1
	Invalid responses	38	0.1	74	0.1	112	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A5 – Type of scholarship or financing received for course expenses

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Student loan – FIES.	1,187	3.0	3,346	3.4	4,533	3.3
(B)	Full or partial scholarship (including discounted fees) offered by institution itself.	5,757	14.6	13,110	13.4	18,867	13.8
(C)	Full or partial scholarship offered by external body.	4,029	10.2	8,284	8.5	12,313	9.0
(D)	Other(s).	3,854	9.8	7,583	7.8	11,437	8.3
(E)	None.	24,199	61.5	64,552	66.1	88,751	64.8
	Void	195	0.5	460	0.5	655	0.5
	Invalid responses	138	0.4	307	0.3	445	0.3

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A6 – Type of school in which upper secondary concluded

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	All in public school.	27,989	71.1	65,683	67.3	93,672	68.4
(B)	All in private school.	5,631	14.3	17,903	18.3	23,534	17.2
(C)	Mostly public school.	2,773	7.0	6,573	6.7	9,346	6.8
(D)	Mostly private school.	1,260	3.2	3,901	4.0	5,161	3.8
(E)	Half in public school and half in private school.	1,616	4.1	3,359	3.4	4,975	3.6
	Void	48	0.1	86	0.1	134	0.1
	Invalid responses	42	0.1	137	0.1	179	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A7 – Type of books most commonly read

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Fictional literature.	4,704	12.0	27,702	28.4	32,406	23.7
(B)	Non-fictional literature.	6,193	15.7	17,876	18.3	24,069	17.6
(C)	Technical works.	7,196	18.3	15,149	15.5	22,345	16.3
(D)	Self-help books.	6,942	17.6	8,915	9.1	15,857	11.6
(E)	Others.	11,083	28.2	20,210	20.7	31,293	22.8
	Void	3,141	8.0	7,618	7.8	10,759	7.9
	Invalid responses	100	0.3	172	0.2	272	0.2

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A8 – Newspaper readership

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Daily.	5,660	14.4	15,020	15.4	20,680	15.1
(B)	A few times per week.	14,429	36.7	36,471	37.4	50,900	37.2
(C)	Only on Sundays.	4,222	10.7	9,101	9.3	13,323	9.7
(D)	Rarely.	13,902	35.3	33,893	34.7	47,795	34.9
(E)	Never. (Go to question 21)	1,047	2.7	2,843	2.9	3,890	2.8
	Void	74	0.2	268	0.3	342	0.2
	Invalid responses	25	0.1	46	0.0	71	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A9 – Medium most used for following current affairs

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Newspapers.	5,029	12.8	12,572	12.9	17,601	12.8
(B)	Magazines.	2,168	5.5	5,606	5.7	7,774	5.7
(C)	TV.	24,127	61.3	55,779	57.1	79,906	58.3
(D)	Radio.	1,436	3.6	3,611	3.7	5,047	3.7
(E)	Internet.	6,412	16.3	19,659	20.1	26,071	19.0
	Void	61	0.2	145	0.1	206	0.2
	Invalid responses	126	0.3	270	0.3	396	0.3

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A10 – Favourite artistic-cultural activities

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Cinema.	16,029	40.7	42,663	43.7	58,692	42.8
(B)	Theatre.	7,264	18.5	15,927	16.3	23,191	16.9
(C)	Musical shows and/or concerts.	8,358	21.2	23,604	24.2	31,962	23.3
(D)	Dance.	5,573	14.2	8,797	9.0	14,370	10.5
(E)	None.	1,998	5.1	6,201	6.4	8,199	6.0
	Void	51	0.1	248	0.3	299	0.2
	Invalid responses	86	0.2	202	0.2	288	0.2

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A11 – Computer use for academic purposes

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Yes.	35,708	90.7	91,135	93.3	126,843	92.6
(B)	No.	792	2.0	2,698	2.8	3,490	2.5
	Void	2,838	7.2	3,761	3.9	6,599	4.8
	Invalid responses	21	0.1	48	0.0	69	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

B. TABLES REFERRING ONLY TO GRADUATING STUDENTS

TABLE A12 – Condition of lab equipment used on the course

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Up to date and well maintained.	10,509	50.6	20,393	42.6	30,902	45.0
(B)	Up to date but poorly maintained.	1,687	8.1	4,019	8.4	5,706	8.3
(C)	Out of date but well maintained.	1,441	6.9	7,870	16.4	9,311	13.6
(D)	Out of date and poorly maintained.	785	3.8	3,967	8.3	4,752	6.9
(E)	There is no lab on my course.	6,232	30.0	11,347	23.7	17,579	25.6
	Void	99	0.5	206	0.4	305	0.4
	Invalid responses	21	0.1	79	0.2	100	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

Table A13 – Up to date library stock, given curricular needs of the course

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Up to date.	7,209	34.7	11,992	25.0	19,201	28.0
(B)	Fairly up to date.	7,371	35.5	16,475	34.4	23,846	34.7
(C)	Not very up to date.	3,739	18.0	10,905	22.8	14,644	21.3
(D)	Out of date.	1,415	6.8	6,275	13.1	7,690	11.2
(E)	Don't know.	998	4.8	2,083	4.4	3,081	4.5
	Void	28	0.1	123	0.3	151	0.2
	Invalid responses	14	0.1	28	0.1	42	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A14 – Evaluation of library opening hours

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	More than adequate.	8,110	39.0	18,972	39.6	27,082	39.4
(B)	Adequate.	9,741	46.9	21,664	45.2	31,405	45.7
(C)	Fairly adequate.	1,815	8.7	4,228	8.8	6,043	8.8
(D)	Inadequate.	585	2.8	1,503	3.1	2,088	3.0
(E)	Don't know.	495	2.4	1,378	2.9	1,873	2.7
	Void	20	0.1	118	0.2	138	0.2
	Invalid responses	8	0.0	18	0.0	26	0.0

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A15 – Access to PCs at institution, to meet course requirements

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Full.	6,640	32.0	12,947	27.0	19,587	28.5
(B)	Limited.	11,255	54.2	28,036	58.6	39,291	57.2
(C)	Not available to students on my course.	1,428	6.9	3,073	6.4	4,501	6.6
(D)	Not available to any student.	710	3.4	1,840	3.8	2,550	3.7
(E)	The course does not require PCs.	677	3.3	1,778	3.7	2,455	3.6
	Void	54	0.3	166	0.3	220	0.3
	Invalid responses	10	0.0	41	0.1	51	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

Does the institution contribute to your reflection (on questions A16 to A22):

TABLE A16 – Illiteracy

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	13,038	62.8	19,329	40.4	32,367	47.1
(B)	Contributes partially.	6,027	29.0	16,492	34.4	22,519	32.8
(C)	Contributes very little.	1,234	5.9	7,843	16.4	9,077	13.2
(D)	Does not contribute at all.	188	0.9	2,601	5.4	2,789	4.1
(E)	Don't know.	262	1.3	1,453	3.0	1,715	2.5
	Void	19	0.1	137	0.3	156	0.2
	Invalid responses	6	0.0	26	0.1	32	0.0

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A17 – Socio-economic inequality

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	12,315	59.3	19,823	41.4	32,138	46.8
(B)	Contributes partially.	6,574	31.6	17,172	35.9	23,746	34.6
(C)	Contributes very little.	1,331	6.4	7,233	15.1	8,564	12.5
(D)	Does not contribute at all.	211	1.0	2,184	4.6	2,395	3.5
(E)	Don't know.	314	1.5	1,333	2.8	1,647	2.4
	Void	19	0.1	103	0.2	122	0.2
	Invalid responses	10	0.0	33	0.1	43	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A18 – Unemployment

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	9,333	44.9	15,949	33.3	25,282	36.8
(B)	Contributes partially.	7,765	37.4	17,535	36.6	25,300	36.9
(C)	Contributes very little.	2,478	11.9	9,032	18.9	11,510	16.8
(D)	Does not contribute at all.	586	2.8	3,454	7.2	4,040	5.9
(E)	Don't know.	577	2.8	1,804	3.8	2,381	3.5
	Void	27	0.1	72	0.2	99	0.1
	Invalid responses	8	0.0	35	0.1	43	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A19 – Housing

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	7,206	34.7	11,522	24.1	18,728	27.3
(B)	Contributes partially.	7,896	38.0	16,032	33.5	23,928	34.9
(C)	Contributes very little.	3,508	16.9	10,991	23.0	14,499	21.1
(D)	Does not contribute at all.	1,237	6.0	6,386	13.3	7,623	11.1
(E)	Don't know.	885	4.3	2,808	5.9	3,693	5.4
	Void	33	0.2	117	0.2	150	0.2
	Invalid responses	9	0.0	25	0.1	34	0.0

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A20 – Discrimination relating to race, gender and minorities

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	11,772	56.7	18,292	38.2	30,064	43.8
(B)	Contributes partially.	6,204	29.9	15,564	32.5	21,768	31.7
(C)	Contributes very little.	1,722	8.3	8,081	16.9	9,803	14.3
(D)	Does not contribute at all.	458	2.2	3,560	7.4	4,018	5.9
(E)	Don't know.	579	2.8	2,278	4.8	2,857	4.2
	Void	29	0.1	78	0.2	107	0.2
	Invalid responses	10	0.0	28	0.1	38	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A21 – Regional diversity and specificities

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	9,392	45.2	17,657	36.9	27,049	39.4
(B)	Contributes partially.	7,913	38.1	17,115	35.7	25,028	36.5
(C)	Contributes very little.	2,309	11.1	7,666	16.0	9,975	14.5
(D)	Does not contribute at all.	458	2.2	2,833	5.9	3,291	4.8
(E)	Don't know.	661	3.2	2,419	5.1	3,080	4.5
	Void	28	0.1	164	0.3	192	0.3
	Invalid responses	13	0.1	27	0.1	40	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A22 – Security and crime

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	7,620	36.7	11,995	25.1	19,615	28.6
(B)	Contributes partially.	8,381	40.3	17,374	36.3	25,755	37.5
(C)	Contributes very little.	3,214	15.5	10,955	22.9	14,169	20.6
(D)	Does not contribute at all.	877	4.2	5,078	10.6	5,955	8.7
(E)	Don't know.	638	3.1	2,336	4.9	2,974	4.3
	Void	36	0.2	123	0.3	159	0.2
	Invalid responses	8	0.0	20	0.0	28	0.0

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A23 – Exploitation of child and/or adult labour

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Contributes significantly.	10,092	48.6	12,689	26.5	22,781	33.2
(B)	Contributes partially.	6,875	33.1	15,590	32.6	22,465	32.7
(C)	Contributes very little.	2,379	11.5	10,634	22.2	13,013	19.0
(D)	Does not contribute at all.	720	3.5	6,034	12.6	6,754	9.8
(E)	Don't know.	653	3.1	2,762	5.8	3,415	5.0
	Void	36	0.2	135	0.3	171	0.2
	Invalid responses	19	0.1	37	0.1	56	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A24 – Evaluation of course curriculum

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Highly integrated, with clear links between subjects.	10,601	51.0	17,507	36.6	28,108	40.9
(B)	Relatively integrated, since subjects are linked only by blocks or areas of common content.	7,646	36.8	22,411	46.8	30,057	43.8
(C)	Poorly integrated, as few subjects interconnect.	1,806	8.7	5,413	11.3	7,219	10.5
(D)	There is no integration across subjects.	332	1.6	1,189	2.5	1,521	2.2
(E)	Don't know.	342	1.6	1,148	2.4	1,490	2.2
	Void	35	0.2	164	0.3	199	0.3
	Invalid responses	12	0.1	49	0.1	61	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A25 – Relevance of guidance from teaching plans for course delivery

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Highly relevant.	5,995	28.9	11,946	24.9	17,941	26.1
(B)	Relevant.	10,983	52.9	23,541	49.2	34,524	50.3
(C)	Fairly relevant.	2,298	11.1	7,615	15.9	9,913	14.4
(D)	Of little relevance.	601	2.9	2,523	5.3	3,124	4.6
(E)	Irrelevant.	142	0.7	703	1.5	845	1.2
	Void	744	3.6	1,527	3.2	2,271	3.3
	Invalid responses	11	0.1	26	0.1	37	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A26 – Teachers' knowledge of subject matter

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Yes, all of them.	7,310	35.2	14,545	30.4	21,855	31.8
(B)	Yes, most of them.	10,714	51.6	25,428	53.1	36,142	52.6
(C)	Yes, but only half of them.	1,724	8.3	4,611	9.6	6,335	9.2
(D)	Yes, but less than half of them.	927	4.5	2,948	6.2	3,875	5.6
(E)	No, none of them.	57	0.3	207	0.4	264	0.4
	Void	26	0.1	91	0.2	117	0.2
	Invalid responses	16	0.1	51	0.1	67	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

TABLE A27 – Research activities as a learning strategy

		Education degree		Teaching degree		Total	
		n	%	n	%	n	%
(A)	Yes, in all subjects.	3,894	18.7	6,106	12.8	10,000	14.6
(B)	Yes, in most subjects.	9,540	45.9	17,592	36.7	27,132	39.5
(C)	Yes, but only in half of subjects.	2,561	12.3	6,412	13.4	8,973	13.1
(D)	Yes, but in less than half of subjects.	3,377	16.3	11,692	24.4	15,069	21.9
(E)	No, not in any subject.	1,334	6.4	5,939	12.4	7,273	10.6
	Void	51	0.2	98	0.2	149	0.2
	Invalid responses	17	0.1	42	0.1	59	0.1

Source: MEC/INEP, 2005. *ENADE Socio-economic questionnaire.*

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