Redefining basic education for Latin America: lessons to be learned from the Colombian Escuela Nueva

Ernesto Schiefelbein

Paris 1992
UNESCO: International Institute for Educational Planning

Included in the series:*

2. The relation of educational plans to economic and social planning, *R. Poignant*
4. Planning and the educational administrator, *C.E. Beeby*
5. The social context of educational planning, *C.A. Anderson*
6. The costing of educational plans, *J. Vaizey, J.D. Chesswas*
7. The problems of rural education, *V.L. Griffiths*
8. Educational planning; the adviser's role, *A. Curle*
9. Demographic aspects of educational planning, *Ta Ngoc C.*
10. The analysis of educational costs and expenditure, *J. Hallak*
11. The professional identity of the educational planner, *A. Curle*
12. The conditions for success in educational planning, *G.C. Ruscoe*
13. Cost-benefit analysis in educational planning, *M. Woodhall*
18. Planning educational assistance for the second development decade, *H.M. Philips*
20. Realistic educational planning, *K.R. McKinnon*
21. Planning education in relation to rural development, *G.M. Coverdale*
22. Alternatives and decisions in educational planning, *J.D. Montgomery*
23. Planning the school curriculum, *A. Lewy*
24. Cost factors in planning educational technological systems, D.T. Jamison
25. The planner and lifelong education, *P. Furter*
26. Education and employment: a critical appraisal, *M. Carnoy*
27. Planning teacher demand and supply, *P. Williams*
28. Planning early childhood care and education in developing countries *A. Heron*
29. Communication media in education for low-income countries *E.G. McAnany, J.K. Mayo*
30. The planning of nonformal education, *D.R. Evans*
31. Education, training and the traditional sector, *J. Hallak, F. Caillods*
32. Higher education and employment: the IIEP experience in five less-developed countries *G. Psacharopoulos, B.C. Sanyal*
33. Educational planning as a social process, *T. Malan*
34. Higher education and social stratification: an international comparative study, *T. Husén*
35. A conceptual framework for the development of lifelong education in the USSR, *A. Vladislavlev*
36. Education in austerity: options for planners, *K. Lewin*
37. Educational planning in Asia, *R. Roy-Singh*
38. Education projects: elaboration, financing and management, *A. Magnen*
39. Increasing teacher effectiveness, *L.W. Anderson*
40. National and school-based curriculum development, *A. Lewy*
41. Planning human resources: methods, experiences and practices *O. Bertrand*

* Also published in French. Other titles to appear.

The Swedish International Development Authority (SIDA) has provided financial assistance for the publication of this booklet

Published in 1992 by the United Nations
Educational, Scientific and Cultural Organization
7 Place de Fontenoy, 75700, Paris
Printed in France by Imprimerie Gauthiers-Villas, 75018 Paris

Cover design by Bruno Pläffli
ISBN 92-803-1143-3

Fundamentals of educational planning

The booklets in this series are written primarily for two types of clientele: those engaged in educational planning and administration, in developing as well as developed countries; and others, less specialized, such as senior government officials and policy-makers who seek a more general understanding of educational planning and of how it is related to overall national development. They are intended to be of use either for private study or in formal training programmes.

Since this series was launched in 1967 practices and concepts of educational planning have undergone substantial change. Many of the assumptions which underlay earlier attempts to rationalise the process of educational development have been criticised or abandoned. Even if rigid mandatory centralized planning has now clearly proven to be inappropriate, this does not means that all forms of planning have been dispensed with. On the contrary, the need for collecting data, evaluating the efficiency of existing programmes, undertaking a wide range of studies, exploring the future and fostering broad debate on these bases to guide educational policy and decision-making has become even more acute than before.

The scope of educational planning has been broadened. In addition to the formal system of education, it is now applied to all other important educational efforts in non-formal settings. Attention to the growth and expansion of educational systems is being complemented and sometimes even replaced by a growing concern for the quality of the entire educational process and for the control of its results. Finally, planners and administrators have become

more and more aware of the importance of implementation strategies and of the role of different regulatory mechanisms in this respect: the choice of financing methods, the examination and certification procedures or various other regulation and incentive structures. The concern of planners is twofold: to reach a better understanding of the validity of education in its own empirically observed specific dimensions and to help in defining appropriate strategies for change.

The purpose of these booklets includes monitoring the evolution and change in educational policies and their effect upon educational planning requirements; highlighting current issues of educational planning and analysing them in the context of their historical and societal setting; and disseminating methodologies of planning which can be applied in the context of both the developed and the developing countries.

In order to help the Institute identify the real up-to-date issues in educational planning and policy-making in different parts of the world, an Editorial Board has been appointed, composed of two general editors and associate editors from different regions, all professionals of high repute in their own field. At the first meeting of this new Editorial Board in January 1990, its members identified key topics to be covered in the coming issues under the following headings:

1. Education and development
2. Equity
3. Quality of education
4. Structure, administration and management of education
5. Curriculum
6. Cost and financing of education
7. Planning techniques and approaches
8. Information systems, monitoring and evaluation

Each heading is covered by one or two associate editors.

The series has been carefully planned but no attempt has been made to avoid differences or even contradictions in the views expressed by the authors. The Institute itself does not wish to

impose any official doctrine. Thus, while the views are the responsibility of the authors and may not always be shared by UNESCO or the IIEP, they warrant attention in the international forum of ideas. Indeed, one of the purposes of this series is to reflect a diversity of experience and opinions by giving different authors from a wide range of backgrounds and disciplines the opportunity of expressing their views on changing theories and practices in educational planning.

One of the greatest challenges that planners and policy-makers face is how to improve the quality of education, and to raise the learning achievements of children in rural and marginal urban areas so as to avoid their having to repeat a class and eventually dropping out. Many curriculum reforms and projects have been introduced to this end, trying in particular to change teachers' attitudes and methods, and to involve pupils in a more active learning process. In the majority of cases, such projects and reforms, although sometimes very successful, have not succeeded in going beyong the pilot-scheme stage. This is not the case of the Escuela Nueva programme which was introduced in Colombia in the late 1970s and is now successfully used in a large number of rural schools. What can we learn from such an experience which would be valid for other developing countries in Latin America and elsewhere? Such is the question that the Editorial Board asked Ernesto Schiefelbein of UNESCO's Regional Office for Education in Latin America and the Caribbean (OREALC) to address in this booklet. The author starts with a very lucid description of the educational context in Latin America, then describes what the Escuela Nueva is, before drawing some lessons from it on how it could be introduced elsewhere, giving encouragement but also warnings to planners wanting to do so.

This booklet is thus valuable reading for all those — teachers, teacher trainers and planners — concerned with improving the quality of education. The Institute wishes to thank Ernesto Schiefelbein for his excellent contribution to the series.

Jacques Hallak
Director, IIEP

Preface

Literacy and numeracy are two of the skills most likely to affect the educational performance and future productivity of children and adults living in rural and marginal urban areas. Yet many school systems fail to provide such skills to large groups of children. Many of the measures that have been taken to improve the quality of education, especially many of the curriculum reforms, have remained ineffective, as the root of the problem often lies at the classroom level, in teachers' pedagogical styles. Latin America is a case in point in this respect. By most traditional indicators, the quality of education would appear to be satisfactory, yet high repetition rates and low scores on reading tests indicate that it is not. Ernesto Schiefelbein identifies class heterogeneity and the inability of most teachers to deal with this phenomenon as the main source of low learning levels at school. Most teachers use classical didactic methods, addressing themselves to a normal, average child who, given the recurrent problem of malnutrition, differences of language between home and the school, and poor family background, does not exist. Instead of engaging in genuine learning activities, children often spend their time copying from the blackboard, or carrying out repetitive and boring tasks. As a result, they do not acquire real mastery of cognitive and intellectual skills. Repeated absences on the part of the pupils make things worse. Children, primarily from marginalized groups, end up repeating and even dropping out.

The problem is well known, and several projects have been carried out in different regions of the world to address it, trying for example, to change teachers' styles and to modify classroom environments and management. Most of these projects have been successful as long as they remained on a small scale, with fairly large support of an external agency, but very few have managed to be extended to the system as a whole. The Escuela Nueva in Colombia is one of these few.

In this booklet Ernesto Schiefelbein starts with a very lucid presentation of the situation in Latin American schools showing that while teachers are essential elements of the educational process, in present circumstances one should not expect miracles from them: retraining them and re-modelling their attitudes is a long-term and difficult task. What is therefore required is a comprehensive approach, helping existing teachers to stimulate an active learning process. The Escuela Nueva programme, as the author explains, is one such approach: a set of innovative techniques, all derived from well known educational theory but introduced in package form, with specific material and professional support.

Present results are encouraging though more evaluation will be required in the years to come before the full impact of the programme can be measured. The fact that it has survived so long, and that it now covers a majority of rural schools in Colombia, with apparently no excessive extra cost, is what makes it particularly interesting for planners and decision makers elsewhere in the world. This is what prompted the Editorial Board of the Fundamentals of Educational Planning series to ask Ernesto Schiefelbein to write this booklet describing what the Escuela Nueva is, what it achieved, and even more importantly, how it was introduced in Colombia.

What lessons can be drawn for other planners who would wish to introduce such a programme or a similar one in their countries? No one but Ernesto Schiefelbein, a former director of planning in Chile and for many years a well known observer of the Latin American educational scene, could have tackled this question better.

Françoise Caillods
Co-general editor of the series

Contents

Acknowledgements

The author wishes to acknowledge the support of OREALC (Santiago), UNICEF (Bogota) and the IIEP (Paris). Discussions with, and comments from, the Escuela Nueva team: Vicky Colbert de Arboleda, Oscar Mogollon, Hernando Gelvez, Tita Perez, Himelda Martinez and Clemencia Chiappe, especially during visits to schools were beneficial to this booklet. Wide use is made of material prepared by the group, particularly by Vicky Colbert de Arboleda. Special thanks are due to Françoise Caillods (IIEP) for her many suggestions. The final version was improved by comments on earlier drafts by Juan Carlos Tedesco, José Rivero, Juan Casassus, José de Simone, Rodrigo Vera, Carmen Lorenzo, Arturo Matute, and José Martinez.

Introduction

Indicators of the quality of basic education suggest serious problems in most of the education systems in Latin America. These problems relate to the high repetition rates and low scores recorded by international achievement surveys. Low reading achievement levels are suggested by first grade repetition rates, and observations show that most pupils in grades five or six have difficulties in understanding what they read. Furthermore, achievement levels of rural and marginal-urban school pupils are much lower than the national average. Such low performance levels deserve priority public attention at a time when economic growth requires a well-educated and trained population. However, most attempts to improve quality have failed when implemented on the national scale. The typical school with teachers instructing average pupils faces a variety of problems which create barriers to the provision of the high-quality education now required for economic development. A major overhaul of basic education, in fact the introduction of a new school and teaching model is required to deliver the quality required for the twenty-first century.

Four essential basic learning needs must be met before attempting to tackle any more complex objectives: (i) reading with understanding, (ii) communicating in writing, (iii) valuing good citizenship, and (iv) understanding the local environment and learning through observations. More educational objectives could be added, but in Latin America it is difficult to meet even the first of these basic needs. This is largely due to the teaching method used. Even though teachers have learned, and can describe, many active teaching models, they lack first-hand involvement in their operation, so they fall back on the expository (frontal) model, the only one of which they have practical experience, the one they have

adhered to all their working lives. It consists simply of holding forth to their pupils and writing on the chalkboard. By definition, this model limits the amount of attention that can be given to slow learners or to those who have lagged behind due to temporary absence from school.

Any redefinition of basic education for Latin America, or any other region for that matter, must be based on the best relevant experience available. An extensive review of evaluation reports on educational experiments, studies prepared by international agencies, and twenty years of visiting schools in most countries of Latin America suggest that the Colombian Escuela Nueva the 'New School' is one of the most promising models for experimental adaptation in other countries of the region. The Escuela Nueva has indeed developed a method of helping the teacher to deliver an active learning process. Its rationale blends conceptually sound and valid educational theory with a set of operational learning models and presents it in the form of a 'kit' which can be assembled so as to deliver active instruction and decision-making opportunities. It places emphasis on written communication, the use of previously acquired knowledge, co-operative learning, a close relationship between the school and the community, and a frequent (but flexible) evaluation process adapted to disadvantaged children.

All of the educational components of the Escuela Nueva — projects, field work, workshops, instructional centres, users' networks, programmed instruction, and tutoring — have already been used elsewhere in the past. But the two important *new* features of the Escuela Nueva are: (i) the use of all of these principles and models in a sequence of work (demonstration, training, textbooks, curriculum, school layout, and follow-up) to be assembled by the teacher (in the process of which he or she is progressively trained on the job); and (ii) the fact that it has passed the test of large-scale implementation.

In the last fifteen years the Escuela Nueva has grown from a pilot project in a few schools under dynamic leadership into a model used in 18,000 of Colombia's 24,000 public rural schools, including all two-teacher, two-classroom schools. The adoption of the Escuela Nueva has proved to be economically feasible.

This book will attempt to describe what the Escuela Nueva is, how it has affected the quality of education in Colombia, and what conditions are required for its replication in other countries.

Part I describes the present educational environment in Latin America, and concludes that planners must seek an alternative to the frontal teaching model despite the resistance to change encountered in the typical school. *Part II* analyses the implicit rationale of the 'Escuela Nueva kit', traces its development, describes its components, assesses the impact of the Escuela Nueva on Colombian rural schools, and refers to the problems faced in other countries. *Part III* sets forth the main points which may lead planners to consider the Escuela Nueva as the basis of an alternative educational model, and concludes with a discussion of the next possible steps in the development of the model.

Four essential conditions for the successful adoption of such an innovation are highlighted: (i) the innovation must be backed by a firm social consensus concerning its value, given the long time it takes for an innovation to mature; (ii) planners must be prepared to transform the social consensus into a constant flow of resources to keep the experiment going; (iii) there must be close monitoring of those key aspects of the sequence of stages of the innovation which may have repercussions on the implementation of subsequent stages; and (iv) the innovation must be adapted to the local context, while retaining its basic rationale.

Even though most projects introduced in developing countries are based on sound educational principles and include the right components, very few include those delicate elements of craftmanship that help the projects to succeed in the long run. Reforms which persist over time are those which are understood and believed to be important by teachers and parents in the local school and in which teachers have gained the skills such reforms require. Planners must realize that the term replication does not mean slavish reproduction, but rather adaptive implementation that remains true to the project's core philosophy and central strategies. The introduction of educational innovations must take into account all parties concerned, and even the name of the project can play an important role.

Part I: The existing situation, and why an alternative to present primary education is required in Latin American countries

Planners must assess past experience whenever new facts or new interpretations of facts suggest new goals for education or a redefinition of educational practice. Recent enrolment data by age and other indicators have been used by UNESCO-OREALC to produce a more adequate summary of what has already been achieved and to focus attention on new problems to be solved. These data show that in Latin America, most children are now enrolled in schools and remain there for several years, but their learning achievement is poor. Therefore, Latin American planners must move their targets from coverage to quality.

Ninety-three per cent of nine-year-olds in Latin America are enrolled in schools and most of them stay there for five to seven years. But almost half of the first grade pupils repeat, hence the need for further coverage has been superseded by the need for better quality. Some agreement must be reached, however, as to what is meant by quality in the particular historical and societal setting of Latin American countries. Quality, in this case, applies to simple things such as reading, writing, basic arithmetic, and understanding their environment. Even these simple skills that many observers take for granted are difficult to achieve in the average public school catering for the poorer half of society. But in spite of all the constraints they face, we ought to accept the premise that the children of poor parents are capable of more than is typically expected of them. Some evidence supporting this view will be

examined in Part II, but additional evidence is contained in a forthcoming report (Schiefelbein, in press).

Subsequent chapters contain data relating to the quality of basic education in Latin America, showing why this subject was given top priority at the Regional Meeting of Ministers of Education, Guatemala in 1989, at the World Conference on Education for All, Jomtien, Thailand in March 1990, and at the last Meeting of Ministers of Education, Quito, Mexico in April 1991.

I. Targets must be switched from coverage to quality

In a typical Latin American age cohort 56 per cent of the children are enrolled at the age of six, while another 30 per cent are enrolled for the first time at age seven. Less than 7 per cent are first enrolled at the ages of eight and nine and almost no-one is now first enrolled beyond that age. In short, 92 per cent of nine year olds are enrolled in Latin American schools *(Table 1)* and the remainder mainly includes children in need of special care or belonging to extremely dispersed and isolated population groups. The system should make an effort to provide education opportunities for these last-named groups, but as a whole places and teachers are available for all children who can attend regular schools, even though their allocation and their quality leave room for improvement.

Now that access to education is almost universal planners must pay more attention to the persistence of pupils, their progress from one grade to the next, and the improvement of learning achievement. The current situation with regard to grade repetition will be dealt with in the following sections.

Table 1. Latin America and the Caribbean: population and enrolment rates by single age in basic education, 1988

	Primary enrolment					
Age	I	II	III	IV	V	VI
4	11 107	123	3	0	0	0
5	463 654	15 063	583	36	0	0
6	5 330 311	544 751	16 780	489	15	0
7	4 700 331	3 641 573	562 469	18 592	806	19
8	2 575 826	3 155 788	3 064 083	557 519	19 565	954
9	1 551 007	1 923 062	2 581 612	2 685 456	539 318	21 776
10	1 022 160	1 261 301	1 632 663	2 282 223	2 388 793	509 072
11	657 031	845 314	1 095 369	1 459 329	2 012 867	2 129 429
12	485 695	607 261	792 885	1 036 413	1 409 219	1 746 261
13	273 556	401 574	514 213	684 623	980 164	1 162 824
14	170 078	221 773	319 339	402 594	637 527	788 381
15	123 107	107 274	136 639	191 273	371 872	479 148
16	64 436	73 486	76 732	101 999	242 154	288 408
17	1 495	38 722	52 695	59 466	144 740	186 844
18	1 096	1 686	28 215	39 419	90 561	114 035
19	679	1 034	1 764	22 675	65 311	71 825
20	339	494	1 130	1 708	35 851	55 576
21	0	0	546	1 049	1 515	25 087
22	0	0	0	482	964	1 503
23	0	0	0	0	447	858
24	0	0	0	0	0	371
25	0	0	0	0	0	0
26 +	0	0	0	0	0	0
	17 431 908	12 840 281	10 877 720	9 545 346	8 941 688	7 582 372

Table 1. Latin America and the Caribbean: population and enrolment rates by single age in basic education, 1988 (continued)

Age	Secondary enrolment I	II	III	IV	V	VI	Total*	Population	%
4	0	0	0	0	0	0	11 234	586 378	1.9
5	0	0	0	0	0	0	479 336	10 673 434	4.5
6	0	0	0	0	0	0	5 892 346	10 604 689	55.6
7	0	0	0	0	0	0	8 923 790	10 444 226	85.4
8	42	0	0	0	0	0	9 373 777	10 316 771	90.9
9	693	32	0	0	0	0	9 302 956	10 076 308	92.3
10	23 041	286	6	0	0	0	9 119 544	9 882 552	92.3
11	484 633	23 787	5 486	0	0	0	8 713 245	9 702 228	89.8
12	1 860 516	403 675	17 012	0	0	0	8 358 938	9 605 626	87.0
13	1 482 944	1 590 963	358 539	11 333	0	0	7 460 733	9427 306	79.1
14	973 945	1 276 238	1 442 014	275 760	8 895	0	6 516 543	9 306 409	70.0
15	616 057	817 106	1 192 623	1 095 484	216 456	6 146	5 353 185	9 183 916	58.3
16	358 645	470 592	783 221	944 383	859 896	149 549	4 413 502	9 064 356	48.7
17	221 614	268 625	453 802	611 960	741 289	594 100	3 375 354	8 933 225	37.8
18	154 457	171 918	270 124	339 978	480 355	512 156	2 203 999	8 785 136	25.1
19	89 870	105 463	160 688	192 654	266 864	331 877	1 310 705	8 623 417	15.2
20	56 835	68 779	109 242	117 103	151 223	184 376	782 656	8 460 341	9.3
21	41 374	38 960	65 756	75 551	91 920	104 480	446 238	8 291 719	5.4
22	18 956	29 640	39 325	49 108	59 303	63 507	262 789	8 120 974	3.2
23	1 627	13 611	29 091	30 220	385 47	40 972	155 373	7 948 675	2.0
24	827	993	14 017	22 665	23 721	26 632	89 227	7 773 649	1.1
25	344	796	1 476	11 333	17 791	16 389	48 129	7 505 479	0.6
26 +	0	0	0	0	8 895	18 438	27 333	7 505 479	0.4
	6 386 419	5 281 464	4 942 422	3 777 531	2 965 157	2 048 622	92 620 931	200 822 293	46.1%

Repetition in terms of the difference between the time spent at school and grade completion.

The difference between the number of years of schooling and the grades actually completed reflects a failure to meet expected achievement levels. As mentioned earlier new pupils start school at relatively early ages (85 per cent are already enrolled at the age of seven) and most of them stay at school for six or more years *(Table 1)*. Only 3 per cent drop out at the age of 11, another 2 per cent at the age of 12, and massive dropout (ranging from seventy to 87 per cent) only starts at the age of 13 or 14. On average, pupils spend 6.9 years in primary school and 8.5 years in the first nine grades. However, the average pupil completes less than four grades. So the time spent completing grades is only about two thirds of the total time spent at school. This indicates high repetition and dropout rates, but since the dropout rate is relatively low *(Table 1)*, it follows that the repetition rate must be high. The analysis of repetition levels provides further information concerning quality problems and economic wastage.

Over 40 per cent of pupils repeat first grade, *(Table 2)*. Due to this level of repetition in the period 1980-1987, up to two full age cohorts were often enrolled in first grade. In other words, most Latin American children are enrolled, but many of them stay too long in the lower grades as a result of poor achievement in learning to read. Since only those first grade pupils who are not able to match simple symbols (signs) and sounds (phonemic transcription and syllable constituents) are not promoted, first grade repetition is a reliable indicator of poor learning achievement. Scores on specific test items applied in the most advanced Latin American countries also suggest that many children do not attain even the minimum levels required to be promoted to upper grades.

Is grade repetition a true indicator of poor quality?

The phenomenon of grade repetition may be interpreted in several ways. According to one school of thought, repetition helps to raise the quality of the delivery system, for it is an indicator of

the flexibility with which the school delivery system (the teachers) responds to the pupils' different learning abilities and previous experience. Due to this flexibility, the resources devoted to the average Latin American pupil are increased by 50 per cent (even though the same teaching techniques are used), so that pupils with lower learning ability are finally able to achieve objectives deemed too ambitious to be achieved in only one school year.

Repetition may also be used by teachers or principals to raise average school performance in national examinations, as was demonstrated in selected Colombian high schools (Psacharopoulos and Velez, 1991).

A second interpretation suggests that repetition is the result of built-in mechanisms that place constraints on the quality of education. There may be many such mechanisms: the use of the expository or 'frontal' teaching model, forcing below-average pupils to repeat a grade; lack of the information that would enable decision-makers to grasp the real extent of the poor quality teaching which generates the repetition problem; or lack of awareness of successful attempts to improve quality (and reduce repetition problems) with small amounts of additional resources, mainly for textbooks and minimal equipment (as will be shown in what follows). In any case no major attempts to reduce repetition have been made in Latin American countries, except in Chile (Schiefelbein, 1975b) and Uruguay (Apezechea et al, 1987).

But repetition may have different results in different circumstances. Repeating one year with a good teacher who tailors his instruction to the repeater's needs will surely raise learning achievement, while repeating with a poorly trained teacher who uses the expository method geared to the average pupil will probably be a waste of time. Unfortunately, the most seriously deprived repeaters probably attend schools with untrained teachers who centre their attention on the average pupil and have few learning materials.

Table 2. Latin America and the Caribbean. Primary education, Grade 1 enrolment, overage and repeaters. 1988

	Brazil	South America Other Countries	America and Panama	Central Gulf of Mexico	Anglephone Caribbean	Region
1. Grade 1 enrolment	7 382 790	4 936 813	1 274 159	3 707 775	130 372	17 431 909
2. Standard Age	7	6-7	6-7	6-7	5-6	
3.Age 7 repeaters in Grade 1 (a)	253 858	530 279	76 815	550 102	0	1 410 067
4. Students 1 year overage or more	4 346 599	1 264 572	628 267	686 175	893	6 926 506
Percentage of enrolment: (3+4)/1	62.3%	36.4%	55.3%	33.3%	0.7%	47.8%
5. Maximum number of students not enrolling at age 8 or more (b)	748 844	321 891	226 317	222 039	1 345	1 520 436
Percentage of enrolment: 5/1	10.1%	6.5%	17.8%	6.0%	1.0%	8.7%
6. Repeaters (minimum): 3+4-5	3 851 613	1 472 960	478 765	1 014 238	0	6 816 137
Repetition rate (low limit)	52.2%	29.8%	37.6%	27.4%	0.0%	39.1%
7. Probable number of students enrolling at age 8 or more (c)	576 622	151 883	186 660	88 075	0	998 225
Percentage of enrolment: 7/1	7.8%	3.1%	14.6%	2.4%	0.0%	5.7%
8. Repeaters (probable): 3+4-7	4 023 835	1 642 968	518 422	1 148 202	893	7 338 348
Repetition rate (probable)	54.5%	33.3%	40.7%	31.0%	0.7%	42.1%

(a) Age 6 in grade 1 enrolment in 1987 less age 7 in grade 2 enrolment in 1988 (given that age 6 in grade 2 enrolment in 1987 is lower than age 7 in grade 3 enrolment in 1988)
(b) Difference between 100% population and age 7 enrolment in 1988
(c) Difference between estimated maximun number of cohort that will enroll (95% of population) and age 7 enrolment in 1988 (Some 200.000 pupils may drop out from grades 1 to 4 at the ages 6 to 9

Source: SIRI-OREALC-UNESCO Survey, 1989.

School bureaucracies assume that it is an important task of the teacher to identify those first grade pupils who are unable to learn to decode the sounds of letters (phonemic transcription and word recognition), rather than to find ways of solving their learning problems. In such a context – without underestimating the importance of external factors such as language problems, lack of pre-school training, class heterogeneity, absenteeism, poor family background, child labour and malnutrition – a high repetition rate reflects inadequate support of the pupil's efforts to master the basic steps of first grade reading and writing skills. Of course, repetition can be reduced by a mere 'automatic promotion' rule, but the only real way to cope with it is to improve the delivery of education (McGinn, 1991). On the other hand, an 'automatic promotion' rule can draw attention to the repetition problem and encourage teachers to improve their performance.

Repetition seems to be linked with quality in a cumulative manner. Once pupils start repeating they accentuate age-heterogeneity in classes and make it more difficult for the teacher using traditional didactic methods to teach the 'average' pupil. Thus the average age of first grade pupils increases and so does the variance in the age distribution. The greater the variance the greater the number of pupils at both ends of the scale who will find it difficult to follow traditional teachers teaching the 'average' pupil. Poor pupils cannot keep up with the pace of teaching and end up repeating the grade, while very bright pupils get bored and may interrupt class work.

In short, a high level of first grade repetition may be considered as an indicator of poor educational quality forcing almost half of the first grade pupils to spend two years of schooling learning to associate sounds with letters. Although the relation between repetition and poor quality is less evident in subsequent grades, over-age levels suggest that the problems are of a similar magnitude. On the other hand, zero repetition does not necessarily mean good quality education.

The public economic cost of low quality

Slightly more than twenty million repeaters in primary education in Latin American countries (some 30 per cent of enrolments) implies that the annual cost of poor quality, in terms of repetition alone, is close to US$3.3 billion (Schiefelbein, 1991b), given that the average cost per primary school pupil is nearly US$161. Society as a whole would benefit substantially if money were invested in raising educational quality in order to reduce repetition. Even small increments in quality resulting in a reduction of repetition would probably make any large-scale effort to increase the quality of education cost-effective.

The personal and family cost of low quality

Repetition involves spending more time at school and additional family expenses related to children's school attendance. It is acceptable only if there is no other reasonable way to meet the learning requirements of slow learners to move up to the next grade. Teachers using personalized instruction and spending extra time with slow learners to help them to keep up with the rest of the class could allow the repeater to reach a higher achievement level in the schooling time now required for repetition or to cut down the amount of time required to attain a given level of education.

Better quality of education is required especially for those disadvantaged pupils having repetition rates twice as high as the national average. The personal cost of repetition is borne mainly by the families of poor marginal-urban areas and rural pupils, and these are groups that most deserve a reasonable quality of education. Quality improvement should be targeted on them. Targeting is important, because the difference between the achievement levels of deprived and better off pupils is usually much greater than the difference between wealthy pupils in Latin American countries and those in developed countries. In the next chapter the key conditions for raising the quality of education for deprived students are explored.

II. The type of educational quality required today in the Latin American context

Latin American countries must set realistic educational objectives and broaden them as soon as they are fully achieved. Every educator would like many subjects and skills to be taught in schools. However, the term 'taught' would be inappropriate if it did not have the intended effect. It is not appropriate to say "I taught my son to swim, but every time he gets in the water, he sinks to the bottom" (Finn, 1990). Only if the process succeeds and learning occurs can we say that education has been accomplished. To define what should be taught, we need to know what is actually taught in Latin American classrooms, especially in marginal-urban and rural areas. Manifest circumstances such as the presence of children and at least one adult, along with desks, books, chalkboard, and other paraphernalia of schooling are not necessarily equatable with a viable educational process. High repetition rates and low scores in international achievement studies suggest that present objectives are too optimistic, at least for large sectors of the school population.

Wishful thinking must be avoided (Castro, 1991:28), and we must clearly define the knowledge and skills that can be actually taught at school and that students can learn and apply later on in real life situations. Observations in Latin American schools consistently show that most pupils in grades five or six have difficulty in understanding what they read and in performing simple additions (CPEIP, 1984; 1985). Achievement in rural areas is

lower than the national averages: a study in Southern Chile revealed that 66 per cent of urban pupils and 83 per cent of rural pupils had problems in reading comprehension (Repossi et al, 1989). Deprived pupils have higher repetition rates and very low scores on standardized tests. Thus Chilean pupils from families in the highest income quintile obtain 80 per cent of correct answers and pupils from the lowest quintile obtain only 40 per cent.

These observations and indicators suggest that four basic learning needs must be met before moving on to more comprehensive notions of quality: reading with comprehension, communicating in writing, valuing good citizenship, and learning from context. These four objectives combine the need to master basic learning skills with socio-economic needs, and must be matched with improvements in students' self-esteem, awareness of the method they are using to learn, and interest in on-going learning (Castillo, 1987). More teaching objectives could be added, but it is difficult enough at the present time to meet even the most basic needs.

Pupils must learn to read (and to understand what they read)

Learning to read and to understand what is read is the cornerstone of educational quality, and it is a process that should continue throughout basic education. Even though it is the first step towards self-reliance, it is usually taken for granted by Latin American curriculum developers, who tend to overlook the problems of deprived children. These pupils will not learn to read with comprehension because they attend a typical Latin American school using the traditional 'frontal' teaching method. The typical school: (i) centres its teaching on the 'average' pupil; (ii) follows a national curriculum, without using examples drawn from local everyday life in order to develop interesting learning settings; (iii) cannot devote additional time to slow learners; (iv) does not encourage original questioning and reasoning; (v) seats the pupils in rows and has them working independently of one another; and (vi) has no equipment (as the computers used to motivate pupils from upper socio-

economic levels and hence to raise national curricular standards as a result of their improved performance).

Children must learn to communicate in writing

The written word plays a large part in the everyday life of a modern society. The ability to follow instructions and to transmit messages is one step beyond reading and writing. A truck driver must fill in forms and keep simple records. Work in the expanding service sector requires the ability to write well. Accounting is required in the informal sector. Phone messages must be written down. Automatic vending machines, public transportation and public telephones carry specific written instructions and messages. The need to communicate in writing will probably increase in the future. So children must learn this basic skill, which is linked with the ability to read with comprehension and to follow and give instructions. Even toys and home equipment come in kit form to be assembled in accordance with sometimes long and often complicated instructions.

Children must be exposed to good models of democratic behaviour

Values are learned by role playing, rewarding experiences, and opportunities to observe the examples set by persons held in esteem. For children to become agents of democracy they have to practice democratic values and be encouraged to do so by school leaders, rather than merely memorize facts about democratic institutions, elections and rights and responsibilities. The student council is a valuable mechanism whereby children may appreciate the advantages and constraints of civic and democratic life and it has been successfully implemented in several Latin American countries. By participating, pupils develop a tolerance of differences and a willingness to understand the point of view of other participants. The ability to engage in concerted action is also a common outcome of participation in student councils.

Children must be able to learn from context

Children must have opportunities to observe reality by themselves, to describe accurately and to think systematically about what they observe. Educational experiences including these three dimensions should gradually develop the ability to think for oneself, rather than to parrot received conventional beliefs. Description is the first step in the scientific approach to problems and is a requirement for understanding science and using it in everyday life (one of the demands on education already noted). Once these fundamentals are firmly established it is possible to develop higher levels of understanding by complementing experience with exercises in analogies, discrepancies, inconsistencies, information seeking, and further development of the ability to communicate with others, combined with willingness to learn from mistakes.

III. Constraints on improving quality in the 1990s

Any analysis of Latin American education systems shows that the 'typical' school cannot deliver the quality of education required in the 1990s. To introduce improvements in quality in such schools would require reducing the size of classes, introducing remedial teachers, and providing other inputs. These changes cannot be carried out under present severe economic constraints, for each improvement tends to require changes in processes and additional inputs or drastic changes in the allocation of school resources. In short, the typical school cannot be a vehicle of change, and an alternative to the frontal teaching model is needed if quality is to be improved. The possibility that the Escuela Nueva could be such an alternative is explored in Part II.

Any analysis of the typical school must centre on those possible increments in the learning achievement levels of socio-economically deprived children (Finn, 1990) which can be generated by changes in inputs and processes. But the relevance of the analysis depends on a realistic identification of the typical school to be analysed. The two practicable options are: (i) to select a school corresponding to a national average, or (ii) to select a school that caters for the lower socio-economic half of the population. Given that repetition problems mainly affect this lower half of the population (McGinn et al, 1991; CPEIP, 1984), the analysis will be focused on a public school catering for marginal-urban and rural children.

The literature on innovation suggests that the key element to be analyzed is the behavior of teachers, but the context conditioning their behavior must also be carefully explored (McLaughlin, 1987).

The analysis will be centred on everyday processes taking place in the classroom, taking the context into account: i.e. where that classroom is located and hence the family, community, political and socio-economic conditions influencing the education process. An excellent description of the impact of a poorly structured family environment on the work of school pupils is given by Vial (1990). The characteristics of teachers in typical schools and their inability to accumulate and use pedagogic knowledge are commented upon in the initial paragraphs, and classroom environment and learning experiences are described in the rest of the chapter. In each case the opportunity for possible improvements in the quality of education and in pupils' learning achievement is explored. From the analysis carried out in this chapter any planner should conclude that the combination of typical school teachers' characteristics and the rote learning built into most textbooks creates an insurmountable barrier to quality improvement in the typical school.

Most teachers have never had any active learning experience

With few exceptions, Latin American teachers have been trained by educators who have based their instruction solely on the frontal teaching model, and this model is also used by the 25 per cent of untrained teachers who teach deprived rural pupils. The 75 per cent of teachers who have attended teacher training schools or colleges have been told that they should use active teaching methods and have memorized the principles and characteristics of such methods. But very few teachers have ever taken part in an active learning process, and most of them have never seen flexible classroom arrangements in operation. They only know about them in theory. A fair number of teachers can quote Aristotle's active use of reality as the basis of learning; talk about Pestalozzi's emphasis on observation in relation to higher forms of reasoning; quote Herbart's linkage of new ideas with prior knowledge possessed by the student; discuss the importance of Dewey's school government for inculcating civic values, describe Freinet's printing shop for writing, and describe the characteristics of the contracted projects used in the Dalton Plan, or Montessori's principle of allowing

children to work at their own pace. But very few have seen a real school applying something close to these creative approaches, some of which are described as 'the curriculum legacy' (learning as inquiry; interest and motivation; individual differences) in Tanner and Tanner (1989). In short, interaction between pupils and between pupils and families, or the active use of reality, are rarely seen as an integral part of the learning process. Few Latin American teachers can use active teaching methods, because they did not practice them while being trained as teachers, nor were such methods used when they themselves were primary and secondary school pupils. This is a stumbling block for educational planners, but successful alternatives will be suggested in Part II.

The effect of low salaries and poor selection on teachers' performance

There is a wide range of teachers, from highly qualified professionals to poorly trained and unmotivated caretakers. Three different types of teachers can be identified in Latin America in terms of their pedagogic skills. Gender and social characteristics are important factors in the selection process, but are not explored here because they do not affect the operation of the Escuela Nueva. Let us assume that highly skilled teachers account for some 10 to 20 per cent of the total number of teachers in the region. These teachers can replicate on their own Freinet's ability to get his pupils to produce their own textbooks. A skilled teacher may generate excellent learning experiences with a dozen pebbles gathered by pupils on their way to school.

There is a second group of teachers who have been trained and who meet all the formal requirements of the teaching profession, but lack the creativity, persistence and experience of the first group. For this second group, mere coverage of the content of the curriculum is usually the main goal of their teaching. They may account for some 30 to 40 per cent of all teachers. There are often enough trained teachers in large towns and cities, but salary incentives are insufficient to attract them to isolated or risky areas.

The third group comprises some 40 to 50 per cent of Latin American teachers, and includes the 27 per cent of primary school teachers who have no professional training or qualification, although some 10 per cent have obtained a teaching qualification through in-service training. It also includes many who became teachers because no other career was open to them. Since school leavers with the highest scholastic achievement usually choose careers which can lead to jobs with above-average salaries and since teachers' salaries are below average, teacher-training colleges attract people with poorer school records. Teachers in this group probably earn half the salary of those in the second group and one fourth of the salary of those in the first group. Such low salaries suggest that Latin American society does not consider that teachers deserve a high salary, given the achievement levels generated by the education system. In addition to being paid a low salary, these teachers usually travel long distances every day, work with few teaching materials, and cope with pupils characterized by a high incidence of disease and even violence. Without close supervision or an appropriate professional reward this third group of teachers is not going to spend too much time in preparing the next lesson and will have no inclination for creating new learning experiences.

Most of the teachers in a typical Latin American school belong to the third group; there are many in the second, but very few in the first group. The best teachers are somehow identified by private schools or élite public schools usually catering for upper class pupils and able to pay a higher salary. The typical school is not able to hire highly skilled teachers and will find it difficult to implement innovations to improve its educational quality. While qualification and experience do not necessarily result in good quality teaching, the lack of a qualification is closely related with poor pupil achievement (Schiefelbein and Farrell, 1982).

High expectations, but no access to pedagogic know how.

Although teachers are expected to create a valuable learning experience each time they take a class, they have no source of accumulated past experience from which to draw for better teaching.

Generally speaking, teachers have no ready access to the best tested learning experiences that can be used for their pupils to learn a given subject. Each teacher must create each lesson from scratch, on the basis of very general principles or guidelines, perhaps using his/her own personal notes (portfolio). A recent report on the training of American teachers suggests that novice teachers can learn from the experiences of successful teachers (The Holmes Group, 1990, 78). However, there are no written descriptions of the best practice of reputed specialists in teaching as there are, for example, in the case of surgery, where textbooks provide a detailed, step-by-step description of the best proven surgical procedures to follow in any given case.

Existing school textbooks do not provide sufficient scope for the development of learning experiences. The teacher is supposed to intervene between the textbook and the pupil using it, by providing detailed instructions or creating environments leading to sustained learning. An existing textbook is to the teacher what a melody proposed for improvisation is to the jazz musician. With present textbooks there are many motivated teachers who try to create new learning experiences, but who do not make full use of the best available experiences for enriched learning. Unfortunately the typical textbook is big, boring, full of unrelated items of information, lacking in ideas, and takes practically no account of reasoning skills. In too many classrooms science, for example, is still taught as a set of facts to be absorbed, and children are viewed as blank slates on which teachers have to write. Because texts loom so large in the typical classroom, shaping both what is studied and the teaching methods employed, we have to conclude that textbooks must be changed or that there must be a new breed of teachers.

From the planner's point of view, the options seem relatively straightforward. Given that re-modelling teachers' attitudes is a long term and difficult task (Castro, 1991; Richardson, 1990), we have to conclude that in the meantime an entirely new generation of textbooks with step-by-step instructions must be produced (Good et al, 1990). Several criteria must be met by these books. For example, textbooks need to be far more sensitive to the state of pupils' knowledge (McKeown; Beck, 1990). Textbooks should give pupils

the opportunity to begin with their own perceptions and understandings rather than have these imposed on them; they should be able to 'find' as well as solve problems (CTG, 1990). They should provide opportunities for individual and group work (Slavin, 1985; 1986). If tasks are of the 'right-answer' variety, the group will rapidly discover that one person can do the job better and more quickly than the group, in which case there will be little interaction, whereas research has revealed that interaction is the source of learning in group work (Cohen, 1990). In short, a new generation of textbooks must be produced including step-by-step instructions as to how pupils should work. This strategy involves a long-term process, having recourse to many specialists in the country concerned and abroad, which should be initiated as early as possible and be completed in many subsequent editions.

Reforms and innovations must not make extra demands on teachers' time

A curriculum developer who assumes an increase in the amount of free time that a well motivated teacher would be willing to spend in implementing a reform is doomed to disappointment. Assumptions about the amount of free time that teachers will spend on school-related work must be based on their professional training level and their realistic responses to questions about how much time they will be prepared to devote to preparing the next day's classes, to their presence in the classroom, to actual teaching in the classroom not including time for class management, to presence in the school but not in the classroom, to preparing lessons and marking tests and exercises at home, and so on. Realistic responses to these questions would give a profile of the real operation of the school taking into account the amount of time required for a poorly trained teacher to create significant learning experiences. Such a profile would probably include very little extra time over and above the regular schedule. In short, a proposed reform will succeed only if little or no additional time is demanded of the teacher, and the proposed changes can take the form of written material with step-

by-step instructions for the children to follow, assisted by the teacher as and when necessary.

Little time is actually devoted to learning

Little time is available for learning in the typical school due to the short school year, attendance for only a few hours a day, absences of the teachers and/or pupils, and wastage of teachers' time. The real number of school days per year in a typical school is close to 160 and the length of the school day varies between three and five hours. Discounting public holidays, Colombia totals 170 school days annually, with four to five hours per day, amounting altogether to 680 to 850 hours per year as compared with 1,100 in the USA, 1,300 to 1,600 in Europe and even more in Japan (Toro, 1988). Teaching/learning time is reduced because both pupils and teachers are absent from school from time to time during the year (CEPAL, 1991). Pupils, mainly in rural areas, absent themselves during part of the year and teachers take sick leave. Thus some 15 class-days were missed by Honduran pupils in 1990, and repeaters missed 20 class-days (McGinn et al, 1991). Pupils' absences may be accounted for by a number of economic activities that occur at various times during the year, or by illness.

And the little amount of time available for learning is poorly managed. A Venezuelan study of classroom management found that only 40 per cent of class time was taken up by actual teaching. Half of the wastage is idle time and the other half is accounted for by waiting between activities (Rodriguez, 1990). Between 50 and 64 per cent of teachers' time is spent in teaching in Chile, and some additional 22 to 29 per cent is spent in enforcing discipline. These figures were obtained from two sessions with a total observation time of 180 minutes in a school attended by deprived children and working to a personalized curriculum (Filp et al, 1987).

Espinola (1990) reports that teachers spend only just over 72 per cent of class time in the classroom. Similar results have been found in other Latin American countries. Poor use of time is related to the lack of a tradition of tutorial or individualized work in the region. There are no incentives for the school to reach

minimum levels of time devoted to learning, let alone time really spent on performing tasks. Frontal teaching techniques do not allow pupils to work alone or in groups on a learning task to make better use of available time. And lack of motivation makes pupils more unruly and increases the amount of class time spent in enforcing discipline.

Age heterogeneity and lack of decision-making by pupils reduce motivation and time on task

Several elements of the school context and education processes such as age heterogeneity and lack of decision-making by pupils tend to reduce motivation and therefore time on task. Age heterogeneity narrows the interest of the below-average pupils in what the teacher is trying to teach them, given that their only choice is to pay or not to pay attention to him/her. On the other hand curricular content that does not give the student the opportunity to make a choice among alternative subjects also risks reducing motivation and attention. But not paying attention means raising the level of misbehaviour and hence a further reduction in the level of attention paid to the teacher. Can the vicious circle of age heterogeneity and lack of motivation be broken? There is little hope that it can in the typical school model. Probably half of Latin American schools attain the maximum feasible level of educational quality for traditional teaching of average pupils.

High marks, smiling faces, stars and certificates are 'extrinsic' rewards that attempt to manipulate behaviour (Kohn, 1991). Sometimes these rewards should be used, but rewards motivate pupils to act only if they are rewarded. What rewards fail to do is help children develop an interest in learning.

Many teachers try hard to improve the achievement levels of average pupils, but in doing so they sacrifice more challenging and worth-while work by concentrating on the brightest pupils and condemn disadvantaged pupils to repeat the grade because they cannot keep up with the average ones. Remedial coaching with extra teachers, community monitors and mothers has been tried with a fair amount of success, as for example in the so-called '900

schools programme' in Chile, but it does not prevent the occurrence of new failures. Costs tend to increase sharply when extra teachers are used. In any case, in spite of teachers' efforts the results are poor both in terms of repetition rates and in terms of reading achievement levels. Additional teacher time, more pupil choices that increase motivation, and a personalized type of instruction are needed to increase time on task, raise pupil achievement levels and eventually reduce age heterogeneity. Any of these three solutions is difficult to put into effect in a typical school using the traditional 'frontal' teaching method.

Little or no interrelation between in-school learning and everyday out-of-school experiences

The incorporation of the experiences of everyday life in what is learned at school helps pupils to find, build, and relate meaning (Herbart, 1806; Garner, 1990; Langer et al, 1990). Unfortunately, there are not enough screening devices for assessing whether knowledge learned at school is really useful in day-to-day life, nor do pupils have a say in what they learn. Deprived pupils are doubly handicapped: firstly because their patterns of behaviour, language use and values do not match those required in the typical school setting; secondly because teachers fail to take advantage of the strengths that these students possess. Although day-to-day life experience is present in upper class schools, it is absent in the learning experiences of a typical school or clashes with the school culture (Vial, 1990).

The interrelation between learning experiences and everyday life varies markedly from one socio-economic level to another. School learning experiences of upper class pupils are related to what they see during excursions and vacations, in magazines, videos, and museums, and what they talk about with their parents, family friends, and the parents of their classmates. Deprived pupils also have access to a rich environment and interesting people, but typical school learning experiences do not draw upon that source. The pupil is not asked to identify local objects and activities related to work, transportation, health, food, production, history, geography,

plants, animals, minerals, and other subjects included in the national curriculum.

This poor linkage of in-school learning with out-of-school life can, in the case of deprived pupils, create a cycle of failure and despair, culminating in repetition and, possibly, dropping out. So unless a way is found of tying in out-of-school experience with classroom work, deprived pupils will continue to be at a disadvantage and educational quality will be difficult to raise.

Pupils in typical schools lack opportunities for thinking

Classroom observation suggests that pupils in typical schools have few opportunities for autonomous thinking (Filp, 1988; Lopez, 1988; Assael et al, 1989). Autonomous thinking occurs when pupils ask original questions, respond to meaningful questions, write essays, and make decisions about learning experiences (beyond choosing whether or not to pay attention). But these things seldom happen in a typical school. Teachers tend to accept questions relating only to the subject being dealt with, and original questioning is stifled. Most of the questions put by the teacher call for rote repetition and do not stimulate original thought.

There are no incentives for teachers to set exercises in free writing, since they must mark and annotate such work in their free time; the organization of the typical school does not allow them to do so during working hours. Therefore free writing is minimized and usually limited to only one or two pages of essays per year. In most cases pupils are asked to write a one-page description of what they did in the mid-year vacation. A field research team in Honduras reported some six pages per year, but only just over two for those with low achievement levels (McGinn et al, 1991). Finally, a teaching method based on copying and memorizing does not allow pupils to make personal decisions.

Unless the time spent by the teacher speaking or writing on the chalkboard is substantially reduced, pupils will have no opportunity of engaging in actual thinking. But this means introducing a whole set of pupil-centred teaching methods.

Access to computers

Computers will not solve problems, say parents who provide their children with them. Most Latin American countries have imported personal computers for upper and middle class pupils to work in school and at home, but only Costa Rica has been able to provide access to computers on a relatively large scale; 40 per cent of Costa Rican primary school pupils now have access to one or two hours of work on a computer and full coverage is planned for 1993. Chile imported 150,000 personal computers in the period 1985-1990, mainly for pupils in the upper socio-economic levels. Even though there is no clear evidence of the role of computers in learning in developed countries it is possible that the learning gap will widen between those who have access to them and those who do not. Furthermore, the effect in developing countries may be very different in terms of the social prestige of the school, teachers' self-esteem, parents' involvement (using computers after school hours), linkages with day-to-day activities, the use of games to familiarize children with the use of computers, and computer assisted instruction (CAI). There has been some criticism of the effects of CAI programmes, but there are suggestions for restructuring them to make them more effective (Slavin, 1990; Collis, 1988).

Deprived children do not have access to computers, even though providing one personal computer per ten pupils now costs about US$40 per pupil in the case of a large-scale procurement of unassembled kits. Assuming an average duration of use of six years it would cost about US$6.5 per pupil/year, possibly funded by international loans. It would be economically feasible to provide typical schools with personal computers to start getting children acquainted with this new technology. Schools could reduce the gap by using card-index files for the classification processes that are key elements in computing processes, but present typical school layout and the teachers' present role are not flexible enough for such arrangements.

It would be interesting to review opinions concerning the pros and cons of alternative investments to the provision of computers at equivalent cost per pupil/year. Is it possible to attain greater gains

in achievement by replacing a dirt floor instead of providing computers? Providing better rest-rooms? Giving teachers additional training? Raising teachers' salaries? Perhaps so, perhaps not.

Planners need to develop a new school model

Despite significant improvements in Latin American education systems in the last fifteen years, the primary school achievement of the rural and marginal-urban populations has not improved, therefore a new type of teaching technique must be adopted. The qualitative deficiencies of the traditional rural education system include passive methods, an irrelevant urban-biased curriculum, lack of special training for multigrade techniques even though the majority of teachers must handle more than one grade, lack of educational materials to support learning processes for both teachers and pupils, rigidity of calendars and schedules, and lack of parental involvement. Similar problems are also faced in marginal-urban schools.

Planners are faced with two serious constraints when developing a new school model: (i) there is a chronic shortage of trained teachers for active teaching; and (ii) no extra teacher time may be allocated to the sector, but students need more time for learning. Planners must rely on the analysis of experiments that have been carried out to test personalized instruction in order to propose feasible alternatives. There have been many isolated pilot experiments, but only one of them has been implemented on a large scale: the Escuela Nueva in Colombia. This example may help planners to find ways of designing a new model that raises quality in the face of the two constraints.

Part II. The Escuela Nueva: from teaching to learning.

The Escuela Nueva ('New School') is a carefully designed model which has been able to improve the quality of education in 20,000 Colombian basic schools in rural areas. Its development took fifteen years and gradually integrated conceptually sound and valid educational theory into a complex set of innovative techniques available in 'kit' form. These techniques are exemplified by demonstration schools where the 'finished product' and self-instructional textbooks can be seen.

The Escuela Nueva must be seen in action in order to assess in detail its specific nature, but in lieu of this five answers to the question *what is the Escuela Nueva? are given here. The Escuela Nueva is described from different angles: as a set of underlying principles, as the result of a development over time, as a set of inputs transformed into a process, and as the results of that process. These five aspects must be combined in order to obtain an overall picture of the Escuela Nueva.*

What can be observed on a visit to a Colombian Escuela Nueva

The best way to evaluate the model is to visit a school in which it operates and observe the pupils. Some of them ask visitors what they have come to see; meanwhile others are busy comparing

notes or sharing data. Each and every pupil appears to know exactly what he or she has to do next. If asked, they can explain what they are doing, describe the next steps, and, more importantly, explain how they are learning.

In the Escuela Nueva, the pupils are required to observe, think and write, first on their own and then in groups; then they compare their notes with another text (included in the textbook) for self-assessment, make corrections and then rewrite, first alone and then in groups, if need be asking the teacher for additional comments and suggestions, for they know that they may turn to him or her whenever they are in difficulty. In the Escuela Nueva model, the teacher actually plays the role always recommended in teacher training institutions, but never put into practice, namely, the role of a guide who facilitates the learning process for the learner.

IV. The rationale of the Escuela Nueva

The Escuela Nueva has developed a method for helping teachers to deliver an active learning process. The programme has trained 45,000 teachers by helping them to apply well-proven pedagogic principles and techniques. Applying these techniques and principles all together, the Escuela Nueva delivers active instruction and opportunities for making decisions, emphasizes written communication, and creates a close relationship between school and community and a frequent but flexible evaluation mechanism adapted to the lifestyle of deprived children. However, all these sound principles have been highlighted and applied experimentally by Pestalozzi (1801), Herbart (1901), Montessori (1909), Dewey (1910), Parkhurst (1922), Makarenko (1935) and Freinet (1964), and all of them have been shown to be related to higher achievement levels in recent research findings (Slavin et al, 1990). And the many educational techniques used in the Escuela Nueva – projects, field work, micro-centres, workshops, users' networks, programmed instruction and tutoring – have already been described (Flechsig; Schiefelbein, 1985). The two important *new* features specific to the Escuela Nueva are: (i) all these principles and models are presented in a sequence of work components: demonstration-training-textbooks/(curriculum)-school design-follow up, to be assembled by the teacher, and in that process the teacher is gradually trained on the job; and (ii) the Escuela Nueva has passed the test of large-scale implementation.

Escuela Nueva first mobilizes teachers by developing a shared vision in a demonstration school. Then opportunities for on-going

teacher training are provided by exposure to a set of principles built into the sequence of activities suggested in the instructional materials. The Escuela Nueva operates as a combination of approaches applicable to all school activities and which are gradually better implemented as the teachers become more and more accustomed to their new leadership role, to shared educational goals and to a spirit of co-operation. A description of these approaches is given in what follows, and the gradual development of the experiment is described in the next chapter.

Seeking the involvement and benefit of all parties concerned

The Escuela Nueva programme seeks the involvement of each teacher, child and community member not only in the educational process, but also in improving the quality of life of everyone concerned. For example, teachers are upgraded in a number of specific activities, their professional rewards are raised, and opportunities for learning about the community and teaching methods are offered every day and at the monthly staff meeting.

The Escuela Nueva also tries to maximize pupil involvement at several levels – class discussions, co-operative groups, and individual projects – by bringing pupils' cultural and personal experience into most learning situations in order to make instruction relevant. Feeling that their particular culture is valued increases their self-esteem and as a consequence their level of achievement is also raised. The curriculum may also be made more relevant; for example, the inclusion of subjects related to child care may disseminate valuable information and contribute to the well-being of their siblings. Personalized instruction reduces failure rates (McLaughlin and Talbert, 1990). At the same time pupils become accustomed to learning by themselves and progress towards self reliance by making decisions and bringing their own knowledge into the learning environment (Garner, 1990; Langer et al, 1990). Awareness of the learning strategies seems to be a way of increasing active pupil participation and responsibility, thus helping to make education more satisfying and effective (Chadwick, 1988; Garner, 1990).

According to research (Becher, 1984), pupils' learning is enhanced by actively involving parents in their children's schooling. The Escuela Nueva offers parents, relatives and the community at large the opportunity of participating in school activities, enabling them to feel that they generate culture, that their culture is fully valued in daily school activities and that they have opportunities for making key contributions. For example, the local craftsman who knows how to fashion clay is asked to teach the small children to mould their first letters in clay (the 'apprenticeship model': Flechsig and Schiefelbein, 1985). Through such activity the craftsman participates in school activities and his work is valued, the teacher gets learning materials and the children are helped to start learning to read. In this connection, developments in the USA in the late 1980s such as the Chicago plan for school reorganization and statewide programmes for school choice clearly demonstrate the growing importance of parent and citizen involvement in school affairs (Lieberman and Miller, 1990).

Linking skills-based learning tasks with everyday life

The Escuela Nueva links the teaching of discrete skills with appropiate applications to everyday life in order to give pupils a sense of purpose. This is done by selecting relevant teaching experiences initially created and tried out by a large number of commited teachers over a period of fifteen years. The Escuela Nueva has selected and included in the textbooks those learning experiences that encourage expression and analysis in writing, mathematics, and comprehension of what is read. This approach is especially important for disadvantaged pupils, who often see less purpose or meaning in skills-based learning tasks than do more advantaged pupils. (Langer, 1990). The Escuela Nueva reading material not only reflects and values the life experiences and backgrounds of the pupils but has them engaged in 'free activities' such as writing letters about local problems or exercising skills in local activities.

Community involvement is a natural way of linking learning tasks with daily life. For example, when a pupil questions his or

her mother about a favourite recipe (an activity that may end up with the mother preparing the recipe with a group of pupils), when pupils ask their grandparents what the village looked like 30 or 50 years ago, or when they ask their fathers about their jobs, writing down the answers in each case and knowing that these notes will be used and commented on in school, there is a natural encounter between the school, the community and everyday life.

Learning to read by understanding meaningful messages

Reading is viewed in the Escuela Nueva as a higher order skill involving the use of personal knowledge to construct meaning from a text. Teachers are trained in helping newcomers to start reading as soon as possible, or at least to raise their reading level to the minimum required to begin working with the self-instructional textbooks by themselves even though the teacher remains at hand to solve specific problems. The Escuela Nueva recognizes that there is much ignorance on the part of teachers concerning the needs of beginner readers (Adams, 1990). Therefore teachers are trained in the key stages that help students to advance: storybook reading; word games; word recognition by ear (phonological awareness); playing with moulded vowels in clay or other materials; letter recognition and print awareness, including brand names and advertisements; using the spelling of a word to represent its phonology; constructing simple syllables and words; and decoding the sound of letters (phonemic transcription and word recognition). Most of these abilities should be developed at the pre-school stage, well before first grade, but at present they are part of first grade learning in Latin America. First grade pupils can be taught to use self-guiding and monitoring strategies in learning to read (Cole, 1990). However, reading is an area where better techniques and basic readers should be developed (Adams, 1990, Chall, 1967) and bilingual school programmes implemented when necessary (Cazden et al, 1990).

The first goal of the Escuela Nueva is to enable all children to learn to read with comprehension. As soon as the pupils can decode words they are required to start reading textbooks prescribing

learning experiences with simple instructions. Children realize that the instructions given in the textbook are important, because they are related to specific actions to be carried out by them. Reading is not a game or an imitation of reality; it *is* reality. Pupils' motivation for reading with comprehension is usually reinforced. The pupils work in groups and most problems for understanding the instructions are solved collectively. Much time is spent on child-to-child remedial reading until all the members of the group develop skill in reading with comprehension.

Writing as a means of systematic thinking and communication

The Escuela Nueva curriculum in writing emphasizes meaningful written communication as the final step of a thought process and stresses the value of writing activities in helping students to explore, organize, and refine their ideas about themselves and to construct and present their own interpretations of the out-of-school environment and in-school subject matter (Freinet, 1969). The Escuela Nueva recognizes the importance of linking reading, writing, and oral expression (Durst; Newell, 1989). Learning can in fact be learning in the sense of discovery, because children seldom know exactly what they are going to say before they come to say it (Britton, 1982).

The self-instructional textbooks integrate all aspects of the teaching of literacy, by having pupils read and discuss what they have written or having them write about what they have read. The textbooks indicate each of the stages of learning processes when pupils must do some writing. Group rewriting of individual writing exercises is suggested in order to reduce the time spent by the teacher on marking or formative evaluation of the work. In any case teachers have time for this activity given that instructions and information are already available in the textbooks. The self-instructional textbooks draw on the experience and knowledge of pupils, as well as on realms of experience that are less familiar to them, mainly in the materials used for self-evaluation.

The Escuela Nueva places less emphasis on learning the mechanics of written language such as spelling, punctuation and

grammar in isolation from the act of communicating in writing. Difficulties in direct writing assessment have led to testing pupils' writing ability indirectly by examinations on grammar and usage (Huot, 1990). Teacher time required to assess individual work may be a factor in the teaching of grammar, but this is solved in the Escuela Nueva by providing instructions in the self-instructional textbooks and by group writing after individual writing exercises are completed, thereby reducing the amount of material to be corrected by the teacher.

Decision-making for greater motivation and systematic thinking

Perhaps the most important questions in education are *what do we want pupils to learn?* and *what do pupils want to learn?* (Cole, 1990; Hidi, 1990). Every time students make a decision about their learning they become committed to its implications and they have gone through a process of systematic thinking. The Escuela Nueva pupils are deeply committed, interested and hard-working because, among other things, they work with examples they care about in ways that are interesting and meaningful to them (Montessori, 1901). The self-instructional textbooks force them to make many choices within an overall curricular framework ensuring that everyone develops similar high-level skills such as the ability to observe, classify, describe, order, compare, draw inferences, deduct, evaluate, and make decisions. Pupils can select, for example, what stories they will read and how to express their ideas about them; who can inform them about this or that problem; how much information can be balanced with artwork to make a good poster; and so on. The rule is that whenever the self-instructional textbook can give a pupil a choice of any kind, it does so. The one thing better than having pupils choose from a variety of modes of learning is having them generate their own options, which they can usually do after the Escuela Nueva has been operating for a couple of years.

A test of pupils' options in traditional schools should include at least the following four questions: How often do pupils have choices in the classroom? How often do they feel in control and/or

in charge of themselves? How many decisions that really matter are they allowed to make? How often do they feel important in the classroom? (Mamchur, 1990). The underlying idea is that the 21st century requires new minds, and reading, writing and arithmetic are not natural acts of the mind (Ornstein and Erhlich, 1989). Therefore, pupils' options may help in the creation of such a new mind, suited to the demands of the future.

Efficient and flexible use of the teacher's time

The Escuela Nueva allows the teacher to make efficient and flexible use of the time he or she spends in the classroom. The teacher may for example give undivided attention to one pupil while the others are engaged in their own work. Disciplinary problems are mostly dealt with by the student council (Makarenko, 1935). The self-instructional material reduces the amount of time the teacher has to spend in giving instruction or providing information that can be contained in a textbook. Escuela Nueva teachers are able to adjust their technique and tempo, but are not expected to create a whole new technique every time they deliver a lesson. The more experienced the teacher is, the more readily will he or she adjust to individual differences. Implementing the Escuela Nueva should not affect teachers' free time outside the regular work schedule, and even within the latter they can use their time more flexibly than in a typical school.

Adopting a 'Mastery Learning Model (MLM)' conception of educational achievement

The Escuela Nueva teaching/learning material is divided into short units or modules; lessons are delivered largely through written materials, but there are also opportunities for teachers to deliver some lessons whenever they want and have prepared materials. Pupils move through these units at their own pace; and they evaluate their own work against suitable materials or take formative tests at the end of each unit. Quiz feedback seem to increase achievement in primary education pupils (Cabezon, 1984). The

teacher decides which pupils fail the final (summative) evaluation and gives them, or arranges for older pupils to give them, individual or group tutorials before moving on to new material. In short, the Escuela Nueva tries to strike a balance between Bloom's 'Mastery Learning Model' (MLM) and Keller's 'Personalized System of Instruction' (PSI) (Kulic et al, 1990).

The Escuela Nueva includes group work in order to reduce the uncertainty generated by open-ended learning tasks (Slavin, 1985; 1986; Slavin et al, 1990a and 1990b). This characteristic is built into the package, but can be used for evaluating future developments.

The formative evaluation of the Escuela Nueva model with a view to its future development

The future development of the Escuela Nueva is based on the systematic questioning of current instructional practice and a willingness to modify it in order to improve learning achievement. The criteria referred to in this chapter could be used for selecting future improvements. An additional criterion could be the use of group work. The Escuela Nueva now has three main sources of continuous evaluation: reports prepared by supervisors and coordinators of local microcentres; empirical research on learning achievement and related input factors (Rojas and Castillo, 1988); and observations by people who have visited schools that have adopted the model. The monthly meeting of teachers and the training network have also developed into a continuous and rich source of evaluative information. These sources represent a low cost mechanism for keeping a check on quality throughout the process of expansion of the system in rural Colombia. The role of some external supervisors is dealt with in Chapter V, while research results and the observations of international agencies will be covered in Chapter VII.

V. From a pilot project to a large-scale reform

In fifteen years the Escuela Nueva has grown from a pilot project in a few schools under dynamic leadership into a model that has already been adopted by teachers in half of Colombia's 40,000 rural schools. The Escuela Nueva has gradually shifted the emphasis from a good teaching approach, developed in the "unitary complete schools methodology" (UCSM) sponsored by UNESCO in the sixties, on to a good learning process using multiple carefully designed learning experiences. The Escuela Nueva was developed in a long process that involved numerous try-outs until each piece of the mosaic fitted into place. Future replications do not have to go through the whole trial-and-error process again, but it is described in this chapter to provide a better understanding of the present version of the Escuela Nueva and as a prelude to the analysis of the conditions for replication in other contexts (see Part III).

How the Escuela Nueva developed from the multigrade complete school of the 1960s

The idea of active learning was already built into the First Major Project in the field of Latin American Education. It was sponsored by UNESCO-OREALC in the 1960s. Multigrade teaching was promoted in the teacher training institutions that co-operated in the First Major Project; it was based on 'self-instructional guides' which were tried out in a sample of rural

schools. As soon as the UCSM was born, Covarrubias (1968) and Hernandez (1961) launched a crusade in several countries based on the ideas of the active school (Dottrens, 1949). Schools in a dozen countries adopted the methodology. The UCSM programme was endorsed at a meeting of Ministers of Education held in Geneva in 1961. Individualized instruction, active learning, the use of guides (learning cards), the complete primary school, multigrade teaching, multiple (one per group) chalkboards, and continuous (automatic) promotion were the main characteristics of the UCSM (Chile, 1967). All of these features are still part of the rationale of the Escuela Nueva. Some unitary schools successfully tried the low-cost self-instructional materials developed in the *Instituto Brasileno de Educacion Ciencia y Cultura* (IBECC) (Covarrubias, 1969).

The first Unitary School in Colombia was organized by the *Instituto Superior de Educacion Rural* in Pamplona, Norte de Santander, under the First Major Project. Later, in 1967, the Colombian government extended the method to all one-teacher schools. Over 4,500 teachers were trained in 160 short seminars held over the next two years and a teachers' manual was prepared and distributed. In Colombia the UCSM movement gained momentum and the University of Antioquia began trying out the model in 1968. By the early seventies there were alternative models being experimentally adopted throughout the country, each one responding to a particular dimension of the educational problem (Colbert, 1987). However, teachers' unions began to criticize the UCSM model, claiming that it reduced employment opportunities for teachers because the classes were too big and that too much additional work was involved in preparing the learning cards.

From learning cards (fichas) to self-instructional textbooks

A big step forward was made when a selection of the best learning cards (*fichas*) was bound into a self-instructional textbook. In the 1960s active learning enabling children to advance at their own pace was based on instructional cards and traditional textbooks. Teachers and older pupils spent long hours preparing these learning cards, and the method was seen to be too cumbersome in terms of

its multitude of modules and tests (Shaeffer, 1990:36). Some teachers retained the method for some time, because of the high rewards in terms of the impressive achievement of their pupils vis-à-vis pupils in traditional schools. But many teachers lost heart due to the amount of additional work required to prepare the learning cards, lack of support from colleagues or supervisors, and deficiencies in the achievement levels of pupils working with irrelevant curriculum content or with teachers who continued to use expository approaches rather than those required by the active system. Similar problems occurred in Argentina, Chile and Uruguay where initially successful UCSM experiments gradually folded up.

The UCSM movement began to lose momentum at the time when the Cali group started duplicating the learning cards and binding them into a new kind of self-instructional textbook. Then the emphasis was placed on the selection of the best *fichas* prepared by all teachers participating in the UCSM. Unsuccessful learning experiences were eliminated (Hernandez, 1961,55). For the first time practical knowledge about teaching had started to accumulate.

The Colombian steering group and supervisory group

The Cali group which prepared the prototype textbook from a selection of learning cards was delighted with its success, but at that time the group did not realize that they were on the way to developing (or re-creating) a teaching model. Under the leadership of Vicky Colbert de Arboleda and Oscar Mogollon a group of rural teachers, supervisors, and university teachers in Norte de Santander, and a core team from the Ministry of Education, formed a steering group, and continued working on the improvement of the self-instructional textbook by selecting the best learning cards and improving the relevance of the curriculum. In seeking to provide opportunities for pupils to find meaning in classroom activities, the group started to look for other causes of low educational quality and scholastic failure. Chief among them were legal and administrative structural constraints, conflicts with supervisors, failure to consider teachers' working conditions, and lack of resources for large-scale implementation of innovations. Eventually,

the steering group found that a past mistake had been to regard products (for example, learning cards), rather than processes, as opportunities to inquire, make decisions, or solve problems (Colbert, 1979; Hernandez, 1961).

The Escuela Nueva programme, going beyond the old UCSM methods, was launched in 1975 as a response to all these constraints. The steering group emphasized replicability of materials and processes and economic feasibility; in other words the design made provision from the outset for scaling up (Colbert; Arboleda, 1990). The steering group initiated a slow process of convincing key curriculum experts that learning could be achieved in a non-traditional environment and assuring inspectors that the Escuela Nueva experiment transgressed no laws. Those who objected that teachers had not followed special courses on individualized instruction were also reassured. Fortunately, an increasing number of parents and rural teachers were demanding Escuela Nueva materials and methods for their schools. Each time a new problem was detected the steering group kept working on it until a solution was found. At the same time all newly-appointed senior civil servants in the Ministry of Education were invited to visit schools that had adopted the Escuela Nueva model.

Eventually the steering group evolved into a supervisory group. All members were appointed as supervisors and ended up in the Ministry of Education, where their shared vision of the Escuela Nueva pervaded the Ministry. Even in 1991, most of their work still consists of the selection of better instructional methods and materials, the improvement of demonstration schools, upgrading teachers' training, and formative evaluation.

Fighting vested interests and the status quo

The steering group spent a long time battling with powerful groups that believed they would be adversely affected by the Escuela Nueva. The textbook industry and textbook authors were worried by the fact that the self-instructional textbooks were printed by the State, but the industry soon benefited from selling the 100-book class libraries which were part of the package and eventually

realized that a larger market for books was being developed by the Escuela Nueva's emphasis on reading.

Colombian curriculum experts criticized the Escuela Nueva in terms of stated objectives and content rather than in terms of learning processes, and the steering group spent long hours making clear that most of the differences were semantic rather than substantive. Similar problems were overcome in order to introduce a hands-on approach to training rather than the traditional lecturing on theories of teaching and learning. It took more time to explain that the Escuela Nueva uses self-instructional textbooks that create environments allowing of sustained and open-ended exploration by pupils (CTG, 1990), but are quite the opposite of Skinnerian programmed instruction.

The teachers' unions realized that the Escuela Nueva was different from UCSM. For example, the former could be implemented not only in unitary schools, but also in schools with any number of teachers; Escuela Nueva teachers worked with fewer than 40 students in a class and were not required to prepare learning cards. The Escuela Nueva was providing textbooks, training teachers, and paying a per diem for the first time in the history of rural education. The teachers' union was soon being asked by their members for more widespread access to the new techniques available in the Escuela Nueva. Many teachers knew about the good results obtained by teachers working in the Escuela Nueva programme and further expansion was called for. The teachers' union finally adopted the Escuela Nueva model. However, now that it has become a national programme the teachers' union is starting to criticize the programme as part of the political game.

How the Escuela Nueva expanded and improved

The steering group found that teachers could switch from frontal to individualized teaching after only a short period of training in an Escuela Nueva demonstration school. With the support of USAID the Escuela Nueva programme was implemented in 500 schools between 1975 and 1978, in three regions

(*departamentos*) of Colombia. Materials for students and teachers were revised; account was taken of the administrative and financial organization of the regions; schedules and materials for training and follow-up were up-dated; the systems of production and distribution of materials were streamlined; and the first formal evaluation by an outside institution was carried out. It showed that Escuela Nueva pupils obtained higher scores in national tests than pupils in traditional schools: the Escuela Nueva programme was effective (Vasquez, 1984; Losada, 1983; Rodriguez, 1982).

Between 1979 and 1986, with support from the Interamerican Development Bank (IDB), regional resources, the Coffee Growers Associations (FEDECAFE), and the Foundation for Higher Education (FHE) the Escuela Nueva programme was expanded to cover 8,000 schools. The whole programme was revised once again to ensure that input requirements were substantially reduced per unit of output. Each of the steps required to implement the programme were described in manuals in order to make implementation independent of the steering group. The Escuela Nueva model began to be developed and the design was improved later on for large-scale expansion.

Adjustments called for by expansion

In the early eighties the steering group began to give serious thought to the best way of coping with the expansion of the Escuela Nueva (Myers, 1984). With support from the World Bank the programme was going to be implemented in 10,000 additional schools, and one million additional Colombian pupils were going to learn using the Escuela Nueva model. Careful training and school supervision had played a significant role in the development of the model, but could not be the cornerstone of further expansion (Colombia-UNICEF, 1990). Training was simplified into three one-week carefully programmed workshops supported by a detailed manual (Colbert and Mogollon, 1977). In these workshops supervisors and teachers simulated the classroom context (role playing) and after learning to use the materials the teachers returned to their schools and replicated the same active process.

Supervision was initially conceived as a follow-up process for teachers trained to operate the programme, with emphasis on the pedagogic support function of the supervisor rather than on his school inspection function. In the early eighties the supervision of the Escuela Nueva was reduced to a monthly non-formal workshop attended by less than a dozen teachers meeting in each *municipio* (county) and which were called microcentres (see Chapter VI). These local follow-up workshops developed gradually and in 1985 the microcentres were approved as the regular supervision agencies for the Escuela Nueva programme. The microcentres now provide teachers with opportunities for sharing problems and solutions, innovations, self-evaluation, criticism, analysis and small joint projects for the improvement of the school and the community (Mogollon, 1986; 1990). While regular school supervision has the potential to make an important contribution to the quality of the education offered by Escuela Nueva, structural problems related to budget allocations for transport and *per diems*, delivery of mail, lack of transport, poor roads, low salary levels, distances travelled and the isolation of schools, and lack of telephones reduced the possibility of supervisors making a more substantial contribution.

Formative evaluation of the large-scale implementation of the Escuela Nueva

The detailed formative evaluation conducted by the steering group in the initial stages is now carried out by supervisors and teachers in the microcentres. These microcentres have been the main resource for coping with logistic problems and fine tuning the large-scale implementation of the Escuela Nueva. During its 1984-1990 implementation in 20,000 rural schools logistic problems arose: teachers' manuals or self-instructional textbooks arrived in schools too early or too late with respect to the dates of training seminars, and in some schools the preliminary work with the community was not completed in time for the second seminar. Some of these hitches in the gradual introduction of the innovation were detected, and some corrected, but others will only be detected in the evaluation currently being carried out.

VI. The specific inputs required in the Escuela Nueva process

The Escuela Nueva may be described as a 'kit' based on personal experience, self-instructional textbooks and several other basic inputs that can be assembled in alternative ways. These components are complemented by a well-programmed training package for changing teachers' attitudes, a few specific low-cost materials, and a well-defined management style.

Training is designed as a continuous process in which several learning models are used, and individuals are assigned to keep in touch with the schools and the universities. Training includes demonstration schools; the teacher's new role; three one-week training seminars; and a monthly microcentre workshop. In addition to the self-instructional textbooks, the materials used in the process are teachers' guides; a small 100-book class library; three learning areas and a small shelf (assuming that flat tables and chairs are available for pupils and a desk and chair for the teacher); and the school map displayed near the main entrance of the school. The management style is based on six activities: the operation of a student council; the use of the local context; group work; one-to-one tutoring; self-evaluation and 'quality circles' activities developed in the micro-centre workshops.

The running costs of the model are slightly higher than those of the traditional school. This is because of the provision of training and some supervision at least for the demonstration schools. In the case of Colombia these additional costs have been borne with help from UNICEF while school repair and maintenance, furniture, textbooks, and training costs have been financed through a World Bank loan and community co-operation. Though a detailed

description of the implementation process is beyond the scope of this paper, the dozen key inputs are commented on below. When necessary some aspects of the implementation process are included.

Demonstration schools showing that quality is feasible

Demonstration or laboratory schools are the starting point for transforming a traditional school into the Escuela Nueva model. They have proved to be effective in convincing teachers that a model other than the frontal one is feasible. Teachers are better able to adopt new behaviour patterns after visiting a demonstration school, seeing how concrete problems are solved, and talking with experienced teachers about a personalized teaching practice (Richardson, 1990). Demonstration schools have the average infrastructure and teaching staff; only the method is different.

After visiting a school using the Escuela Nueva model, a teacher's interest in the subject is aroused (The Field Model: Flechsig and Schiefelbein, 1985). Otherwise it is hard to believe that so many positive things are happening in the Escuela Nueva schools and even harder to be convinced that it is not too difficult for an average teacher to monitor two dozen different activities. If teachers are shown that all this can be done with less teacher effort and greater professional reward than in traditional schools, they will be prepared to change their teaching methods in spite of long years of immersion in the traditional model.

In these demonstration schools senior teachers practice, beginners learn, and researchers study. Demonstration schools tend to favour solidarity, collaboration, risk-taking, and experimentation; they value both individuality and sociability. These schools must become one of the links in the chain of public education in which university faculty members, head teachers, prospective teachers, and pupils from kindergarten to high school level come together to improve educational quality. Demonstration schools are a key element in the strategy of change, and their role in reducing uncertainty cannot be over-emphasized. Teachers have learned passively during the six to nine years of their basic education, continued with the same model during four to six years of high

school, and at teacher training schools they have been told that teaching must be active. They must see this new model operating succesfully in order to be willing to give it a trial.

Self-instructional textbooks with detailed instructions

The Escuela Nueva cannot operate without self-instructional textbooks. Even though first grade pupils spend most of their time learning to read and write (as in any traditional school, but with upgraded teachers) second and upper grade pupils spend most of their time working with self-instructional learning materials promoting active learning, individual decision-making, cognitive skills, group discussion and group decision-making, and observation of the environment (The Project Model or Dalton Plan: Flechsig and Schiefelbein, 1985). The self-instructional textbooks prepared for four basic areas (language, mathematics, science, and social studies) can be easily used by the less qualified teacher, because detailed instructions for the pupil are included in each textbook (Parkhurst, 1922; Edwards, 1991; Shaeffer, 1990). However, the use of these textbooks can be much more effective when handled by a well qualified teacher. The sequence of objectives is consistent with the national curriculum, but the emphasis is on activities that are relevant to the needs of a rural child and community; the instructions always suggest exploration by pupils of the local and regional context (McKeown; Beck, 1990; Brophy; Alleman, 1991). The textbooks may ask pupils to write down local recipes, to compare different versions of them, and even to do some experimental work with the recipes assisted by their mothers or fathers (Freinet, 1964). Thus prior knowledge and the local environment come into play, the community is also involved and the teacher does not have to spend too much time every day preparing the next class, but is able to challenge pupils to set and achieve personal goals. If the textbook can greatly improve the productivity of some 30 pupils, and also of the teacher, then the delivery system is making an noteworthy contribution to learning (Heuston, 1986).

Self-instructional textbooks for pupils help the teacher to handle several groups at the same time, which is a requirement for

delivering personalized instruction. In addition to the students' self-instructional textbooks (*Guias de Aprendizaje*) with graded and sequential activity exercises, there are supplementary materials from the class library and free choice activities. For teachers there is a basic teaching guide (*Guia de Ensenanza*), a practical teacher's manual supplemented by normative and remedial material (Colbert; Mogollon, 1977), as well as instructions and suggestions to be used in the microcentres. (Mogollon,1986; 1990).

The emphasis on the use of textbooks is based upon field experience and research results showing that textbooks are the most important factor influencing learning achievement. Improving the quality of textbooks helps to raise the quality of education (Heyneman, Jamison; Montenegro, 1984). After careful editing and testing with pilot groups, the self-instructional textbooks are provided free of charge to the schools, though in limited quantities (four per child). One third of Escuela Nueva teachers have reported that more textbooks are required.

Learning areas allowing of simultaneous classroom activities

Activity centres or learning areas are organized in four basic curricular areas: mathematics, the natural sciences, social studies, and the mother tongue. They include elements of the 'stand model' enabling pupils to learn from displays, and the 'didactic centre model' in which the pupil can structure a learning experience (Flechsig; Schiefelbein, 1985; Freinet, 1964). Each learning area contains objects produced by the pupils or brought from the community following instructions in the textbooks and the teacher's suggestions. The self-instructional textbook directs students to perform specific activities, including observation and handling of reports, drawings, objects, and other concrete objects, thus fostering their cognitive development. One of the learning areas contains five or six small boxes (large enough to hold loose leaves from copybooks) in which pupils can classify their reports, poems, recipes, maps, drawings, or essays and later on can reclassify this material in accordance with new criteria (as punched cards were once classified in IBM machines). Pupils can learn the basics of

computer operations and be ready to use computers as soon as the schools receive the necessary hardware.

Use of prior knowledge and gathering of local material

Each school day Escuela Nueva pupils look for local material useful for learning experiences and accumulate cultural and economic information relating to the region (Pestalozzi, 1801). This is consistent with research indicating that "the more meaningful, the more deeply or elaborately processed, the more situated in context, and the more rooted in cultural, background, metacognitive and personal knowledge an event is, the more readily it is understood, learned, and remembered" (Iran-Nejad et al, 1990; Herbart, 1806). The self instructional textbooks help each pupil to identify examples and cultural material that can be used in each learning task, and local material to be accumulated in the learning areas. Oral traditions are transcribed and classified: proverbs, nursery rhymes, folk songs, riddles, games, myths, legends, recipes, and descriptions of social life decades ago are also collected (Colombia-UNICEF, 1990). Local crafts, jobs and economic activites, health care, geography, landscapes, transportation, sports, dances, food, animals, plants, and minerals are also described and classified for further processing and updating for use in learning experiences. This type of interactive, inquiry-oriented curriculum has been successfully used to raise quality in American schools (Levin 1991). From time-to-time the textbooks ask pupils to prepare social and cultural monographs that can be evaluated with work done in previous school years (Freinet, 1964). Teachers are encouraged to organize meetings with parents to discuss the material prepared by the pupils. Children also participate in activities relating to health and nutrition (Colombia-UNICEF, 1990). In 1987 nearly 83 per cent of schools in the Escuela Nueva programme organized health-related activities (Rojas; Castillo, 1988). Thus, little by little, the school becomes a source of information for the teacher, who learns about the environment, for organizations operating in other sectors of economic activity, and for the community itself.

School/classroom libraries for group work and advanced pupils

The Escuela Nueva is able to channel the energy of those who reach the prescribed minimum level of achievement ahead of schedule. Many pupils are capable of reaching this level quickly and then start demanding more advanced learning. The teacher must be ready to find some additional challenge in the small class library (Freinet, 1964). A library of 100 well-selected books (including dictionaries, subject textbooks, children's literature and books on community development) is a key additional class resource. In 1987 some 94 per cent of Escuela Nueva classes had libraries. The library is used as a complement to the self-instructional textbooks to allow children to learn about new areas or to find the starting point for a new module, and provides scope for the quick learners. Children learn to organize their library through a library committee of the student council, and members of the committee are in charge of lending and taking care of the books.

Tables and other furniture suitable for group learning

Though tables may seem less relevant than other inputs, group work depends to a certain extent on the availability of flat tables that can be arranged for a group of four or five students. Trapezoidal tables are well suited for such work. Traditional benches or desks fixed to the floor limit the possibility of group activity. The only additional furniture required for the Escuela Nueva is a shelf for holding the self-instructional textbooks. It is recommended that at least the shelf be obtained from the community in order that teachers and the community may prepare for the introduction of the Escuela Nueva model. In multigrade classes it is also advisable to have one chalkboard on each wall in order to make it easier for the teacher to work with different groups in the same classroom (Hernandez, 1961). The walls are used to display pupils' work, suitable learning materials, or creative artwork.

The value of group work

Working together is the way for Escuela Nueva pupils (and teachers too) to deal with the uncertainty built into the tasks of the multiple-answer type contained in the self-instructional textbooks and to develop democratic values such as tolerance of others' opinions. The 'Users' Network Model' develops a dynamic approach (Flechsig; Schiefelbein, 1985); Slavin 1985 and 1986; and Slavin et al 1990a and 1990b. Pupils jointly prepare written reports, drawings, displays, objects or plays, but usually on the basis of previous individual work if possible, while textbooks include instructions for both individual and group work. Thus teachers need only evaluate one final result instead of four or five. However, from time to time a group of pupils is rewarded for the average performance on individual assessments so as to encourage pupils to help one another to learn rather than simply to complete an assignment (Strother, 1990). Groups quickly develop mechanisms for reaching a consensus, but in case of serious disagreement the teacher shows them how to resolve it.

Working alone, in pairs, in fours, or in larger groups, pupils work on subject matter that they have chosen themselves. They write about things they know and care about. Children use one another as resources, with each child playing a specific role in the group, such as facilitator, checker or reporter; at the same time pupils are individually responsible for completing worksheets based on their experiences. They help one another with their work, sharing ideas and skills. Their knowledge and judgement count, and what they say to one another is important. Working in groups means that the pupils have to draw on their skills of listening, co-operating and compromising. The differences in pupils' learning styles allow one pupil to offer better advice in one case and another to lead the group to face a different challenge.

Preparing the school/class map to initiate community involvement

A close relation between school and community is gradually developed through a sequence of very simple activites built into the curriculum and the self-instructional textbooks. Parental involvement improves pupil achievement (McAllister, 1991; Dillon et al, 1991). As part of the first Escuela Nueva training workshop, the teacher receives guidelines for preparing with the pupils a map of the catchment area of the school, with the family names of each of the students. As a result each pupil acquires skill in map-drawing. The map is placed in a prominent spot near the school entrance. Parents who find their family names on the map are more likely to feel that they are an important part of the school. It is a detail, but an important one. Parental involvement can be eventually developed into specific activities (Levin, 1989).

Guidelines for preparing the school map, for explaining to the community what the implementing of the Escuela Nueva will mean for the children and the community, for improving the physical space, and moulding letters, are given to and discussed with the prospective Escuela Nueva teacher during the first one-week training seminar (Colbert; Mogollon, 1977). Moulding letters of the alphabet with the the help of the local craftsman for pupils beginning to read is another way of interacting with the community. Later, pupils ask their parents and friends for information to be used as learning experiences; for example, compiling a family information register (implemented in 91 per cent of schools), a calendar of agricultural events (in 60 per cent of schools), and various social and cultural monographs (in 77 per cent of schools). All these activities are generated by self-instructional textbooks which instruct the pupil to look for relevant learning materials in the community.

The new role of the teacher

The teacher's traditional role as the source of knowledge has been critically examined and drastically restructured in terms of

'assistance to personal inquiry', but new teachers willing to adopt the Escuela Nueva model have an opportunity of participating in the restructuring effort. Escuela Nueva teachers are not specialized in issuing instructions or in the custodial control of their pupils; so they must relinquish the protection enjoyed by teachers working in a traditional rule-based setting in which interactions are framed almost entirely in terms of instructional tasks and outcomes. Given the involuntary nature of pupil participation, as in the case of inmates of prisons or mental hospitals, relinquishing such protection distresses teachers who see themselves as custodians and regard misbehavior as a personal affront from irresponsible and undisciplined pupils who must be controlled through punitive measures (Hoy; Woolfolk, 1990). Therefore, teachers must see for themselves in an Escuela Nueva demonstration school that interesting work can keep pupils relatively well-behaved in the classroom.

After a brief period spent in a demonstration school and the second training workshop focussed on the use of the self-instructional textbooks, the novice Escuela Nueva teachers start by spending most of their time as facilitators: (i) checking whether the written instructions are understood; (ii) motivating pupils to do the work; (iii) counselling students with problems; (iv) leading pupils to learn through co-operative interaction and greater self-determination; and (v) showing pupils appropriate responses to specific fears and anxieties that may impede their scholastic progress (King; Ollendick, 1989). This new role (reinforced in the microcentres and backed up by the pupils' success) reduces serious traditional problems faced by pupils. Those who do not fully understand the written instructions can be helped by classmates or friends; and the perverse effect of the teacher's expectations for disadvantaged pupils is reduced because the pupil is following specific instructions. Therefore, the Escuela Nueva prevents teachers from interpreting dialect speech as decoding errors and also prevents educators from having low expectations for disadvantaged pupils or setting standards that are not high enough to form the foundation for future academic success (Knapp; Shields, 1990). The Escuela Nueva model can also be combined with bilingual education (Commins; Miramontes, 1989; Cazden et al, 1991).

Teachers seem to move through stages as they relinquish traditional teaching practices and embrace the Escuela Nueva vision. At each stage the teacher's sense of doing an effective job seems to increase and according to research results pupil achievement also rises (Ashton, 1985). The teacher's new role assumes that there are basic reading books for first grade pupils and self-instructional textbooks for those in second to fifth grades, so that the multigrade teacher (working with first grade students) spends half of his time teaching newcomers how to read and write and the other half monitoring the progress of pupils in the higher grades. Instructions in the textbooks ask the pupils to relate their lessons with out-of-school life situations and to experiment, for example, by bringing pebbles or seeds to the classroom to classify them; to describe what they are doing; to share their written essays; and from time to time to request further feedback from the teacher. This approach has been attempted elsewhere (Shaeffer, 1990), but the Escuela Nueva is one of the few cases where it has been fully implemented.

Training teachers to use Escuela Nueva textbooks and techniques

The Escuela Nueva training instructs teachers in the use of self-instructional textbooks and other inputs. Teachers *learn by doing* in an interrelated sequence of training and implementation that takes place during the first year, rather than by learning the underlying principles and hoping that ad hoc applications can be created on the spot. Three step-by-step programmed one-week workshops train the teacher in how to start working with the community, use the self-instructional materials, organize the classroom layout, set up and operate the student council, use the classroom library as a powerful additional resource, and introduce all the changes deemed necessary for each child and neighbourhood (Colbert; Mogollon, 1977). Each of the three one-week training workshops is organized by the decentralized regional unit in charge of training, with intervening practice periods and some limited supervision when possible. The administrative unit staff have

already been trained in visits to, and work in, demonstration schools and participated in a workshop for regional administrative personnel where they learn how to implement the Escuela Nueva model.

In the first workshop each teacher visits a demonstration school, learns something about operating the student council, discusses the layout and organization of the learning activity areas, and participates in group discussions that help teachers to work subsequently with small groups in their own classrooms. Teachers receive special handbooks to help them to develop five units: the Escuela Nueva and the community; the school building; learning areas and other facilities and materials for the classroom learning process; the student council; and group work methods. Teachers become acquainted with the learning process by engaging in active learning themselves. As soon as they are back in their schools they start adapting the school to the Escuela Nueva model, mobilizing the community, and experimenting with the student council. The teacher encourages children and the community to gather useful information about the community to increase understanding of its background history. The school neighbourhood map and a visit to an Escuela Nueva school are additional ways of securing the support of parents. The time is then ripe for changing benches into individual places and building the shelves for the learning areas. The first one-week in-service training workshop for teachers and supervisors is an indispensable pre-requisite for the inclusion of schools in the Escuela Nueva programme and this initiation is complemented during the rest of the first year with two one-week follow-up workshops.

The second workshop takes place when the school has been adapted for working in small groups, the first student council has been elected, and the community has been informed about Escuela Nueva. It is held two or three months after the first workshop. In one week teachers learn to use the self-instructional textbooks correctly, practice the multigrade approach (group instruction in different grades), discuss flexible promotion (working by modules), and are encouraged to introduce as many innovations as they can handle. The teacher works with the self-instructional textbooks just as the student does, through learning by doing. Teachers familiarize themselves with the open-ended nature of the self-instructional

texbooks (*Guias*) and learn how to plan the use of modules (classroom units). At the end of the workshop the sets of self-instructional materials are given to the teacher. The sets correspond to one or several grades depending on how the school is structured: three sets covering four basic areas for each of grades one to five for small one-teacher multigrade schools; 15 sets covering four basic areas for the grade the teacher teaches in a graded school.

In the third workshop teachers learn to organize and use the class library, maps, posters, and flexible promotion, and reinforce their ability to work with several grades at the same time. This final workshop reviews previous mechanisms and moves into follow-up evaluation and problem solving. At the end of the third workshop teachers receive the basic 100-book library. This basic training has proved to be of benefit to teachers, although pre-service training would have to be taken into account in other settings.

Microcentres back up training and help to meet unforeseen challenges

Teachers' uncertainty and apprehension generated by the introduction of new procedures are allayed by attending microcentres. After each workshop teachers are invited to meet once a month in a nearby school. These microcentre meetings operate in demonstration schools to analyse problems and discuss results. No hierarchical staff relationships are generated by microcentres as they were in the old 'nuclear' systems. Supervisors attend the meeting when feasible and discussion guides are provided from time to time (Mogollon, 1986; 1990). Communicating successes, sharing doubts and thinking aloud help to arrive at specific solutions and to apply them. These microcentres, which correspond to the Education Workshop and variations such as the Confrontation Search Laboratory among the classification of learning models (Flechsig; Schiefelbein, 1985), provide a frame of reference for restructuring efforts within individual schools (Colombia, 1990). After the training period teachers continue attending the microcentres to meet other teachers with similar challenges, exchange ideas, experiences, and insights, try new

approaches, and form alliances with other institutions, so that they can explore additional possibilities.

Experience in group discussion in microcentres also helps teachers to work in their own classrooms with small groups. Collegial relationships established in microcentres are also a necessary condition for guiding pupils' group work. For example, participants tend to identify one leader among the group and dependency thus arises unless a rotating co-ordination is established. Microcentres are now being included in networks with universities and businesses to give impetus to the process and to create a link between teachers and researchers; for research must play a large part in 21st-century education, and therefore teachers and researchers will need to collaborate in experimental field work. All in all microcentres present an opportunity of breaking away from routine and monotony: teaching practices are challenged, experiences exchanged, solutions to new problems discussed and in some cases tested, and training activities carried out. Participants are encouraged to report on proven learning strategies and the results of experiments so as to add to the sum total of knowledge. Comments from participants in microcentres operating in the Departamento del Huila are highly positive and seem to reflect the general feeling of Escuela Nueva teachers (Vera; Parra, 1990). However, periodical visits of supervisors are required to sustain motivation and to identify experiences that should be shared with groups of teachers meeting in other microcentres.

One-to-one (child-to-child) remedial reading tutoring

The Escuela Nueva tries to prevent reading failure in the first grade by providing one-to-one tutoring for pupils who have fallen behind. Interaction between pupils is seen as integral to the process of learning (Kohn, 1991). This strategy of mutual instruction has been successfully implemented in several other development projects (Otaala; Myers, 1988; Somerset, 1988). The strategy is also consistent with research showing that the amount of time spent on reading during the reading period contributes significantly to gains in pupils' reading achievement (Taylor et al, 1990).

The tutors are bright older students or, in a few cases, parents who volunteer for the work and are willing to follow a set of instructions contained in the teachers' guide. The tutors, who have already finished their own work, take slow students from their class for twenty-minute sessions during part of a social studies period. In general, tutors contribute to pupils' success in the regular reading curriculum. For example, if the regular reading teacher is working on the letter 'M', so does the tutor. However, tutors may be instructed to use a different strategy to teach the same skill.

Teaching — in the sense of helping others to learn — must be recognized as an essential learning experience for all (Swengel, 1991). In many cases motivated older children want to take the backward readers to a corner of the classroom and just not give up until they have taught them to read. The aim is not to rush newcomers into reading, but to allocate to them the time required to learn, which is far beyond the time a teacher can spend on one pupil. Once a child has started reading, co-operative learning takes over (Slavin, 1985; 1986).

Developing values through the student council

The Escuela Nueva tries to produce not merely good learners, but good people and good citizens (Kohn, 1991). Children are introduced to civic and democratic life by electing and participating in student councils (Dewey, 1910). The student council is elected two or three times a year in order to avoid falling into a routine. By participating in the student council children learn to act with authority and responsibility in the organization and management of the school, and also to integrate cognitive processes with those involving social and affective attitudes and moral development. Escuela Nueva teachers are trained during the first workshop to develop within the school those organizational structures and democratically established leadership roles that may later be replicated in the wider context of adult life. Acting in the capacity of school authorities is fun, and pupils enjoy participating in campaigns and elections.

The president of the student council is usually an articulate and outspoken child well supported by the leaders of several committees. Pupils organized in committees take care of cleaning, maintenance, sports, the school garden, the school newspaper, the library, recreation, classroom decoration (a well decorated classroom raises achievement), and discipline, and co-operate in the instructional process by tutoring or otherwise helping slower pupils. By so participating the pupils develop attitudes of solidarity, tolerance and co-operative conflict resolution. This is an essential part of the curriculum and helps to create additional links between the school and the community.

Modular evaluation and flexible promotion

Recognizing differences in pupils' aptitudes and the inevitability of pupils' absences during periods of agricultural activity, the Escuela Nueva uses flexible promotion and permits pupils to advance at their own speed. They advance on the basis of learning modules rather than grade by grade, and the teacher is trained to pay due attention to evaluating assignments and to prescribing remedial programmes with the help of pupil monitors, committees or community volunteers. Consequently absences due to illness or seasonal absenteeism related to farm work do not involve repeating the grade and going over a second time what has already been learned, but simply continuing to learn in the module following the one previously successfully completed. This policy mainly benefits deprived students liable to high grade repetition levels. In spite of modular evaluation, high absenteeism and a short school year can generate a slower advance from one grade to the next. In other words the Escuela Nueva can eliminate repetition generated by poor instruction, but cannot eliminate repetition due to seasonal absenteeism or too short a school year.

Whenever possible, each module in the self-instructional textbooks includes self-evaluation in its final section. Requesting information about the topic in a different context, demanding applications, and including relevant reports for the pupils to compare their own findings and to improve their work are

representative examples of the formative self-evaluation built into the textbooks. If children – or for that matter adults – realize that they are not learning, they are likely to accept or seek a strategic remedy (Garner, 1990).

Members of the student council help the teaching staff in the day-to-day organization and running of the school. Furthermore, the possibility of marking or commenting on only the final group report or work reduces the amount of time the teacher spends on evaluation. In any case systematic formative evaluation helps pupils to master each sequence of modules and allows the teacher to make decisions on special cases.

VII. Costs and results of the Escuela Nueva programme

Although it is too early to evaluate the final impact of the Escuela Nueva programme on the quality of education, available data suggest that the additional costs incurred by the Escuela Nueva are justified in relation to the benefits accrued. Unit costs can be measured with some precision now that 20,000 schools using the Escuela Nueva model are in operation, but only a limited range of benefits has been measured. The programme has been economically feasible in Colombia in spite of material limitations, and the average increments over unit costs in traditional schools are between 5 and 10 per cent, depending on previous school resources. Repetition has been reduced by over 6 percentage points and third grade mathematics scores have improved by 19 per cent. Decisions as to whether to use the model in more Colombian schools or in other countries depend on the cost of running the programme in a group of schools and on the probable benefits generated in those schools, but the initial investment should not affect those decisions. The Escuela Nueva model is available free of charge and future users do not have to pay for its development. Therefore the high cost of gradually developing the model in the period 1970-1985 (about US$15 million) is not dealt with in detail here. However, the low cost of adapting the model, mainly the self-instructional textbooks, to the context of each country is included in the current unit costs.

Unit costs of the Escuela Nueva are much lower than expected

The present operational cost of the Escuela Nueva does not exceed that of traditional schools by more than 10 per cent. The cost of supplying one pupil with self-instructional textbooks for four subjects per grade level is about US$8 assuming that more than 100,000 copies of each textbook are purchased, even though textbooks should be provided for deprived students in order to ensure equality of educational opportunity. The average 100-book school or class library costs between US$150 and US$225. The average one-week training cost per teacher is US$82 per year: US$3O for travel, five days per diem at US$8, US$2 for materials, and US$10 for the instructor. Textbooks and other books are used in the school over a four-year period, so that the unit cost per pupil, asuming 30 pupils per teacher, is reduced to US$7 per year, i.e. some 5 per cent of the annual cost per primary student for Latin America (US$160) in 1987 (Schiefelbein, 1991b). The increment in unit cost is reduced to US$4.4 per pupil if texbooks are already provided by the State. In this case, the increment with respect to the present unit cost would be slightly less than 3 per cent. Even in countries with annual unit costs of US$70 the implementation of the Escuela Nueva would not represent more than a 10 per cent increment over the one-year unit cost of a traditional school.

Estimated improvements in efficiency and quality

On-going evaluation of the Escuela Nueva programme has shown significant gains over graded complete rural schools. Surveys, research reports and the opinions of visiting specialists indicate that the Escuela Nueva has improved promotion rates, pupil achievement and self-esteem, teachers' rewards, and support from local authorities and the community at large. Comparisons carried out in 1977 between Escuela Nueva schools and traditional graded rural schools showed that under controlled conditions the major goals in terms of achievement, socio-civic behaviour, creativity and self-esteem were achieved. The performance of Escuela Nueva pupils was significantly higher than the performance of pupils in

traditional graded rural schools (Rodriguez, 1978; Vasquez, 1984). But there were doubts concerning the effects of a large-scale expansion of the Escuela Nueva programme. An evaluation was carried out in 1987 when some 8,000 schools were already using the Escuela Nueva method (Rojas; Castillo, 1988). At that time they averaged 43.5 pupils per school as compared with 83.4 in graded rural schools, but in spite of their small size Escuela Nueva schools delivered a complete five-grade education, mainly with one or two teachers. Only 11.4 per cent of Escuela Nueva schools had three or more teachers at that time.

The evaluation of a sample of Escuela Nueva multigrade schools in 1987 showed that they had a smaller percentage of repeaters than large rural schools with one teacher per grade (47 versus 54 per cent), but still high enough to indicate high absenteeism and a short school year, although no data on repetition by levels was available. The reduction in repetition rates was possibly higher than it appears if we take into account the fact that the dropout rate was lower than in traditional schools, and that other evidence suggests that pupils at risk of dropping out have higher repetition rates. Even though dropping out of first grade was higher in Escuela Nueva multigrade schools than in graded schools, in upper grades dropping out was much lower in the former than in the latter, especially in fifth grade. Escuela Nueva schools were even able to enrol some former dropouts, and more fifth grade pupils were enrolled in Escuela Nueva schools at the end of the school year than at the beginning (see *Table 3*).

Table 3. Colombia: repetition and dropouts, 1987.

Indicator	Escuela Nueva	Graded Rural
Repetition	47.2	53.9
Dropout grade 1	10.5	8.6
Dropout grade 2	5.1	9.3
Dropout grade 3	2.9	7.8
Dropout grade 4	0.7	7.9
Dropout grade 5	-3.0	11.1

Source: C. Rojas and Z. Castillo, Instituto Ser, 1988.

But scores in standard tests must also be compared, because positive results in promotion rates must be compared with achievement; repetition can be reduced by lowering pass standards as well as by improving learning achievement. In tests given in 1987 on mathematics in third grade, Spanish in third and fifth grades, socio-civic behaviour, and self-esteem children in multigrade Escuela Nueva schools scored considerably higher than those in typical graded traditional rural schools (*Table 4*). Especially remarkable are the increments in third grade achievement levels in mathematics (19 per cent) and in Spanish (nearly 12 per cent). This showed that the reduction in repetition was a result of higher achievement rather than lower standards. The analysis of self-esteem showed that children in the Escuela Nueva programme had a higher level of self-esteem than those enrolled in normal rural schools. The fact that the self-esteem of girls equalled that of boys is particularly significant, and demonstrates the equalizing effect of a more participative methodology.

To sum up, after its large-scale expansion the Escuela Nueva has become more efficient, generating less repetition and fewer dropouts, and at the same time pupil achievement levels have been raised. Repetition is still a big problem and the effect of seasonal absenteeism and other factors, including the tradition of requiring too many pupils to repeat, should be investigated. In any case repeating using a Mastery of Learning model is a more rational approach than with the traditional frontal teaching model.

Objective evidence of the value of the Escuela Nueva

The considerable increase in coverage resulting from a voluntary influx of interested teachers is indicative of the demand for the Escuela Nueva. 20,000 of the 37,678 Colombian schools have already adopted the model. Some 80 per cent of the 25,791 rural schools and a number of pilot projects in marginal-urban areas have already implemented it. Half of the Escuela Nueva schools have three or more teachers, and all of them deliver a complete five-grade primary education, including the 20 per cent of one-teacher

one-classroom schools, whereas half of them delivered only an incomplete education before adopting the Escuela Nueva model.

Some 40,000 Colombian teachers have been re-trained and over 1,000,000 pupils are benefiting from the Escuela Nueva model. In spite of these figures much still remains to be done to convert the whole education system to this model. Given that urban schools have more pupils enrolled than rural schools (222 versus 58 in 1987), only one fourth of the pupils are participating in the Escuela Nueva programme, even though over half of the schools have adopted the model.

Subjective evidence of the value of the Escuela Nueva

Though Escuela Nueva pupils appear to be more active, co-operative, creative and articulate, there is no empirical evidence concerning these outputs. The 1987 independent field evaluation revealed that just over 89 per cent of teachers believed that the Escuela Nueva was a great improvement on typical schools, and a similar opinion was expressed by local authorities. Teachers also valued each of the elements used by the Escuela Nueva (*Table 5*). The self-instructional textbooks were also given positive ratings (*Table 6*).

Positive evaluations have also been made by many visiting specialists. Non-governmental organizations like Save the Children Fund and UNICEF are promoting the introduction of Escuela Nueva strategies in other countries in Latin America and the Caribbean. A careful in-depth field evaluation is currently being carried out.

Table 4. Colombia: comparison of Escuela Nueva and graded school pupils' scores in five tests

		Escuela Nueva			Rural School			
Indicator	Grade	N	Score	STD	N	Score	STD	% gain
Mathematics	3rd	1 143	15.3	7.3	681	13.7	6.7	11.7*
Spanish	3rd	1 143	13.8	5.2	684	11.6	5.4	19.0*
Mathematics	5th	743	13.9	6.2	516	14.0	6.2	-0.7
Spanish	5th	744	15.4	5.1	510	14.2	5.1	8.5*
Social/civic attitudes	1st	1 060	13.2	3.1	587	12.4	3.2	6.5*
Social/civic attitudes	3rd	735	15.4	2.7	466	14.8	2.5	4.1*
Academic self-esteem	All	1 840	36.1	5.4	1 166	35.8	5.5	0.8
Social self-esteem	All	1 850	33.1	4.8	1 176	32.4	5.0	2.2*

* Statistically significant up to 5 per cent.

Note: N= Number of students, Score = mean score, STD= standard deviation

Source: C. Rojas and Z. Castillo, *Instituto SER de Investigacion*, 1988, pp. 139, 142, 148, 152, 156, 158, 161.

Table 5. Colombia: teachers' rating of the importance of the main Escuela Nueva inputs in the learning process

	Rating assigned to the input (percentage of teachers)				
Input rated	Very High	High	Fair	Low	Zero
Self-instruction textbooks	89.2	10.8	-	-	-
Library	81.5	16.1	1.8	0.6	-
Learning areas	76.2	23.2	0.6	-	-
Neighbourhood map	66.1	33.3	0.6	-	-
Pupils' posters	60.2	39.2	0.6	-	-
Neighbourhood description	49.4	44.6	4.8	1.2	-
Pupils' diary	55.8	29.1	6.0	7.3	1.8
Agricultural calendar	26.7	51.5	9.7	7.3	4.8
Family information	44.3	46.7	5.4	3.6	-
Suggestions box	42.5	44.9	8.4	3.6	0.6
Good work roster	41.8	40.6	10.3	5.5	1.8

Source: Rojas C.; Castillo Z., Instituto SER, 1988, p. 120.

Table 6. Colombia: teachers' rating of the quality of the self-instructional textbooks.

	Quality rated (percentage of teachers)				
	Very good	Good	Fair	Poor	Zero
Ease of understanding	30.5	49.1	18.0	1.8	0.6
Design,typography,graphs	43.4	44.0	9.0	3.0	0.6
Relevant activities	37.7	49.1	10.8	2.4	-
Good applied activities	34.7	44.9	16.8	3.6	-
Feasible home work	18.6	39.5	29.3	12.0	0.6
Good remedial work	23.2	46.3	22.6	6.1	1.8
Relevance of topics	39.2	27.7	15.1	10.2	7.8

Source: C. Rojas and Z. Castillo, Instituto SER, 1988, p. 120

Attempts to adopt the Escuela Nueva programme in other countries

Four countries apart from Colombia have tried to implement the Escuela Nueva, but results have been rather poor. Honduras sent schoolteachers to visit demonstration schools in Colombia, but textbooks have not been adapted, nor have training sessions been held. Venezuela also sent teachers to visit Colombian schools, but is not implementing demonstration schools and has not yet adapted textbooks. Ecuador adapted the Escuela Nueva textbooks and updated the subjects, but in the process the stages of the Escuela Nueva method disappeared from the textbooks. Bolivia, supported by UNICEF, has adapted the textbooks and trained teachers in 2,000 schools; but teachers did not visit demonstration schools and the textbooks are rather traditional, without detailed instructions for the pupils. At the end of the second year the programme was evaluated by a local group which had never visited Escuela Nueva schools (Subirats et al, 1991). In short, not one of these countries has followed the sequence of steps that seem to explain the success of the Colombian experience. Each of them has made an honest attempt to innovate, but has not taken account of the key elements of the Escuela Nueva rationale.

Part III. Lessons for planners: conditions for selecting alternatives and replicating innovations

Two main lessons can be learned by planners from the evidence presented in this report: (i) it is economically and educationally feasible to raise quality in public schools situated in deprived areas, but (ii) the strategy and activities required for succeeding in an experiment along the lines of the Escuela Nueva must be carefully planned and implemented. The Escuela Nueva has been a feasible, simple and practical solution to the educational quality problems of a large population in Colombia, but it may not fit into other environments or it may be too difficult to implement in other management or political contexts. The Escuela Nueva involves a drastic change of past practices and it is easy to slip back into old habits. Resources should be redeployed along the lines of the Escuela Nueva model, but powerful forces affected by such redeployment will fight back (Lockheed; Hanushek, 1988). The key elements for a feasibility analysis, including the elements to be taken into account for implementing the Escuela Nueva, were presented in Part II, but it is worth summing up in Chapter VIII the pros and cons for planners prepared to consider the Escuela Nueva as a solution to the problems encountered in their own countries.

The experience acquired in half a dozen countries that are trying to implement adaptations of the Escuela Nueva model shows that account must be taken of some key aspects of the process that may clash with the culture of the bureaucracy and the educational establishment (Shaeffer, 1990). Four of these key aspects are discussed in Chapter IX. They are closely related to the future development of the Escuela Nueva model dealt with in the final chapter.

VIII. Potentials and risks that planners must assess before attempting to introduce models based on the Escuela Nueva in other countries

Four encouraging messages and a similar number of warnings are addressed to planners in search of alternative strategies for raising educational quality. Through a combination of old principles and new processes, the Escuela Nueva model has improved the quality of education in 80 per cent of the public rural schools in one Latin American country. In the process teachers were trained; personalized teaching replaced the old frontal teaching style; and pedagogic knowledge was accumulated. Last, but not least, Escuela Nueva school leavers seem to have acquired the basic working skills demanded by companies competing in an open world market. On the other hand, teachers' unions may be reluctant to support a nation-wide radical change in teaching techniques. Even if a radical change is implemented, it is always possible to slip back into old methods of teaching, and it takes a long time to develop demonstration schools to show that a radical change is feasible. Furthermore, too many things happen during the early years which may weaken support for the project.

Good quality is feasible in spite of limited resources

The Escuela Nueva shows that a country may get more education for its dollar, if it uses public resources in a different way but in many countries reallocation of resources may be difficult. Planners exploring the possibility of introducing innovations must bear in mind that textbooks must be drastically changed even though existing textbooks must necessarily be replaced or reissued every

two or three years. Teachers must use their time in a different way; teacher training must be converted to the 'hands on' type. Parents must be willing to accept new active methods for their children. On the other hand, now that the Escuela Nueva has been successfully implemented, Colombian society has been willing to allocate more money to education and pay teachers higher salaries. In addition to achieving better quality, the Escuela Nueva has helped to bring zero additional cost policies into effect, such as completing multigrade schools, training teachers in microcentres, cutting down the teacher's preparation work and eliminating unpaid overtime, facilitating local decision-making to cope with problems, improving textbook design and availability at little extra cost, taking advantage of the best schools available in each area, using parents as voluntary workers and active school partners, and using local contexts and resources to enrich learning environments.

A cycle of educational development can be initiated

Planners must estimate possible reactions to innovations, so as to take advantage of the most favourable ones and neutralize the negative ones. The Escuela Nueva was supported by individual teachers, although curriculum experts initially criticized it for being idealistic and utopian rather than for not being an improvement on the *status quo*; and teachers' unions initially supported it, but then observed the effects on the power structure and became somewhat critical. Yet planners can pursue alternatives that can survive initial constraints and show potential for generating a positive cycle. For example, by adopting a learning by discovery approach and increasing the self-esteem of primary school pupils, the Escuela Nueva may initiate a positive cycle in the social prestige of education. Teachers working with children who observe, describe, compare and evaluate will eventually adopt the same pattern in their own education. Furthermore, increased confidence in teaching methods and higher pupil achievement will probably promote interest in further experimentation. Thus, by bringing a scientific approach and enthusiasm into education, the Escuela Nueva may lead to higher salaries for teachers, thereby attracting better

secondary school leavers to the teaching profession and initiating a cycle of all-round improvement of educational quality.

Educational knowledge can be shared and accumulated

The Escuela Nueva has been able to adapt its learning environments to marked regional differences in Colombia. Even the most specific local conditions only call for adaptation of available teaching techniques rather than starting from scratch. To make such techniques available to other teachers, the Escuela Nueva kits for the teachers to assemble are periodically updated. This continuous adaptation means sharing knowledge and experience with those in the vanguard of the teaching profession. Loose arrangements combining the talents of universities and schools to develop the Escuela Nueva model have proved to be valuable for this purpose. Similar arrangements can be used to implement new innovations although the organization and responsibilities of school and university personnel may differ (Irving, 1990). University faculty members have more autonomy than schoolteachers, and they can encourage the latter to explore the frontiers of pedagogic knowledge. Such design/advisory teams have been available at all stages of the implementation of the Escuela Nueva. For example, supervision was initially conceived as a follow-up process for teachers trained to operate the programme. However, in the process of expansion the advisory team switched from the supervision of schools to the operation of monthly microcentres attended by less than a dozen teachers meeting in a demonstration school. There will always be disruptions in the gradual introduction of the innovation and planners should be ready to detect them in time.

The certainty of a positive impact on functional literacy

The skills developed by the Escuela Nueva very well meet the present demands of new styles of management. For example, Japan's team-work style involves making decisions about selecting new members of the team or arranging work schedules (Levin; Rumberger, 1989). Co-operative learning as practiced in the Escuela

Nueva fits in with this notion. Developing the ability to learn by doing and the ability to understand instructions would probably dramatically increase the percentage of functionally literate individuals now required even in the unskilled labour force. This potential impact of the Escuela Nueva has not been evaluated, even though functional illiteracy is still a major problem in Latin American countries and deserves close attention. Educational planners must be ready to identify the by-products of each innovation and to explain spill-over effects if they want to 'sell' the innovation to decision-makers and obtain the requisite financing.

Teachers' unions may be reluctant to support a national programme

A key element influencing successful innovation is the probable reaction of teachers' unions, especially in the case of unions with national power. Any element of an educational model may be regarded as a threat to the profession. Completing multigrade schools may be assumed to reduce teachers' job opportunities; training may be associated with indoctrination; the use of demonstration schools to improve deprived schools may be linked with notions of inequality; cutting down teachers' preparation work to leave more time for individualized work may be equated with a reduction in professional status. Fortunately, in the case of Colombia the steering committee held discussions with the main union (FECODE) and most misconceptions were cleared up. Only if there is a fair probability that teachers' unions will not oppose an innovation is it worthwhile pursuing it.

It is possible to slip back into old habits or create new problems

Models that depend on a high degree of personal commitment make it easier to slip back into old teaching habits. The use of self-instructional textbooks solves part of the problem, but nevertheless Escuela Nueva teachers must be continually reminded to spend

enough time monitoring pupils' progress through the modules. A similar monitoring effort must be made with the student councils, because there is always the danger of pupil leaders becoming increasingly authoritarian. Escuela Nueva teachers must guide pupils in tying in work plans with relevant activities, including the co-operative work of the student council committees and community groups. The frequency of elections should also be periodically revised. For some committees a longer period of perhaps six months should allow their members' work to be more relevant, while for other committees three or four months may suffice to keep their members motivated.

The difficulty of maintaining support for a medium-term programme

It takes a couple of years to develop less than a dozen demonstration schools that can be used later on for a large-scale implementation of the Escuela Nueva model in up to 500 or 1,000 schools per year. So to implement the model in 5,000 schools may take some seven years, and too many things may happen in these seven years to maintain steady support for the programme (Myers, 1984). The Escuela Nueva put up a fair show initially, and subsequently a combination of publicity, strategic support, the academic standing of the developers, and just plain luck took Escuela Nueva to national coverage in rural areas, after which it gradually began to be implemented in large graded marginal-urban primary schools. None of the members of the steering group which launched the programme thought that they would keep working on the project for such a long time, but in fact the group kept at it for fifteen years. But decisions on a new project cannot rely on luck, and each planner must assess whether the project will receive steady support or whether ability and persistence in re-arranging alliances and rallying interested groups can provide alternative sources of support throughout the period required by the programme.

Leaders willing to fight for changes and to adapt the model

Many unforeseen problems must be solved in the course of implementing a project (Myers, 1984; Lourié, 1989; Shaeffer, 1990), and project leaders must be prepared to solve them. In some cases external factors can be modified, but if need be the model must be adapted. The implementation of a project of the Escuela Nueva type in a new country may not follow the same pattern of development as in Colombia, but it is as well to be aware of the different types of challenges that the steering group had to cope with in order to succeed. It is worth while reviewing four different strategies adopted by the steering committee: (i) to gradually change the allocation of resources to rural primary education; (ii) to step up the scale of the programme by redefining standard components that teachers could handle after following the example set in a low-cost demonstration school; (iii) to convince new authorities in the Ministry of Education and specialists in international organizations of the merits of the model; (iv) to involve specialists and practitioners from different pressure groups in the assessment and improvement of a model that was continuously in the process of being assembled.

Even if the Escuela Nueva model is not quite as relevant in another social context, there is still an urgent need to raise the quality of education of deprived children. Again and again the basic educational principles can be combined in different ways by dynamic leaders. In the meantime, unless other feasible alternatives are available the Escuela Nueva model might be used together with other strategies to cope with the problems faced by pupils with poor socio-economic backgrounds, and whenever this occurs the experience should be recorded and analysed so as to be eventually adapted and tried out in other countries.

IX. Specific conditions for replication in other countries

Even though many projects are based on sound educational principles and include the 'right' components, very few include those delicate elements of craftmanship that help them eventually to succeed. There are many cases where demonstration schools were implemented, modular textbooks were produced, and a Minister supported the effort, but where advances were meagre (Shaeffer, 1990). Planners must realize that the term replication does not mean mechanical reproduction, but rather adaptive implementation that remains true to the project's core philosophy and central strategies (McLaughlin, 1990). "Reforms which persist over time are those which are understood and believed to be important by teachers and parents in the local school and in which teachers have gained the skills these reforms require" (Tyler, 1990)

There are four essential elements for replication: (i) the innovation must be backed by a solid social consensus on its value, given the long time it takes for an educational innovation to mature; (ii) planners must be prepared to transform social consensus into a constant flow of resources to keep the experience going; (iii) there must be close monitoring of those key aspects in the sequence of activities that may place constraints on the implementation of subsequent aspects; and (iv) the innovation must be adapted to the local context, while retaining its basic rationale.

Key aspects of the introduction of the Escuela Nueva model

The experience acquired in half a dozen countries that are trying to implement adaptations of the Escuela Nueva model, the regional experiments that failed to gain momentum (for example, the Warisata experiment in Bolina; Colonizacion San Lorenzo, Piura, Peru; Cardozo and the Escuela Activa in Paraguay; Carlos Vergara in Argentina; the Consolidadas and the Plan Victoria in Chile; and the many experiments in 'nuclear' rural systems) and international experience (Myers, 1984), show that the adaptation of the Escuela Nueva, as of any other educational innovation, calls for continuous adjustments and at the same time requires some key aspects of the process to be taken into account. Previous chapters have shown some of the difficulties faced in Colombia and the way they were met. They illustrate the need to adjust the model, identify problems as far in advance as possible, check past assumptions, select/attract new partners, revise costs, edit textbooks to improve their contents, establish legitimacy within the bureaucracy or among the regional education authorities, mobilize staff, talk with newspapermen, secure the long-term support of international agencies, and identify extra help to make sure that inputs arrive on time at a crucial stage of the implementation process. There are many interesting lessons to be learned from the Colombian experience, but only the following general comments and warnings are drawn to the attention of planners.

The slow pace at which the model develops requires a social consensus

There are no short cuts to success. Teachers must see and try out the model in demonstration schools, rather than receive only second or third hand explanations of what should be done to implement a new educational model. Demonstration schools take two or three years, at least, to mature, but Ministers of Education stay only one or one and half years in office. Therefore, large-scale replication of a model must be given a fair trial for four or more years in order to be strong enough to continue in spite of changes

in mid-stream. Social consensus expressed in a public agreement, a law, a binding contract with an international agency or the dynamism of an educator or statesman are alternative mechanisms of maintaining funding and political commitment throughout the initial development period (UNESCO, 1989; 1991).

The Escuela Nueva project was straightforward and technically sound; realistic in scope, cost and schedule; based in schools; and it conformed to cultural traditions and bureaucratic norms. There was no need to modify teachers' hiring or firing, the length of the school year, or existing equipment or curricula. The changes occurred mainly in the classroom or at home. Eventually many other things changed and will change, but as a result of a consensus among all the parties concerned, rather than as a requirement of the implementation of the Escuela Nueva. The fact that it fitted in with various aspects of the context may explain the social consensus now supporting the programme (Shaeffer, 1990:14).

Managing all the complementary resources

Many elements must be managed or modified at the right time in order to bring about a desired change. The well-orchestrated handling of many elements requires a good manager to take care of all the necessary concerted operations and schedules. Some elements, such as publicity or lobbying, may be as important as chairs or self-instructional textbooks. Maintaining the momentum of the process can also be critical. It is easy to keep things moving when success breeds further success, but failure in one crucial step may bring the best previous efforts to naught. Management talent is required for increasing the scale under the leadership of an educator; if the latter has no training in management, expert advise should be sought.

When management talent is scarce, the planner should keep implementation activities as simple as possible by targeting on key aspects rather than emphasizing all the dimensions of the education process. Instructions and training at the school level should be extremely precise and careful evaluation of past experience should be used for the formative adaptation of the training units of the

Escuela Nueva model. Voluntary participation in the early stages of implementation is an excellent strategy for working with interested and motivated trainees who are willing to make an extra effort. For the sake of simplicity and efficacy, any non-key element that can raise doubts or uncertainties among the trainees or in public opinion should be eliminated from the project at the outset, otherwise the fluid and often unpredictable character of local institutions will introduce too much variability in implementation (McLaughlin, 1990). There are many subsequent opportunities for making personal instruction more complex or comprehensive, when the key elements have already become familiar and have begun to change the frontal teaching model.

Ensuring that self-instructional textbooks meet high standards of quality

Improving the quality of education with the Escuela Nueva model depends on two key elements: demonstration schools and self-instructional textbooks. Demonstration schools should be monitored with technical assistance from people with Escuela Nueva experience, along the lines described in Part II. Self-instructional textbooks are different from traditional ones, and therefore will be criticized by those 'experts' in curriculum design, subject matter, writing, graphic design, or evaluation who have been producing traditional textbooks. It is always difficult to write textbooks in simple, easily understandable language even at the cost of some precision in their subject matter, and each correction tends to add pages rather than keep the textbook compact. These are dangers that planners must be prepared to overcome through persuasion and negotiation.

Even if in the short run prototype textbooks have been prepared by part-time staff not really expert in modular self-instruction, in the long run some arrangement should be made for the participation of private industry in the production of better self-instructional books. Once private publishers learn the main conditions to be met, (Schiefelbein, 1990) and are able to work with and get feedback

from classroom teachers textbooks will benefit as a result of competition between publishers.

Fitting the Escuela Nueva model into the local context

While the rationale of personalized instruction should be basically the same in any planned innovation, the components, timing, examples, curriculum content and training may differ widely from one case to another. The name of the project should be carefully selected and reflect, if possible, an objective of interest to the population involved. There is a danger, however, in going too far in the adaptation of the model and of distorting key elements of the rationale. For example, textbooks adapted in the Bolivian replication rightly introduced the sequence of subjects contained in the national curriculum. However, the group designing the prototype did not realize that they also eliminated the specific instructions enabling the pupils to participate in richer learning environments by observing, describing, writing, discussing in groups, writing in groups, self-evaluating, improving the outcome of the experience, and finally presenting the final product to the teacher. Adaptation should also be evaluated, in its final version, against the key criteria of the model (Schiefelbein, 1990) with the technical assistance of experienced practitioners.

Even taking contextual factors into account, monitoring and replanning are necessary at all stages (Davis et al, 1980; Shaeffer, 1990:5). For example, there will probably be gaps and mistakes in the implementation strategy. The planned schedules of training seminars, teachers' work with the community and the distribution of self-instructional textbooks and materials may be quite different from what actually happens. Assembling the model requires a degree of creativity and craftmanship, but close follow-up of the process is the real condition for good replication of the Escuela Nueva or any similar innovation.

X. Epilogue: some further demands on the Escuela Nueva

Education is a never-ending process, and planners must be ready to cope with an uncertain future. Now that a workable model is available, the question for the Escuela Nueva is: what next?. Four tasks are mentioned here: (i) further improvement in the basic model; (ii) further expansion of the approach to educational levels preceding or following primary education; (iii) exploration of complementary policies in the education system at large; and (iv) the use of research and information technology for the monitoring and formative evaluation of the Escuela Nueva process.

Further refinement of the Escuela Nueva model

The present version of the Escuela Nueva model can be improved as a result of recent experience in marginal-urban areas and attempts to implement the model in other countries. Self-instructional textbooks can be improved in method, content and typography by using professional expertise. The improvement of textbooks may be measured in terms of the criteria which they must meet, now defined with increasing precision (Schiefelbein, 1990). The model can also be more consistent now that the rationale behind the Escuela Nueva programme is becoming more explicit, and some of the components and activities may evolve or be modified accordingly. Key elements of the model may be highlighted given that videos of the process are now available, and the set of specific learning models used can be improved or expanded in the future (Flechsig; Schiefelbein, 1985). Some key

equipment can be widely distributed to schools, as in the case of computers.

The next step for the Escuela Nueva: application to pre-school or secondary education?

Should the Escuela Nueva model be expanded to cover pre-school and/or secondary education?. Basic phonological, print and word awareness and letter recognition are abilities that should be developed in pre-school education well before first grade (Adams, 1990:374). There is a natural connection between the Escuela Nueva approach and the 'high-scope' cognitive curriculum, but high costs in terms of much lower teacher-pupil ratios and expensive materials make it difficult to implement in developing countries. Nevertheless, the Escuela Nueva model should be combined with some kind of enhanced pre-school and kindergarten programmes to prevent learning problems from developing. Research suggests that early stimulation can prevent learning problems and costly remedial measures (Myers, forthcoming).

Escuela Nueva school-leavers are just beginning to enter Colombian secondary schools. Some experimental secondary schools are doing well, but it is too early to predict results. There are also combinations of the Escuela Nueva approach with other interesting on-going experiments (Arbad et al, 1988). All these efforts are consistent with the idea of placing the ultimate responsibility for learning on the pupil (Ericson and Ellett, 1990). The results of evaluation in the mid-1990s will indicate the feasibility of the large-scale introduction of personalized instruction in secondary schools.

A successful innovation can trigger complementary policies

Many alternative macro-strategies for improving quality can be implemented in conjunction with the Escuela Nueva model. For example, emphasis on reading and writing during the first two grades can be complemented by instituting the 'zero grade' (pre-school education delivered in primary schools to prepare

children for the first grade) and bilingual intercultural education (Cazden et al, 1991; Langer et al,1990; Commins; Miramontes, 1989). It is also time to start thinking about how to relate an experiment like the Escuela Nueva with information technology. Some attempts, for example the DEGEM systems used in Israel, the Integrated Instructional Systems (IIS), already implemented in the USA (Sherry, 1990) and an experiment being conducted in Costa Rica, suggest that computer technology should be included as a powerful tool in innovations aiming to raise the quality of education. Planners must give thought to these developments in the near future (Schiefelbein, 1988).

Further research, testing and information technology

Three areas of the Escuela Nueva experiment deserve additional applied research: reading, writing and testing. There are still wide differences of opinion among reading specialists. Some hold the view that reading skill is divisible, and that aspects of it need direct instruction (Adams, 1990), but those who regard reading as a communicative activity believe that children become skilled readers by interacting with printed messages that allow them to respond to cues from various sources simultaneously. While the debate continues, the Escuela Nueva should select, try out and evaluate existing promising techniques to make it easier for pupils to use self-guiding strategies in learning to read (Cole, 1990).

Research on writing has begun to examine the conditions under which pupils learn by writing, including the reasoning processes that accompany the generation and reformulation of ideas that enable them to understand and remember the material they read. Research results in this area should improve children's ability to read upon which the Escuela Nueva model, and probably any relevant innovation, is built. In the meantime, first grade teachers have to cope with a considerable degree of heterogeneity in their classrooms, but more research should be carried out in order to identify more clearly the children who become candidates for *ad hoc* instructional treatment (Speece; Cooper, 1990).

Achievement tests should be designed in such a way that if schools teach in conformity with them they will be teaching what society believes pupils should know (Goodlad, 1990). By designing achievement tests that more closely meet the criterion of pupils' conceptual understanding (cognitive fidelity) and their ability to apply their knowledge to new situations (process relevance) schools will have a tool for accurate reporting and still benefit the education system (Shavelson et al, 1990). Schools may possibly be provided with computer-adaptive tests in which a pupil's performance on one item determines the next item presented on the screen (Freinet, 1964:136). A diagnostic module goes back, domain by domain, and examines what types of skills pupils seem to lack. The results are displayed on the screen at the end of the test and the diagnosis is made available only to the teacher. The test determines the type of error the pupil is making. However valuable they may be, test data reveal little about pupils and teachers must finally rely on their professional judgement (Duckett, 1990). Consequently the teachers' learning opportunities provided by the day-to-day Escuela Nueva process should be complemented with better interaction techniques in the microcentres, so that the new advisory-monitoring-evaluating role of the teacher may become more effective. Eventually teachers should become organizers of learning situations and managers of learning resources in order that a balance may be achieved between their role and that of information technology.

Bibliography

Adams, M. J. 1990. *Beginning to read: thinking and learning about print.* Bradford Books/MIT Press, Cambridge, Mass.

Alonso, L.A. 1988. *La cohorte etarea: una vía alternativa para el estudio de la eficiencia interna en educación.* División de Estadísticas y Sistemas, Ministerio de Educación Nacional, Bogota.

Anrig, G. 1991. *Press release of the President of the Educational Testing Service, Princeton.* The Miami Herald, May 30, 1991.

Arbad, F.; Gutierrez, E; de Valcárcel, F. 1988. *El sistema de aprendizaje tutorial de FUNDAEC: SAT.* CELATERR-FUNDAEC, Cali.

Apezechea, H.; Pérez, B.; Coronel, H.; Ancheta, A. 1987. *Repetición escolar: investigación participativa en el interior.* Punto 21, Revista de Educación, No. 43, CIEP, Montevideo (see also No. 42, February 1988).

Assael, J., et al. 1989. *Alumnos, padres y maestros: la representación de la escuela.* PIIE, Universidad de Humanismo Cristiano, Santiago, Chile.

Ashton, P. 1985. *Motivation and the teacher's sense of efficacy,* in Ames, C.; Ames, R. (eds.): Research on motivation in education, Academic Press, Orlando, Florida.

Becher, R. M. 1984. *Parental involvement: a review of research and principles of successful practice.* National Institute of Education, Washington D.C.

Britton, J. 1982. *Prospect and retrospect: selected essays.* Boynton/Cook, Upper Monclair, New Jersey.

Brophy, J.; Alleman, J. 1991. *Activities as instructional tools: a framework for analysis and evaluation.* Educational Researcher, Vol. 20, No. 4.

Castillo, G. 1987. *La calidad de la educación en la escuela.* CPEIP, Ministerio de Educación, Chile.

Castro, E. 1991. *La formación docente en América Latina.* UNESCO/OREALC, Santiago, Chile.

Cabezón, E. 1984. *The effects of marked changes in student achievement pattern on the students, their teachers, and their parents: the Chilean case.* Thesis, University of Chicago.

Cazden, C.B.; Snow, C.; Heise-Baigorria, C. 1991. *Language planning in preschool education.* The Co-ordinators' Notebook, No. 9.

CEPAL. 1991. *Qué aprenden y quienes aprenden en las escuelas uruguayas.* Montevideo.

Chadwick, C.B. 1988. *Estrategias cognoscitivas y afectivas de aprendizaje* Revista Latinoamericana de Psicología, Vol. 20, No. 2, pp 163-205.

Chall, J. S. 1967. *Learning to read: the great debate.* McGraw Hill, New York.

Chile, Ministerio de Educación 1967. *Organización y funcionamiento de la escuela completa.* Cuadernos de la Superintendecia, No. 11, Santiago, Chile.

Cohen, E. 1990. *Continuing to co-operate: prerequisites for persistence.* Kappan, Vol. 72, No. 2, pp. 134-138.

Collis, B. 1988. *Computers, curriculum and whole-class instruction.* Wadsworth, Belmont, California.

Colbert de Arboleda, V. 1979. *Transferencia de tecnología educativa en Colombia.* Colciencias-OAS-Ministerio de Educación, Bogota

Colbert de Arboleda, V. 1987. *Universalización de la primaria en Colombia. El programa de Escuela Nueva.* La Educación Rural en Colombia, FES, Bogota.

Colbert de Arboleda, V.; Arboleda, J. 1990. *Universalization of primary education in Colombia. The New School Programme.* Notes, Comments, ... No. 191, UNESCO-UNICEF-WFP Co-operative Programme, Paris.

Colbert de Arboleda, V.; Mogollón, O. 1977. *Hacia la Escuela Nueva.* Ministerio de Educación Nacional, Bogota (7th edition).

Colbert de Arboleda, V.; Chiappe, C; Arboleda, J. 1990. *The New School Programme. More and better primary education for children in rural areas.* Ministry of Education-UNICEF, Bogota.

Cole, N. 1990. *Conceptions of educational achievement.* Educational Researcher, Vol.19, No. 3.

Colombia. Ministry of Education. 1988. *Análisis del sector educativo, con énfasis en sus aspectos administrativos y financieros.* Bogota.

Colombia. Ministerio de Educación. 1990. *Programa Escuela Nueva. Los Microcentros Rurales.*

Colombia-UNICEF. 1990. *The New School Programme. More and better primary education for children in rural areas.* Ministry of Education, Bogota.

Colombia-UNICEF. 1990. *Programa Escuela Nueva, La recuperación cultural y los agentes educativos.* Ministerio de Educación - Museo de Artes y Tradiciones Populares – UNICEF, Bogota.

Colombia-UNICEF. 1990. *La supervivencia y el desarollo infantil para maestros de Escuela Nueva.* Ministerio de Educación – UNICEF, Bogota.

Commins, N.; Miramontes, O. 1989. *Perceived and actual linguistic competence: a descriptive study of four low-achieving Hispanic bilingual students.* American Educational Research Journal, Vol. 26, No. 4, pp. 443-472.

Covarrubias, A. 1968. *Los avances de la escuela primaria completa en el medio rural,* Boletín de Educacion, No. 4, OREALC, Santiago, pp. 30-39.

Covarrubias, A. *1969. Seminario de Sao Paulo. Hechos e Ideas.* Boletín de Educación OREALC, No. 5, pp. 31-37.

CPEIP. 1984. *Resultados por estructuras en la asignatura de matemática del 4o año de enseñanza básica en 1982.* Serie Estudios No. 120, July.

CPEIP. 1985. *Analisis de los resultados del PER 1982 y 1983 en la prueba de castellano, 4o año básico, obtenidos por alumnos de tres estructuras.* Serie Estudios, No. 148.

Crowder, W. 1990. *Gansu, Progress towards 9-year compulsory education* (draft). UNICEF, Beijing, China.

CTG (Cognition and Technology Group, Vanderbilt). 1990. *Anchored instruction and its relationship to situated cognition.* Educational Researcher, Vol. 19, No. 5.

Cuadra, E; Ewert, G. 1987. *Comparison of school records with parent's information on enrolment, repetition and dropout: a field study in Honduras.* Project Bridges, Harvard University.

Davis, R.G.; Hudson, B.; Lewis, G.; Schiefelbein, E.;. Zodhiates, P. 198O. *Planning education for development. Volume II.* Center for Studies in Education and Development, School of Education (CSED), Harvard University.

Dewey, J. 1910. *How we think.* Heath, Boston.

Dillon, B.; Swartz, J. P.; Millsap, M. A. 1991. *Working with families: promising programs to help parents support young children's learning.* Equity and Choice, Vol. 7, Nos. 2 and 3, pp. 97-107.

Dottrens, R. 1949. *L'enseignement individualisé.* Delachaux et Nestle, Neuchatel, Switzerland.

Duckett, W. 1990. *When average isn't good enough. An interview with Joy Frechtling.* Kappan, Vol. 71, No. 8, p. 640.

Durst, R.; Newell, G. 1989. *The uses of function: James Britton's category system and research on writing.* Review of Educational Research, Vol. 59, No. 4, pp. 375-394.

ECLAC. 1990. *Transformación productiva con equidad.* Santiago, Chile.

Edwards, J. 1991. *To teach responsibility, bring back the Dalton Plan.* Kappan, Vol. 72, No. 5, pp. 398-401.

Elam, S. M. 1990. *The 22nd annual Gallup Poll of public attitudes towards public schools.* Kappan, Vol. 72, No. 1, p. 48.

Ericson, D.; Ellett, F., Jr. 1990. *Taking student responsibility seriously.* Educational Researcher, Vol. 19, No. 9.

Espinola, V. 1990. *Evaluación del sistema de mercado como estrategia para mejorar la calidad de la enseñanza básica subvencionada.* Documento de Discusion del CIDE, No. 5, p. 42, Santiago, Chile.

Filp, J. 1988. *El primer año de escuela en Chile.* Documento de Trabajo del CIDE, Santiago, Chile.

Filp, J.; Cardemil C. *et al.* 1987. *Control social, disciplina y cambio: estudio de las prácticas pedagógicas en una escuela basica popular.* Documento de Trabajo del CIDE, Santiago, Chile.

Finn, C. E. 1990. *The biggest reform of all.* Kappan, Vol. 71, No. 8.

Flechsig K. H.; Schiefelbein E. 1985. *Catálogo de modelos didácticos versión 1985-1986.* Documentos de Trabajo No. 4, CIDE, Santiago, Chile.

Freinet, C. 1969. *Técnicas Freinet de la escuela moderna.* Siglo XXI, Mexico.

Fortune. *If you think education is expensive, try ignorance.* New York Times, October 25, 1988, p. A32.

Garner, R. 1990. *When children and adults do not use learning strategies: towards a theory of settings.* Review of Educational Research, Vol. 60, No. 4, pp. 517-529.

Good, T.; Grouws, D.; Mason, DeWayne; Slavings, R.; Cramer, K. 1990. *An observational study of small-group mathematics instruction in elementary schools.* American Educational Research Journal, Vol. 27, No. 4, p. 777.

Goodlad, J. 199O. *Teachers of our nation's schools.* Jossey-Bass, San Francisco.

Heyneman, S.; Jamison, D; Montenegro, X. 1984. *Textbooks in the Philippines. Evaluation of the pedagogical impact of a nationwide investment.* Educational Evaluation and Policy Analysis, Vol. 6, No. 2.

Herbart, J. F. 1910. *Pedagogía general, 2nd ed.* Ediciones de la Lectura, Madrid.

Hernández R. 1961. *Santiago, la escuela unitaria completa.* UNESCO, La Habana, p. 160.

Heuston, D. 1986. *The future of education.* WICAT systems, OREN, Utah.

Hidi, S. 1990. *Interest and its contribution as a mental resource for learning.* Review of Educational Research, Vol. 60, No. 4, pp. 549-571.

Hoy, W.; Woolfolk, A. 1990. *Socialization of student teachers.* American Educational Research Journal, Vol. 27, No. 2, pp. 279-300.

Huot, B. 1990. *The literature of direct writing assessment: major concerns and prevailing trends.* Review of Educational Research, Vol. 60, No. 2, pp. 237-263.

Iran-Nejad, A.; McKeachie, W.; Berliner, D. 1990. *The multisource nature of learning: an introduction.* Review of Educational Research, Vol. 60, No. 4, p. 511.

Irvin, Glen. 1990. *Collaborative teacher education.* Kappan, Vol. 71, No. 8, p. 623.

King, N.; Ollendick, T. 1989. *Children's anxiety and phobic disorders in school settings: classification, assessment, and intervention issues.* Review of Educational Research, Vol. 59, No. 4, pp. 431-470.

Knapp, Michael; Shields, Patrick M. 1990. *Reconceiving academic instruction for the children of poverty.* Kappan, Vol. 71, No. 10, p. 753.

Kohn, A. 1991. *Caring kids.* Kappan, Vol. 72, No. 7, pp. 496-506.

Kulic, C.; Kulic, J; Bangert-Drowns, R. 1990. *Effectiveness of mastery learning programs: a meta-analysis.* Review of Educational Research, Vol. 60, No. 2, pp. 265-299.

Langer, J.; Bartolome, L.; Vásquez, O.; Lucas, T. 1990. *Meaning construction in school literacy tasks: a study of bilingual students.* American Educational Research Journal, Vol. 27, No. 3, p. 465.

Levin, H. 1989. *Accelerated schools: a new strategy for at-risk students.* Accelerated Schools Project, Stanford University.

Levin, H.; Rumberger, R.W. 1989. *Education, work and employment.* Prospects, Vol. 19, No.2.

Lieberman, A.; Miller, L. 1990. *Restructuring schools: what matters and what works.* Kappan, Vol. 71, No. 10, p. 761.

Lockheed, M.; Hanushek, E. 1988. *Improving efficiency in developing countries: what do we know.* Compare, Vol. 18, No. 1, pp. 21-38 (World Bank Reprint series, No. 435).

Lopez, G. 1988. *The organization of teachers' practices embedded in Chilean cultural forms.* Thesis, University of Toronto.

Mamchur, C. 1990. *But ... the curriculum.* Kappan, Vol. 71, No. 8, p. 636.

Losada, R. 1983. *Estudio de los maestros oficiales de primaria frente al mundo pólitico.* Revista Colombiana de Educacion, No. 11, CIUP, Universidad Pedagógica Nacional.

Lourié, S. 1989. *Education and development: strategies and decisions in Central America.* Trentham Books-UNESCO, p. 202.

Makarenko, A. 1970. *Poema Pedagógico, 6th edition.* Editorial Progreso, Moscú, USSR.

McAllister, S. 1991. *How can we crack the 'achievement barrier' in urban schools*? Equity and Choice, Vol. 7, Nos. 2 and 3, pp. 58-64.

McGinn, N. 1991. "Foreword", in John Schwille et al: *Is grade repetition always wasteful? New data and unanswered questions.* Bridges Research Report Series, No. 7, Harvard University.

McGinn, N.; del Carmen Soto, M.; López, S.; Loera, A.; Cassidy, T.; Schiefelbein, E.; Reimers, F. 1991. *Attendance and learning or repetition and dropout.* Bridges, Harvard University.

McKeown, M.; Beck, I. 1990. *The assessment and characterization of young learners' knowledge of a topic in history.* American Educational Research Journal, Vol. 27, No. 4, p. 721.

McLaughlin, M. W. 1987. *Learning from experience: lessons from policy implementation.* Educational Evaluation and Policy Analysis, No. 9, pp. 171-178.

McLaughlin, M. W. 1990. *The Rand change agent study revisited.* Educational Researcher, Vol. 19, No. 9.

McLaughlin, M. W.; Talbert, J. 1990. *Constructing a personalized school environment.* Kappan, Vol. 72, No. 3, pp. 230-235.

Mogollón, O. 1986. *El microcentro y el proceso de educación permanente en Escuela Nueva.* Ministerio de Educación, Bogota.

Mogollón, O. 1990. *Programa Escuela Nueva, los microcentros rurales.* Ministerio de Educacion, Bogota.

Montessori, M. 1909. *El metodo de la pedagogia cientifica (3 edición, 1937).* Ediciones Araluce, Barcelona.

Myers, R. G. 1984. *Going to scale.* UNICEF, New York.

Myers, Robert G. (forthcoming). *The twelve who survive.* Routledge, London.

Ornstein, R.; Erhlich, P. 1989. *New world, new mind.* Doubleday.

Otaala, B.; Myers, R. 1988. *Children caring children; new applications of an old idea.* The consultative group on early childhood care and development, New York.

Parkhurst, H. 1922. *Education on the Dalton Plan.* Dutton, New York.

Pérez, C. A. 1990. *Discurso* pronunciado por el Presidente de Venezuela en el acto de instalacion de la III Conferencia General de la Academia de Ciencias del Tercer Mundo, Caracas.

Pestalozzi, J. H. 1801. *Cómo Gertrudis enseña a sus hijos (3a edition, 1965).* Fernández Editores, Mexico.

Psacharopoulos, G.; Velez, E. 1991. *Education quality and labor market outcomes: evidence from Colombia.* The World Bank, LATHR, draft.

Repossi, A.; Araneda, J. et al. 1990. *Nivel de comprension lectora en escolares rurales de la Comuna de Valdivia y algunos factores condicionantes.* Estudios Pedagogicos, No. 15, pp. 43-56.

Richardson, V. 1990. *Significant and worthwhile change in teaching practice.* Educational Researcher, Vol. 19, No. 7.

Rodríguez, J. 1982. *El logro en matemáticas y lenguaje en la educación primaria en Colombia.* Instituto SER de Investigaciones, Bogota, pp. 267-268.

Rodríguez, N. 1990. *La educación básica en Venezuela.* Escuela de Educación, Universidad Central, Caracas.

Rojas, C.; Castillo, Z. 1988. *Evaluación del programa Escuela Nueva en Colombia.* Instituto SER de Investigaciones, Bogota.

Shaeffer, S. 1990. *Educational change in Indonesia: a case study of three innovations.* IDRC-MR270e, Ottawa.

Schiefelbein, E. 1975a. *Repeating: an overlooked problem in Latin American education.* Comparative Education Review, Vol. 19, No. 3.

Schiefelbein, E. 1975b. *The politics of national planning: the Chilean case.* Educational Planning, Vol. 1. No. 3.

Schiefelbein, E. 1988. *Seven strategies for improving the quality and efficiency of the educational system.* Bulletin of the Major Project No. 16, OREALC.

Schiefelbein, E. 1989. *Repetition, the constraint for reaching universal primary education in Latin America.* Bulletin of the Major Project No. 18, OREALC.

Schiefelbein, E. 1990. *Criterios para evaluar propuestas de cambio curricular en educación básica.* Estudios Pedagógicos, No. 16, Universidad Austral, Valdivia.

Schiefelbein, E. (in press). *Efficiency and quality of Latin American Education.* OREALC-World Bank, LATHR, Washington D.C.

Schiefelbein, E. 1991b. *The LAC region. Access, repetition and efficiency in primary education.* OREALC-World Bank, LATHR, Washington D.C.

Schiefelbein, E.; Farrell, J. P. 1982. *Eight years of their lives: through schooling to the labour market in Chile.* IDRC, Ottawa, p. 207.

Schiefelbein, E.; Tedesco, J.C. et al. 1989. *Primary schooling and illiteracy in LAC: 1980-1987.* Bulletin of the Major Project, No. 20.

Shavelson, R.J.; Carey, N.B.; Webb, N.M. 1990. *Indicators of science achievement: options for a powerful policy instrument.* Kappan, Vol. 71, No. 9, pp. 692-697.

Sherry, M. 1990. *Implementing an integrated instructional system: critical issues.* Kappan, Vol. 72, No. 2, pp. 118-120.

Slavin, R.E. 1985. *Team-assisted individualization: a co-operative learning solution for adaptive instruction in mathematics.* In Wang and Walberg (eds): *Adapting instruction to individual differences.* McCutcchan, Berkeley.

Slavin, R. E. 1986. *Using student team learning.* (3rd edition). The Johns Hopkins University, p 109.

Slavin, R.E. 1990. *IBM's writing to read: is it right for reading?* Kappan, Vol. 72, No. 3, pp. 214-216.

Slavin, R.; Madden, N.; Stevens, R. 1989. *Co-operative learning models for the 3 R's.* Educational Leadership.

Slavin, R.; Madden, N.; Karweit, N.; Livermon, B.; Dolan, L. 1990. *Success for all: first-year outcomes of a comprehensive plan for reforming urban education.* American Educational Research Journal, Vol. 27, No. 2, pp 255-278.

Somerset, H.C.A. 1988. *Child to child: a questionnaire review and studies of projects in three countries.* London University Institute of Child Health and Education.

Speece, D.; Cooper, D. 1990. *Ontogeny of school failure: classification of first grade children.* American Educational Research Journal, Vol. 27, No. 1, pp. 119-140.

Strother, D. 1990. *Co-operative learning: fad or foundation for learning?* Kappan, Vol 72, No. 2, pp. 158-162.

Subirats, J.; Nogales, I.; Gottret, G. 1991. *Evaluación del Programa Escuelas Multigrado.* CEBIAE, La Paz.

Swengel, E. 1991. *Cutting education's Gordian Knot.* Kappan, Vol. 72, No. 9, pp. 704-710.

Taylor, B.; Frye, B.; Maruyama, G. 1990. *Time spent reading and reading growth.* American Educational Research Journal, Vol. 27, No. 2, pp. 351-362.

The Holmes Group. 1990. *Tomorrow's schools: principles for the design of professional development.* East Lansing, Michigan.

Toro, J.B.. 1988. *Primero mi Primaria. Para triunfar.* Fundación Social, Bogota.

Tanner, D.; Tanner, L. 1989. *History of the school curriculum.* MacMillan.

Tyler, R. 1990. *Prominent educators discuss education change in the next decade.* NN&Q, Phi Delta Kappa, Vol. 34, No. 3, p. 24.

UNESCO 1989. *Third meeting of the Regional Committee of the Major Project in the Field of Education.* PROMEDLAC III, Bulletin 19, OREALC, Santiago, Chile.

UNESCO 1991. *The major project in the field of education. The Quito Declaration.* Bulletin 24, OREALC, Santiago, Chile.

Vásquez, L. N. 1984. *La evaluacion realizada sobre el Programa Escuela Nueva.* Ministerio de Educacion Nacional, Bogota, Colombia.

Vera, C.; Parra, F. 1990. *Microcentros y formación docente.* Boletín del PPE, No. 22, OREALC, pp.54-65.

Vial, M. L. 1990. *Desarrollo y resultados de una experiencia educaconal no-convencional.* CPU, Documento de Trabajo No. 47-90, Santiago, Chile.

Watson, B.; Konicek, R. 1990. *Teaching for conceptual change: confronting children's experience.* Kappan, Vol. 71, No. 9, p. 681.

The International Institute for Educational Planning

The International Institute for Educational Planning (IIEP) is an international centre for advanced training and research in the field of educational planning. It was established by UNESCO in 1963 and is financed by UNESCO and by voluntary contributions from Member States. In recent years the following Member States have provided voluntary contributions to the Institute: Belgium, Canada, Denmark, Finland, Iceland, India, Ireland, Norway, Sweden, Switzerland and Venezuela.

The Institute's aim is to contribute to the development of education throughout the world, by expanding both knowledge and the supply of competent professionals in the field of educational planning. In this endeavour the Institute co-operates with interested training and research organizations in Member States. The Governing Board of the IIEP, which approves the Institute's programme and budget, consists of eight elected members and four members designated by the United Nations Organization and certain of its specialized agencies and institutes.

Inquiries about the Institute should be addressed to:
The Office of the Director, International Institute for Educational Planning, 7-9 rue Eugène-Delacroix, 75116 Paris, France.

IIEP publications and documents

More than 650 titles on all aspects of educational planning have been published by the International Institute for Educational Planning. A comprehensive catalogue, giving details of their availability, includes research reports, case studies, seminar documents, training materials, occasional papers and reference books in the following subject categories:

Economics of education, costs and financing.

Manpower and employment.

Demographic studies.

The location of schools (school map) and sub-national planning.

Administration and management.

Curriculum development and evaluation.

Educational technology.

Primary, secondary and higher education.

Vocational and technical education.

Non-formal, out-of-school, adult and rural education.

Copies of the catalogue may be obtained from the IIEP Publications Unit on request.

The booklet

The quality of education is poor in Latin American countries as indicated by the high repetition rates and the low scores obtained for reading tests on international achievement studies. This is especially so for the rural and marginal-urban schools. Numerous attempts have been made to improve the quality but most of them have failed when going to scale. The typical school with teachers instructing average pupils faces a variety of problems which create barriers to the provision of the high-quality education required for economic and social development. Thus a new type of school and a new teaching model is required.

An extensive review of evaluation reports on educational experiments and 20 years of visiting schools in most Latin American countries suggests that the Escuela Nueva (the 'New School') is one of the most promising prototypes capable of adapting in other countries of the region. Its rationale is to blend conceptually sound and valid educational theory with a set of operational learning models and present it in a 'kit' form which can be assembled so as to deliver active instruction. The 'glue' holding these techniques together is found in the demonstration schools and in the self-formative textbooks. Since its inception as a pilot project 15 years ago, the Escuela Nueva 'kit' is now being successfully used in about half of the 40,000 Colombian rural schools. This book analyzes the operation of the programme, sending both encouraging messages and warnings to planners looking for alternative strategies to raise educational quality.

The author

Ernesto Schiefelbein is an economist in the UNESCO Regional Office for Education in Latin America and the Caribbean (OREALC), Santiago. He has also worked at the World Bank in Washington, D.C., and at the *Centro de Investigación y Desarrollo de la Educación (CIDE)* in Chile where he was the Co-ordinator of the Latin American Educational Research Exchange Network (REDUC). He was also Head of the Chilean Educational Planning Office during the 1965-70 period. He is the author of numerous publications, including *Eight years of their lives* (1982), and *The state of education in Latin American countries* (1990).

ISBN 92-803-1143-3