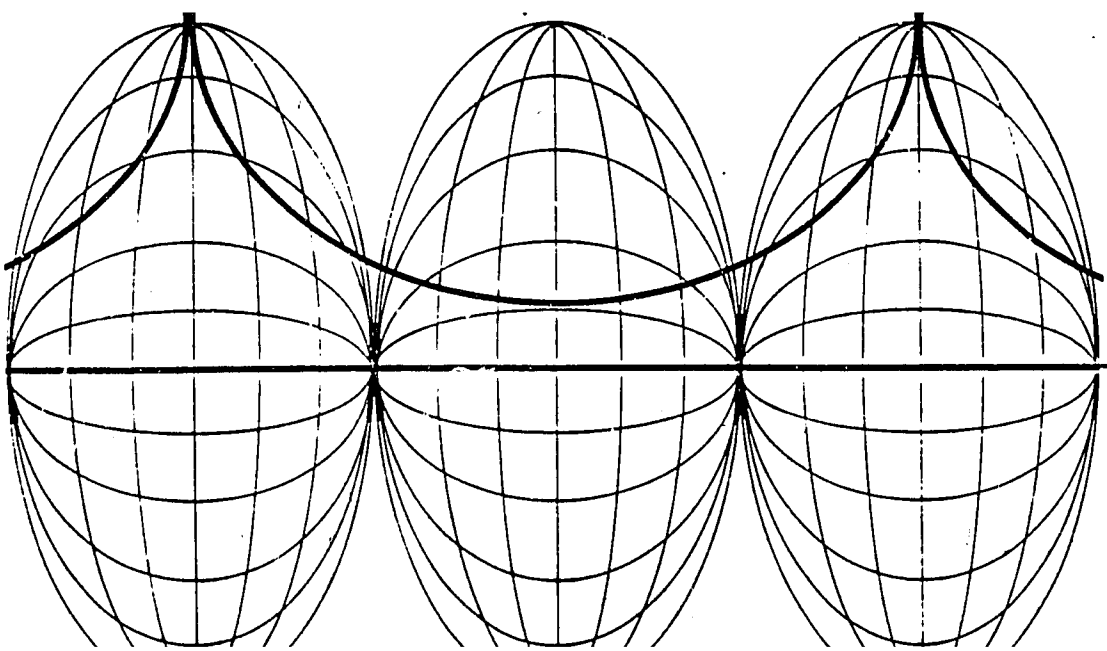

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in DevelopinG Education Systems

CASUAL PAPERS

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EFFECTIVE CLASSROOM PRACTICES IN PRIMARY SCHOOLS OF PAKISTAN

by Andrea B. Rugh

Harvard University, BRIDGES Project

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Preliminary draft for discussion only. Data are being cleaned and final figures are likely to change. June 28,1989.

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June 28,1989.

EFFECTIVE CLASSROOM PRACTICES IN PRIMARY SCHOOLS OF PAKISTAN

by Andrea B. Rugh

Research in the United States and developing countries over the last two decades has shown the importance of teaching practices in instruction.[1] Most studies agree that the effectiveness of pedagogical style varies so widely from place to place that no single pedagogy can be taken as a definitive model for policy.

The purpose of the classroom practices study is to identify the elements--resources and instructional behaviors, which contribute to learning in Pakistani schools. The objective is to describe current practices and conditions, and to identify those practices which seem to produce increased academic achievement under presently existing conditions. The following report provides preliminary findings of the study. It describes the instructional practices of a sample of effective teachers[2] including, in a separate section, the way effective teachers utilize instructional time. When the report is complete it will also include sections describing the attributes and attitudes of effective teachers and a section on the resource environment--in schools and classrooms-- where effective teachers work. The aim is to identify those characteristics of effective schools, which when compared with those where less effective teachers teach, provide clues to what may be useful resource requirements of the instructional context. Altogether the full report will form a nested set, in rough order of specificity, from the attributes of teachers, through their methods and performance in the classroom to, finally, the context of the classrooms and schools in which they work.

Background

In recent decades, many developing countries have experienced a similar history with education programs. A late start in trying to universalize educational opportunities and a rapidly expanding

school age population causes authorities to commit the major part of educational resources to expanding and staffing physical facilities. With strong pressures to expand, there is a reluctance to engage in major improvements in the quality of programs. Contributing to this reluctance is the lack of certainty about what interventions are likely to improve quality. Eventually and almost inevitably, with the strains of expansion, the quality of programs deteriorates until improvements of some kind become crucial if children are to be kept long enough in school to consolidate the gains of expanded opportunities.

Pakistan has been experiencing these problems for some time. According to the latest 1981 census, Pakistan's literacy rate of those 10 years and above was 26 percent. At that time there were 13.41 million children in the age range 5 to 9, and another several million age 10. In 1984-85, 7 million students were enrolled in 82,550 primary schools in Pakistan. The gross participation rate for boys, ages 5 to 9 in grades 1-5 was estimated officially at about 79 percent and the respective rate for girls was 42 percent.

Pakistan has had difficulty keeping up with the rapidly increasing demand for education. Though overall proportions of relevant age children enrolling in school have been maintained in the last 20 years (2 percent increase between 1965-1984 according to the World Bank Development Report 1987), with an annual average growth rate in population of 3.1 over the period, the absolute number of out-of-school children has increased. Boys' rates of school age children enrolled in primary school during the period declined from 59 to 54 percent, while girls' rates increased from 20 to 29 percent. The major part of the current education budget is now spent on the recurrent costs of the system with little left over to expand further or to invest in major improvements of the program.

Compounding the problem is the fact that dropout rates remain persistently high, especially for rural children and females. In 1983-84, dropout rates for primary school children ranged from a low of 18 percent in Punjab for males in urban areas, to a high of 93 percent for females in Baluchistan. In 1985 only about a third of five year old rural girls (940,000) were in school, and only about half of those who entered school were expected to finish the fifth grade. By age 12, only about 4 percent of rural girls are still in school.

Almost every education planning document since 1947 has noted the serious problem of dropouts. The Commission on National Education in 1959 implied that the problem might be solved if education were to be made compulsory up to grade 5 by 1969. The 1970 New Education Policy document similarly expressed alarm at the high dropout rates. That document called for more attractive schools to motivate children to remain in school. A 1972

document called for revision of curricula and texts, and a 1979 document called for a number of efforts including improved facilities, better supervision and new ways of recruiting teachers to reduce the high dropout rates. All the five year plans since 1960 have called for qualitative improvements in the education program, sometimes stressing the quality of the school environment, at other times emphasizing instructional materials, teacher training, or supervision.

The World Bank in its Education Sector Strategy Report concludes that given the current rate of wastage in the Pakistani primary system, future measures which keep children in school will be as important as measures to draw more children into the school system if literacy levels are to be increased substantially. No matter how large the infusion of funds in the near future from increased GOP and foreign donor contributions, it will be inevitable in the future that economies and efficiencies will have to be made in the way funds are currently used.

Though there are major difficulties in determining what precise interventions are likely to lead to improvements in program quality, the task is not impossible. There are a limited number of inputs which a government can provide to improve program quality. The four most important are minimally required facilities, trained competent staff, appropriate instructional materials, and sufficient and well-utilized instructional time. When these components are well-developed and articulate well, the likelihood that the quality of teaching/learning will improve is increased. When they are poorly developed and do not articulate well, then instructional quality is likely to suffer. The following sections describe some of these crucial components in a sample of Pakistani schools.

Section 1: Instructional Practices

The section below summarizes the findings concerning instructional practices in classrooms. It describes the differences in instructional practice between a sample of effective and less effective teachers as measured by researcher-administered academic achievement tests. The assumption of this analysis is that characteristics which are present to greater degree in the effective sample may prove supportive of increased academic performance if replicated in other similar environments.

The first section of the paper asks the following questions:

- What are the main instructional practices used by teachers in fourth and fifth grade classrooms?

- Which practices may be considered potentially "effective," because they distinguish, by their greater frequency between

a sample of effective and less effective teachers?

o To what extent do these effective practices emulate explicit teaching practices found over a decade of research to increase learning in other national contexts?

The body of this paper describes the practices used by teachers of the effective and less effective samples. The conclusions at the end of the section summarize the findings in a form which answers the questions posed above.

The unit of analysis for this section is an observation of a classroom lesson in any one of three subject matters: Urdu, math or science. Observations were conducted in fourth and fifth grade classrooms on the second and third day of visits to the sample schools. Altogether there were 264 valid observations.

Researchers administered math, science and Urdu tests , and teachers were divided into more effective and less effective samples on the basis of the average class scores from these tests. These samples superceded original selection criteria based on supervisor rankings of teachers.

Table 1 shows the distribution of lesson observations by subject and effectiveness criteria and the average achievement score in each sub-sample. A small number of observations were made in schools where Sindi was the medium of instruction; the achievement scores reflected in the table are for Urdu, which the children study as a second language. Findings are not reported for the Sindi medium teachers because their numbers are too small to draw meaningful conclusions.

Table 1: Sample and Achievement Scores

CATEGORY	SAMPLES							
	URDU		MATH		SCIENCE		URDU/SINDI	
	EFF.	LE	EFF.	LE	EFF.	LE	EFF.	LE
No. of cases	48	48	48	58	24	27	4	7
Achievement scores (mean %)	52	25	30	14	40	22	28*	13*

*Note: The score represented here is for Urdu achievement; in the schools where these classes are located the medium of instruction is Sindi and Urdu is taught as a separate language.

In most cases, the mean percent in the achievement tests of the more effective samples was double or more that of the less effective samples. Since there were few major differences in resource levels or background characteristics of students in both samples, it must be assumed that the scores serve as a measure of teacher performance. Overall the scores were low in most

classes, however, and to speak of "effective" teachers is only possible when implying a comparative position. It should be assumed when the term "effective" is used, that the implicit meaning is "in comparison with a less effective group."

An important difference between the two samples which emerged from the classroom observations is in the incidence of single and multi-grade classes. Effective performance in all subjects was much more likely to occur in single grade classrooms. Table 2 shows this phenomenon. All other conditions being similar, each grade and each individual child in multi-grade classes receives less instructional time than in classes where a teacher can concentrate on a single grade level. In a richer schooling environment, supplementary instructional materials, designed for such a situation, might compensate for the lack of teacher attention. In Pakistan, however, textbooks carry little explanation on how to solve a mathematical problem or how to understand the meaning of terms, and therefore instruction becomes highly dependent on teachers to interpret texts. When the teacher is unable to devote as much time to whole group, or individual instruction, then it is likely that the learning suffers.

Table 2: The Incidence of Single and Multigrade Classes

CATEGORY	SAMPLES							
	URDU		MATH		SCIENCE		URDU/SINDI	
	EFF.	LE	EFF.	LE	EFF.	LE	EFF.	LE
Single grade classes(mean%)*	80	67	78	61	81	67	50	17

* Based on 260 valid observations.

Findings below about instructional practices are aggregated under the following general headings[3]:

- o review
- o preliminary statements
- o presentation
- o guided practice
- o independent practice
- o homework
- o teacher/student interaction

Overall, the more effective teachers consistently exhibited a greater tendency than the less effective teachers to employ the six instructional strategies listed above.[4] The more effective teachers, however. did not necessarily spend more time on these individual practices (see below on instructional time), since overall they tended to use a greater variety of practices.

1. Review

Two kinds of activity may precede the main activities of the lesson: review of previous content material, and preliminaries which focus the attention of students on what is to come. Researchers were asked to look for both during the lesson.

In general it was consistently more likely in all subjects for the more effective teachers to engage in some kind of review. Of those teachers using review in both samples, the majority reviewed the previous day's lesson. In Urdu for example the teacher often would ask the students, one after another, to recite from memory the passages they studied on the previous day, or read again from those same passages before turning to the new material. A number of teachers returned to previous work during the observations, possibly in some cases to impress the observers with how well children could do some earlier well-learned lesson. If a teacher carried out this kind of full period review, researchers noted it on the protocols and then proceeded with the rest of the observation to describe, if appropriate, the review activities as though they were standard lessons, starting with preliminaries, continuing to presentation, guided practice, etc. Few teachers spent time at the beginning of the lesson specifically reviewing homework assignments.

If the differences between the more effective and less effective samples can be considered significant, review appears to be more important in math and science. This may be the case because new material in these subjects is more tightly bound to previously acquired concepts. In both, a review of the previous lesson is roughly equivalent in most cases to studying the prerequisites for the lesson to come. Urdu, on the other hand, is an incremental process that builds up over time and any body of content is not so likely to depend on a limited set of concepts. The nature of the achievement tests which require general abilities in Urdu and specific content knowledge in science probably contributes to this effect.

Table 3: Use of Review in Instruction

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Use of review*	46	42	57	29	79	48
Length of review**						
short review bef. lesson	62	50	60	39	59	55
old material dur. entire less.	33	44	36	61	24	36
other	5	6	4	0	18	9

Kind of review

Homework	9	16	22	11	12	8
Prev.Lesson	50	84	70	68	67	42
Prev.Work	42	21	33	37	28	50

*Entire sample **Portion of the sample using review
Note:Columns may add up to more than 100 because of multiple answers.

2.Preliminaries.

Preliminaries, or in more sophisticated form, "advance organizers," can help focus students' attention on what will be learned during the lesson. Preliminaries can vary from simple indications of a location in the text where a lesson can be found to a set of specific objectives which the lesson is intended to accomplish.

The researchers observed whether teachers preceded their presentation of the lesson with any kind of preliminary statements. The large majority in both samples did. Table 4 summarizes the observations concerning preliminaries.

The two samples were exactly the same in the extent to which they started Urdu and math lessons with some kind of preliminaries, but in science the more effective teachers were more likely to use preliminaries than the less effective teachers. If it is assumed that a preliminary which simply asks the children to turn to a certain page or lesson in the book has little value in terms of learning, then those preliminaries used most frequently in science by the less effective teachers have little learning value. The second type of preliminary which simply states the topic or title of the lesson also may have only marginal value in learning. The preferred option where "a teacher tells children in a few sentences what they will learn in a lesson" distinguishes between samples only in science. There, effective teachers are much more likely to use this approach. This fact suggests that in science the statement of an objective may be helpful in focusing the attention of children on the major concepts to be learned.

Overall the nature of the subject matter probably determines whether stating objectives is helpful. A subject which requires conceptual clarity may be more effectively taught when there is some way of organizing its contents around a few well-stated objectives. Otherwise, preliminaries such as "turn to the text" or "the topic of a lesson" seem simply a means of moving the activity of instruction along.

Table 4: Use of Preliminaries in Instruction

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF.	LE	EFF.	LE	EFF.	LE

	%	%	%	%	%	%
Use of prelimin.*	88	88	77	77	92	78
Kind of prelim.**						
Turn to text	86	91	69	64	71	95
Topic of less.	84	75	68	67	83	91
Objectives	37	39	39	38	83	19

*Entire sample **Portion of the sample using preliminaries.
Note:Columns add up to more than 100 because of multiple answers.

3.Presentation.

The large majority of teachers in both samples introduce materials to the class in what can be recognized as a formal presentation. The difference in frequency between the two samples suggests that some kind of formal presentation is an important characteristic of effective teaching. In all subjects, more effective teachers showed consistently higher and noteworthy rates of presentation over the less effective teachers.

Presentation can be of several kinds. Teachers may present the material in small steps, giving children practice after each step; they may present the material as a whole in continuous lecture fashion; or they may begin directly with practice of the materials, interspersing the practice with periods of explanation as seems necessary. The presentation may contain definitions of concepts, and specific examples of the subject matter. Teachers may use the blackboard to present these materials or use prepared visual aids such as charts or maps.

Table 5: Presentation of Subject Matter in Instruction

CATEGORY	SAMPLES URDU Eff %	URDU LE %	MATH Eff %	MATH LE %	SCIENCE Eff %	SCIENCE LE %
Use of present.*	83	66	77	67	96	82
Kind of present.**						
Small steps	23	39	41	42	29	18
Lecture	58	46	30	63	67	59
Direct prac.	35	33	35	24	21	55
Definitions	50	49	46	32	79	46
Examples	38	33	62	46	75	27
Blackboard	45	30	70	59	50	23
Visual:charts	5	3	5	0	8	14

*Entire sample **Portion of the sample using presentation
Note:Samples add up to more than 100 because of multiple answers.

In Urdu, the lecture method or explaining the material as a whole

appears to be the most successful method of presentation. In such a case, a teacher may read the entire passage to the students with comments on the content and perhaps definitions of terms, before the students attempt the lesson themselves. The success of this method in Urdu may be due to the fact that children have time to concentrate on comprehending the content of the material before being thrust into the mechanics of deciphering it. Teachers who use this approach appear to have a genuine concern for seeing that children understand a lesson. Adding one more step before complete immersion in recitation, gives another way to become familiar with material, increasing the variety of approaches that may be useful to different kinds of learners. A step by step process, otherwise often a good pedagogical device, may disturb comprehension of the full meaning of the story or passage. Teachers who use this approach are likely to explain a few paragraphs of the lesson, have the children repeat it several times, explain a few more paragraphs, have the children repeat the material, etc.

In math, presentation as a whole or lecture method is considerably less effective than methods of presentation which emphasize definitions of concepts, specific examples, the use of blackboards to display examples and direct practice without other presentation. Constructed responses when a child is asked to actually do something with material--usually writing out the problem in this case--helps in remembering the kind of material required for math.

In science, more effective practices include presenting materials in small steps with some kind of practice after each step, providing definitions of concepts, concrete examples of the subject matter, and using the blackboard for visual representations of the scientific concepts. In science, conceptual learning seems to be helped by a presentation of both negative and positive examples of the concepts. Asking children to go directly to reading their science books or otherwise practicing without prior explanation appears to be a less effective option.

Table 6 shows the importance of clarity in the presentation of materials. In almost every instance, effective teachers are more likely to give clear explanations and instructions, use words of the proper level of difficulty for the children, and use a language for explanations that the children understand.

Table 6: Clarity in Presentation

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Most explanations are confused	35	42	14	32	25	50

Most explan. and instr. clear	78	55	92	66	79	36
Words are correct lev. of difficulty	63	39	60	51	63	27
Lang. understood by children	88	91	95	83	92	82

Note:Columns add up to more than 100 because of multiple answers.

Table 7 reports the assessments of observers about pacing in the presentation of material. The pacing was consistently more likely to seem appropriate in all subjects for the more effective teachers. In Urdu and math, the pacing seemed too slow in the less effective sample and in science too fast.

Teachers are required to keep to a timetable in covering the texts. The timetable, however, is general and requires only that certain units or chapters be completed within a certain time frame. Because this is one item supervisors are likely to check when they visit schools, teachers feel compelled to move at a pace that will keep them in line with the schedule. Students can often report to the fraction of a page how much of the text the teacher will cover in a lesson. Though differences are not major between the samples, even a fraction of a page can be important over the school year. Effective teachers tend to cover more pages in math and science and slightly fewer in Urdu than the less effective teachers. Since the pacing of more effective teachers' lessons is more likely to be "about right" one might assume that the pace with which the text is covered is also about right. Logic suggests that each class probably has its own appropriate pace, and if more effective teachers are better able to judge that pace in their students, then generally speaking either the students of the less effective teachers are slower or the teachers are not evaluating their capabilities as well. In Urdu and math, observers thought the less effective teachers were pacing their lessons too slowly and in science too quickly. While pedagogically it is probably better to pace the lesson to the speed of the individual class, it is interesting that better performance in this sample is not necessarily dependent on moving more slowly through the textbook.

Table 7: Pacing in Presentation as Judged by Observers

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Pacing seems:						
about right	65	49	73	44	67	46
too slow	15	27	14	37	21	18
too fast	10	18	5	10	13	27

other	10	6	8	10	0	9
Number of pages covered in a lesson	2.0	2.1	1.5	1.2	2.6	2.1

From observing student reactions to the teachers' presentations, the observers were asked to judge pacing in relation to the level of student ability. Table 8 summarizes their assessments.

In all subjects, effective teachers tended more often to pace the lesson to the slower students, whereas the less effective teachers were consistently more likely to pace the lesson to the smartest children. The more effective teachers, therefore, were more conscientious about seeing that all the children learned the new materials while the less effective teachers took the easier course of teaching to those who grasped the content easily.

Table 8: Pacing in Relation to Student Ability in Presentation

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Pacing level*						
for slowest	56	46	58	50	54	30
for smartest	10	26	29	31	27	55
for middle	32	26	13	19	18	15
Not possible to know	23	9	16	12	8	9

*For classes where it was possible to assess children

Table 9 reports the appropriateness of the presentation as far as understanding is concerned. The majority of teachers in all samples presents materials at a level that the observers feel is appropriate for understanding, but effective teachers are consistently more likely to present materials in this manner. This is true for the level of the subject matter, of the textbook content, and of the clarity of the teachers' explanations.

The subject level in Urdu is sometimes too difficult in the less effective sample, and the textbooks were considered too easy in math and science for this group. It is difficult to understand why the textbooks would be too easy unless perhaps these observations were taken from classes where teachers were turning back to previously learned lessons. Above it was noted that the less effective teachers were more likely to return to earlier pages in the text, particularly in math and science. An alternate explanation might be that since the less effective

teachers pace the presentation more to the smartest students, it may have given the observers the impression that the textbooks were too easy.

Table 9: Appropriateness of Presentation for Understanding

CATEGORY	URDU		MATH		SCIENCE	
	Eff %	LE %	Eff %	LE %	Eff %	LE %
Present.appropr.	76	67	100	76	92	59
Subject level						
about right	90	79	87	73	88	82
too easy	10	6	11	18	8	14
too diff.	0	15	3	10	4	5
Textbook level						
about right	90	82	89	73	83	77
too easy	8	9	3	20	8	18
too difficult	3	9	5	8	8	5
no text used	0	0	3	0	0	0
Teacher explanation						
clear	75	42	70	59	88	23
sometimes dif.	15	27	24	32	4	32
often dif.	10	30	5	10	8	46

4. Guided Practice.

Guided practice was defined for the researchers/observers as the initial teacher-supervised efforts of the students to practice new materials. Guided practice usually involves a fairly rapid interaction between teachers and students as tasks are assigned, students accomplish them in some way that is relatively visible for the teacher, the teacher reacts, and the student begins practice with another similar task. Ideally in guided practice there should be active practice by the child and some sort of feedback on how well the child is doing. In some classes that were observed, however, teachers "practiced" in front of the

children, or feedback was directed in a general way to the whole class with little opportunity for children to know directly from the teacher how they were doing individually.

Guided practice and independent practice (reported below) are difficult to distinguish in some classes. Some teachers conduct them as if they are different degrees of what is essentially the same activity, the only difference being the closer supervision and the more active group involvement of the students in guided practice. Some teachers,of course, use what can be distinguished as one practice and not the other.

There are various ways that guided practice was conducted in the classrooms of the sample. Some teachers give one task after another without providing much guidance or feedback individually to students. In this case the teacher does not know how well the student is doing. A teacher may give a series of tasks and then provide feedback at the end when all the tasks are completed. The teacher can give one task at a time and provide feedback following the completion of each task. Or the teacher can demonstrate or explain and expect children to follow along in the task, without giving them an opportunity individually to know how well they are doing.

Table 10 shows the incidence of guided practice in the sample. The majority of teachers in almost every sample use what observers felt was guided practice. In all subjects, effective teachers are consistently more likely to use guided practice than the less effective teachers.

Table 10: Use of Guided Practice in Instruction

CATEGORY	SAMPLES URDU EFF. %	URDU LE %	MATH EFF. %	MATH LE %	SCIENCE EFF. %	SCIENCE LE %
Use of guided prac.*	81	70	96	79	75	48
Kind of pract.**						
Prac.w.no explan.	42	34	42	44	6	54
Child finish sev. tasks bef.fdb	11	19	16	13	22	8
Fdbk.after ea.task	37	38	31	33	61	39
Expl. and no fdbk.	3	3	6	11	6	0
Other	8	1	5	0	6	0

*Entire sample **Portion of the sample using guided practice

In Urdu it is not clear what kind of guided practice produces the best results. The largest proportion of those teachers who use guided practice, simply assigns tasks and lets the children work on them without further explanation--an example of this practice is when teachers call on children in turn to recite or read from

the book. This kind of practice seems generally more effective in Urdu than science where it appears to be better either to give feedback after each task or after several tasks have been completed. Urdu may simply require a great deal of practice in reading and writing to develop skill while learning the concepts of science needs the greater involvement of the teacher.

Table 11 shows the systems teachers use for calling on students and the amount of coverage that occurs by the end of the subject period.

In the majority of cases in all samples, more than half of the students are given an opportunity to practice the new materials during guided practice. In addition, effective teaching is characterized by even greater coverage of the students in Urdu and math classes.

Table 11: Coverage in Guided Practice

CATEGORY	SAMPLES URDU EFF. %	URDU LE %	MATH EFF. %	MATH LE %	SCIENCE EFF. %	SCIENCE LE %
System for calling on students						
brightest						
slowest						
volunteers	(findings being computed)					
random						
order						
mix						
Coverage of guided prac.						
Every ch.pract.	71	56	71	61	29	46
More than half ch.prac.	13	31	25	35	59	15
Less than half ch.prac.	13	9	2	4	12	39
Other	3	3	2	0	0	0

Table 12 shows the sources and kinds of tasks used in guided practice. The vast majority of teachers in both samples use some kind of assigned task in guided practice, and most use some or all tasks which are based on materials from the textbooks.

The kinds of tasks used by teachers are mainly constructed tasks where the children performs an operation such as copying, writing, repeating, memorizing, giving examples,etc. Only one, watching demonstrations, is passive, and probably only one, showing understanding, requires higher order thinking skills.

In Urdu instruction, the main strategies teachers in both samples

use are tasks which require explanations and meanings, individual repetition, reading, writing and copying. Effective teachers are more likely to require students to show understanding of a problem or task, to learn basic facts about a subject, and to practice writing than are less effective teachers. Less effective teachers are more likely to use individual repetition and correction of practice exercises as the basis of tasks.

In math the major teacher strategies include explanations, repetition, showing understanding, learning basic facts, writing, correcting examples, copying problems from the board or text and watching demonstrations. In math as in Urdu effective teachers are more likely to ask children to show understanding and to learn basic facts. Less effective teachers surprisingly require more explanation of the material in math than effective teachers.

Table 12: Use of Tasks in Guided Practice

CATEGORY	SAMPLES URDU EFF. %	URDU LE %	MATH EFF. %	MATH LE %	SCIENCE EFF. %	SCIENCE LE %
Use of tasks	90	88	96	96	89	92
Source of tasks						
teach. created	18	16	16	11	11	8
textbook	90	94	91	94	94	92
Kind of tasks						
explan.	44	50	42	57	67	46
examples	24	28	27	28	39	46
summaries	16	9	0	2	33	15
choral repet.	29	34	27	24	28	77
indiv. repet.	55	67	33	37	50	54
reading	68	75	16	15	44	69
understanding	66	41	42	24	72	31
meanings	47	44	16	9	33	23
learn names	16	9	4	2	0	0
basic facts	26	9	53	33	72	39
identify items	29	25	27	26	28	23
writing	58	41	47	39	39	15
correct	13	34	42	44	44	15
copy	42	34	38	30	22	39
watch demon.	24	25	44	38	61	23
How tasks imple.						
Teach.directs/stu. responds	74	59	73	76	59	69
Student questions	13	3	9	9	29	15
Both	13	34	16	15	12	15
Other	0	3	2	0	0	0

Note:Percentages may add up to more than 100 because of multiple

answers.

In science, the tasks teachers construct involve explanation, recitation (both choral and individual), examples, reading, understanding and meaning of concepts, basic facts and watching demonstrations. More effective teachers of science require more explanations, showing understanding, giving meanings, practicing writing, correcting practices and watching demonstrations than less effective teachers. Less effective teachers are more likely to require children to copy materials, to repeat materials chorally, and to read materials out loud or to themselves--all tasks which do not require active engagement of the intellect or, in the case of science, an understanding of the important concepts.

Most teachers control the activities of guided practice closely by assigning a series of tasks or problems to students and expecting the students to respond only when specifically replying to questions. In some classes, however, teacher feedback and explanation is initiated by student requests for information. In Urdu, effective teachers are more likely to use a directive approach while, in science, students are given more freedom to initiate interactions.

Table 13 shows the number of tasks assigned during guided practice.

Table 13: Number of Tasks in Guided Practice

CATEGORY	URDU		MATH		SCIENCE	
	Eff %	LE %	Eff %	LE %	Eff %	LE %
Number of tasks						
1-3	47	81	36	42	88	69
4-6	32	15	42	39	12	23
7-9	11	3	13	7	0	0
10-12	5	0	7	13	0	0
13 or more	3	0	2	0	0	8
other	3	0	0	0	0	0

In guided practice usually 6 or fewer tasks are assigned. In Urdu while the majority of teachers in both samples assign one to three tasks, effective teachers are more likely than less effective teachers to assign more than three tasks. In math, beyond a general tendency in both samples to assign more tasks generally, there is no clear difference between the samples in the actual number assigned. In science, effective teachers are more likely to assign one to three tasks while less effective teachers may assign more. The greater number of tasks assigned by less effective teachers in science may reduce the amount of time that can be given to presentation and discussion of

concepts, which as noted elsewhere appears to be an important part of effective science teaching.

Table 14 shows the kinds of responses expected in guided practice.
Some of these questions were designed to see which of Bloom's levels of learning were expected from children in guided practice. The most common responses expected in Urdu are specific single correct answers, recitation and copying, all generally low order skills. In math they are specific answers, description of the process by which a result is obtained, application, repetition and copying, again mainly low level skills. In science, teachers also expect specific answers, memorized responses, repetition and copying. The effective teachers consistently asked more often for specific answers which, given the nature of the kinds of tests children take, helps prepare them with the kinds of answers that are required to do well.

Table 14: Responses Expected in Guided Practice

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Type of response						
specific ans.	55	41	80	70	72	69
process ans.	26	19	40	44	28	31
evaluation	5	13	9	9	28	8
applica. ans.	5	13	38	26	6	8
synthesis	18	3	2	7	11	0
analysis ans.	11	10	11	4	17	8
memorized ans.	24	22	13	2	44	39
recitation	42	56	11	13	11	46
repetition	29	56	27	28	56	62
copying	40	31	33	20	17	46

Note: Percentages add up to more than 100 because of multiple answers.

Some responses distinguish by their differing magnitudes between the two types of sample. Effective teachers of Urdu are more likely than the less effective teachers to require specific answers and to ask children to synthesize ideas that they have learned separately. They are less likely than the less effective teachers to use recitation and repetition as a major means of practice. Thus, as seen previously, effective teachers work somewhat more at engaging the children's intellect, rather than simply requiring rote, mechanical exercises.

Effective teachers of math are more likely to require specific answers, application of a principle to a new problem, and memorized examples (such as multiplication tables).

Effective teachers of science are more likely to require evaluation answers where a child is asked to assess the merits of some phenomenon, while less effective teachers rely more heavily again on recitation and copying.

Table 15 shows how students are involved in guided practice. Teachers of both samples usually involve students individually by requiring oral responses, or giving them practices which they engage in at their seats. They also may ask children to respond orally as a group.

More effective teachers of Urdu tend to use more seat practice, as well as more involvement of the children in leading class response or in instructing the class as a whole. In such cases the child comes to the front of the room and recites a part of the lesson which the rest of the class repeats or comments on, or demonstrates a part of the lesson to reinforce learning of a concept. Less effective teachers are more likely to ask other students to help their peers at their seats. In these cases, the teacher may use this device as a convenience which allows them to avoid taking the time for individual help rather than as a means of solidifying learning in the student helper. The helper student may simply give the right answer to the student he or she helps.

Effective teachers of math use more seat work practice, and are more inclined to ask children to comment on the correctness of other children's work in front of the class. They are also more likely to ask children to work at the blackboard, and to ask for individual oral response to questions. Most of these exercises allow for individual practice and feedback. Less effective teachers are more likely to ask children to lead the class in oral responses. Again, as is the case with peer help, some teachers may abdicate their responsibilities by relying on student monitors to carry on with recitations. In the worst examples of these choral exercises, student monitors may also chant incorrect phrases and the class automatically repeats the incorrect phrase even though they may actually know the correct response. Unless carried out with careful teacher monitoring, the choruses become the worst kind of mindless mechanical behavior, detracting from, if incorrect content is repeated, rather than supporting learning.

Table 15: Student Involvement in Guided Practice

CATEGORY	URDU		MATH		SCIENCE	
	Eff %	LE %	Eff %	LE %	Eff %	LE %
Type of involve.						
blackbd.work	11	3	13	15	24	0
oral chor.resp.	16	25	24	24	47	54
oral ind.resp.	74	69	47	54	77	62

seat practice	66	44	93	83	53	54
comment on oth.	13	13	13	2	24	0
peer help	11	22	11	17	0	8
lead cl.resp.	18	6	18	15	0	15
instruct class	13	3	11	7	12	7

Note:Percentages add up to more than 100 because of multiple answers.

Table 16 summarizes the observers assessments of student understanding of subject matter at the end of guided practice. In the majority of classes there was some sign that children understood the material at the end of guided practice. The observers noted seeing students answering correctly more often in the classes of effective teachers, and there was a consistently stronger tendency for more effective teachers to ask children directly if they understood the material. In science, particularly, there were much greater evidence in the more effective classes that students understand the lesson. Other signs include watching for how many children raise their hands and whether children work the tasks with little hesitation. Though these results do not indicate, except when teachers ask, whether teachers are using visual signs of assessment, the findings suggest that it is at least possible for teachers to use such observational techniques to ensure the understanding of students.

Table 16: Student Understanding in Guided Practice

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Signs of underst.						
most ans.cor.	58	42	51	35	56	39
many raise hands	50	56	40	39	72	31
teach.asks	76	72	76	73	83	54
work wo.hesitating	63	69	80	71	67	77
No way to know	8	12	7	6	11	15

Note:Percentages add up to more than 100 because of multiple answers.

Table 17 describes teacher feedback to correct and incorrect answers of students. Effective teachers are consistently more likely than less effective teachers to give some kind of response to a correct answer. They are also consistently more likely to elaborate their approval by repeating the correct answer or reteaching the point with a statement that says, "Yes, that is correct because of (the following reasons)." Feedback for these

teachers becomes an opportunity to reiterate the principles of the lesson.

In the case of incorrect answers, the most noteworthy and consistent difference across subject matters is the stronger incidence in effective teachers of feedback for the teacher to explain how to do the problem and ask the child to try again. Otherwise, more effective behaviors differ by subject matter. In Urdu, effective teachers are more likely to state correct answers and move on. In math, the more effective teacher is likely to give the child a hint and try to elicit a correct response. In science, the more effective feedback is one where the teacher simplifies the question and asks again. In most of these cases, the more effective feedback consists of helping the child come to a correct answer rather than allowing the child to fail or give up trying to find the correct answer.

Table 17: Teacher Feedback to Correct and Incorrect Answers

CATEGORY	SAMPLES URDU EFF. %	URDU LE %	MATH EFF. %	MATH LE %	SCIENCE EFF. %	SCIENCE LE %
Feedbk:correct ans.						
no response	21	41	24	30	17	23
brief praise	40	47	60	52	67	54
repeats correct answer	68	63	60	52	83	46
yes because..	58	34	47	44	67	46
Feedbk:incorr.ans.						
tch.simplifies question	53	59	64	50	83	47
tch.hints	34	47	60	48	61	54
tch.gives corr.	82	63	60	67	56	54
tch.goes to others	11	22	18	17	0	21
tch.explains/ ch.redoes	42	28	76	61	50	31

Note:Percentages add up to more than 100 because of multiple answers.

5.Independent Practice.

Independent practice was defined for the researchers as that part of instruction when students work on their own at their seats with less supervision from the teacher than occurred during guided practice. As noted earlier, independent and guided

practice appear in some cases as gradations of each other. The purpose of independent practice is for the child to gain confidence in the skill by him or herself, after first efforts have been carefully monitored by the teacher during guided practice to ensure that the skill is being learned correctly. When teachers distinguish these two types of learning in the sample, their response is probably an intuitive feeling that children need both kinds of practice, since they are not explicitly taught to distinguish these activities in teacher training.

The majority of each sample of teachers included what the observers could distinguish as a period of independent practice in the lesson period. More effective teachers, however, consistently used independent practice more than the less effective teachers.
Table 18 shows the incidence and kind of independent practice. The most frequent kind of independent practice in all subjects was individual seat work carried out by the student alone.

Table 18: Use and Kind of Independent Practice

CATEGORY	SAMPLE URDU EFF. %	URDU LE %	MATH EFF. %	MATH LE %	SCIENCE EFF. %	SCIENCE LE %	
Use of ind.practice*		89	55	73	54	70	65
Kind of ind.practice**							
seat work	93	89	86	93	87	100	
grade level groups	10	15	17	17	7	6	
small group	0	15	11	3	7	0	

*Entire sample **Portion of the sample using independent practice. Note:Percentages may add up to more than 100 because of multiple answers.

Table 19 shows the sources and characteristics of tasks in independent practice. The large majority of all samples in all subject matters use textbooks as the source of tasks. This is also consistently more true for effective teachers. Although the practice is infrequent, less effective teachers are consistently more likely to create their own tasks, suggesting that teacher created tasks may not be as effective as textbook ones, either because they do not cover the content as well or because they do not give as much practice in the kinds of questions which are asked on the tests.

It is also fairly common in all subject matters to copy or rework problems from guided practice. In science, particularly, effective teachers are more likely than less effective teachers to ask children to copy or rework problems learned in guided practice.

The kinds of tasks in independent practice tend to vary importantly by subject matter. In Urdu, teachers are likely to ask children to copy from textbooks or blackboards, and to assign children reading and writing practice tasks. In math, teachers are likely to ask children to solve problems or to copy from texts, or practice writing problems over again in approved form. In science children copy, read, and memorize.

While there is only one type of task in Urdu which more effective teachers are more likely to use than less effective teachers (copying the meanings of terms), there are several practices which less effective teachers are more likely to use: copying from guided practice, reciting alone at seat, and memorizing text material. Using such rote practices exclusively may therefore prove less productive of learning in Urdu.

In math, similarly, only one difference is noteworthy: less effective teachers are more likely to ask students to explain the new material. It is unclear why this behavior is more common in the less effective group. In science, copying material from the blackboard and writing labels to illustrate scientific principles are more commonly employed effective practices while simply writing something more neatly as a writing exercise, is the more common practice among less effective teachers, and therefore appears ineffective as a learning experience in that subject.

Table 19: Tasks in Independent Practice

CATEGORY	URDU		MATH		SCIENCE	
	Eff %	LE %	Eff %	LE %	Eff %	LE %
Source of tasks						
teach. created	10	19	14	24	0	8
textbook	92	77	89	73	93	88
copied from guided prac.	31	27	33	37	33	6
reworked from guided prac.	33	35	39	23	13	0
Kind of tasks						
explanations	23	15	25	40	27	29
examples	15	12	22	23	20	13
copying from text or blkbd	45	50	44	50	47	35
copying from guided prac.	33	46	33	30	20	29
writing prac.	53	50	35	43	20	47

recite at seat	10	23	19	13	33	35
solve prob.	13	19	56	57	20	18
reading	40	46	11	7	40	53
memorizing	10	46	19	10	40	53
meanings	22	12	6	3	13	6
labels of items	3	12	0	0	29	0

Note: Percentages add up to more than 100 because of multiple answers.

Table 20 shows the kind of teacher monitoring and feedback that is carried out during independent practice. A variety of monitoring practices are used by both groups: children who complete the work come to the teacher at his or her desk for correction; the teacher walks around the room stopping to check individual work or; children raise their hands to indicate that they have finished the task or need help. Some teachers assign tasks and then ignore the students. This last passive practice is consistently used more frequently by less effective teachers in each subject.

In Urdu, no practice among the three active monitoring strategies stands out as more characteristic of the effective sample. Of the three, the child coming to the teacher and the teacher walking around the class are generally more utilized. In math, the practice of more effective teachers which contrasts most clearly with the less effective group is the one where children indicate their need for help. In science, the more effective teachers either walk around the room or the children come to the teachers to show their work. These findings suggest that it is not so much the specific type of monitoring that goes on, as it is the fact of whether that monitoring allows productive interaction between children and teacher. Leaving children on their own without feedback or any kind of supervision is not an effective practice.

Table 20: Monitoring and Feedback in Independent Practice

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Kind of monitoring						
teach. ignores	26	50	19	33	20	29
ch. come to teacher	54	46	58	60	67	41
teacher walks around	54	58	69	63	67	53
ch. indicate need	39	42	64	40	47	53
Kind of feedback						
to indiv. stu.	44	56	44	47	53	35

to whole gr.	49	42	61	47	33	53
to small groups	5	0	6	13	13	6
Comprehensiveness						
all						
more than half						
half		(data being computed)				
less than half						
none						

Note: Percentages add up to more than 100 because of multiple answers.

It is also not possible to indicate which kind of feedback is most effective. Teachers about equally direct their feedback either to individual students or the whole class. In math, there may be more benefit from addressing the whole class while in science giving children individual attention may be more effective as a teaching strategy. The importance of various strategies may lie in the circumstances existing in the classroom. Many classes are so large as to preclude much individual attention, and if much time is spent on this kind of attention in these classes, it may reduce the amount of instructional time that is available for each student. The teacher needs, therefore, to make intelligent decisions about what is the best kind of feedback to benefit the greatest number of students in his or her class.

Of all the major activities in the classroom, independent practice is the one which gives the teacher the most opportunity to devote special attention to individual students who need help. While other students work on their tasks, the teacher can circulate around the room and quickly give brief periods of instruction to those who are having difficulty. In classes where all children are grasping the material well, it may be sufficient for them to monitor their own work from teacher feedback directed to the whole class.

6. Homework.

In the instructional periods covered by the study, only a third or fewer of the teachers were observed actually assigning homework. It is possible that children automatically assume a homework assignment and do it without being asked. Table 21, summarizes the findings about homework. In Urdu, both samples were about as likely to assign homework, but in math and science, effective teachers were more likely than less effective teachers to assign such work.

Table 21: Homework

	SAMPLES		
CATEGORY	URDU	MATH	SCIENCE

	EFF. %	LE %	EFF. %	LE %	EFF. %	LE %
Use of homework*	29	33	35	19	33	19
Kind of homework**						
explana./ans.	33	19	0	17	63	20
examples	20	38	13	25	25	20
summarize	13	13	13	17	13	0
solve problems	6	31	80	68	38	40
rewrite	53	56	47	17	25	60
memorize prose	20	25	0	8	38	20
memorize facts	7	13	13	8	25	0
original work	20	25	0	8	0	0
calligraphy	53	19	13	8	0	0
drawing	27	6	0	8	0	0

*Entire sample **Portion of the sample using homework.
Note:Percentages add up to more than 100 because of multiple answers.

The kind of homework assigned differed considerably by subject matter. In Urdu, teachers in both samples were most likely to ask children to rewrite work carried out in class. Effective teachers were more likely to assign homework that required explanation or answering questions, calligraphy or drawing. Less effective teachers were more likely to ask for examples of the material, and to ask children to solve problems posed in the text or by the teacher.

In math, in both samples, the most common practice is for homework to consist of solving problems. Effective teachers employ the strategy of asking children to solve problems and rewrite examples from the lesson more often, while less effective teachers are more likely to call for simple explanation/answers and examples of the work.

In science effective teachers are more likely to ask children to write explanations/answers, and to memorize facts or prose. Less effective teachers are more likely to ask children to rewrite materials they learned in class.

Table 22 indicates how the homework is corrected. In a number of the classrooms, the observers were aware that there was homework but did not observe how it was corrected. In all subject categories, therefore, data are missing. If the missing cases are excluded, the overwhelming majority of remaining teachers employ the practice of correcting children's books individually.

Of the classrooms where it was observed that there was homework, a large proportion of teachers required that children correct their mistakes in homework. It can probably be assumed that

teachers in such classrooms, by simply involving the students in some sort of activity regarding homework, pay more attention to this activity and are therefore more likely to require correction of mistakes.

Table 22: Correction of Homework

CATEGORY	SAMPLES URDU EFF. %	URDU LE %	MATH EFF. %	MATH LE %	SCIENCE EFF. %	SCIENCE LE %
Kind of correction						
teach.in books	73	100	67	75	40	100
tch.in sm.grs.	0	0	0	0	0	0
tch.w.full cl.	0	25	11	13	0	0
other adult	0	0	0	0	0	0
ch.do ea.other	0	0	0	0	0	0
other	0	13	0	13	0	0
hmwk but didn't see corr.	27	11	22	38	60	0
Child corrects mistakes	77	56	80	86	60	100

Note:Percentages add up to more than 100 because of multiple answers.

7.Teacher-student interactions.

Table 23 describes the character of teacher-student interactions.

The majority of teachers in both samples direct most of the activities in the class and students respond only when called upon.
In addition, more of the effective sample permit students themselves in all subjects to initiate exchanges in the classroom. This kind of freer exchange seems to be particularly characteristic of effective teaching in science, confirming the findings above under "guided practice," about the extent to which teachers allow greater freedom for students to initiate some of the learning interactions in this subject.

Table 23: Teacher-Student Interactions.

CATEGORY	SAMPLES URDU EFF. %	URDU LE %	MATH EFF. %	MATH LE %	SCIENCE EFF. %	SCIENCE LE %
Character of inter.						
permissive						
firm						
brusque						
harsh						

Kind of interaction						
stu.direct some of inter.	15	15	13	13	21	7
free exchange	23	10	21	7	46	15
teacher directs w.stu.res.	81	77	90	95	67	67
teacher lectures w.little stu.invol.	19	27	25	20	42	44

Note: Percentages add up to more than 100 because of multiple

Table 24 shows the way behavior is controlled in the classroom. Overall, children appeared well-behaved in the classrooms. In most cases they have been trained to sit quietly and not to disturb others in the class. Physical punishment is often used for very minor infractions of the rules of the classroom: not sitting in orderly rows, speaking to a neighbor, or not paying attention. Almost as often a child is punished for mistakes in school work such as a misspelled word in dictation, or misreading a passage in Urdu. Many teachers display a stick conspicuously in the classroom where it serves as a reminder of what might happen if the child misbehaves or answers incorrectly. If there are any regulations about physical punishment, they are not in evidence in the classroom. Enough teachers used these measures in front of the researchers to make it appear that they considered it their duty rather than an exception to carry out such punishments. In one case when a teacher came late, he immediately started beating children as if to show researchers that, in fact, he was not negligent in his duties.

Table 24 reports on behavior control in the classroom. There were various degrees and types of control observed. In some classes teachers established a set of conduct rules which are well-known to the children, and except in unusual circumstances are usually observed without outward need for control from the teacher. This type of control places a share of the responsibility on the child. Other teachers depend less on encompassing rules and more on immediate intervention in each case where behavior may get out of line. Children in these classes learn over time what kinds of behavior are acceptable or unacceptable to a teacher when he or she is watching. The responsibility for discipline in this kind of control lies mainly with the teacher and can often be distinguished from the earlier kind of control at the point when a teacher goes out of the classroom for a few minutes. Then discipline rapidly breaks down.

A few teachers allowed a great deal of disruptive behavior before they took any action, and some showed almost no control over their classes at all, even when the situation clearly called for some kind of action. In the Pakistani context where an orderly

environment is one of the valued aims of the schooling system, these two types of reaction usually reflect a teacher who is not adequate to the job or who is not motivated to do good work.

Table 24: Behavior Control in the Classroom.

CATEGORY	SAMPLES					
	URDU		MATH		SCIENCE	
	EFF.	LE	EFF.	LE	EFF.	LE
	%	%	%	%	%	%
Kind of control						
conduct rules						
teacher immed. interven.	(data being computed)					
latit.before interven.						
no control						
Nature of control						
oral	48	63	38	50	50	56
physical	13	8	8	14	8	15
observed both	8	6	8	9	4	15
obser.neither	38	37	62	47	38	44

Note:Percentages may add up to more than 100 because of multiple answers.

Less effective teacher in all subjects consistently use more oral means of control.

Summary and Discussion

All other characteristics being equal, important differences in academic performance of children seem to result from the accumulated impacts of better instructional practices used by effective teachers. At present, these effective teachers may simply possess greater intuitive feeling for what works well in the classroom, since little concerning these specific issues is contained within current teacher training courses. This process need not remain intuitive once it becomes clear what constitute effective instructional behaviors.

In an experimental training program to improve the quality of classroom instruction, for example, a methods course might be devised for teachers incorporating the most commonly used instructional practices of effective teachers in this study (see Table 1A in Annex 1A), with an emphasis on the practices which distinguish the effective from less effective samples (see Table 1B in Annex 1B). An important finding that emerges from this study is that effective teachers tend to use a greater variety of activities in instruction with much greater systematization in

the steps of learning. These findings are implicit in the fact that more of the effective teachers engage in each of the major lesson activities than is the case for less effective teachers. This greater variety of strategies organized in a systematic set of classroom activities may provide the framework for an effective school improvement program.

At present there is a 2 percent difference between the effective and less effective samples in current year repetition and dropout rates. If the introduction of effective methods were to reduce those attrition rates in less effective schools by this same two percent amount yearly, there would be important increases in primary school completion rates. For dropouts, these figures are conservative for they do not take into account the children who do not now return after summer vacations.

It is, of course, impossible to conclude that the use of a set of specific instructional practices will in all cases and at all times lead to improved academic performance in children. The nature of the subject matter and the capacity of the teacher to use certain practices make some clearly better than others in specified contexts. Many of the practices which characterize the more effective sample are also used widely by the less effective teachers who also see their appropriateness in varying contexts.

It should also be cautioned that just because a particular practice is not used frequently by the more effective teachers, does not mean that it could not prove effective if utilized more often. For example, teachers in both samples rarely use charts or other visual materials. Often appropriate materials may not be available. If used more often to supplement the lesson materials, charts and other visual materials might contribute significantly to better learning.

Explicit teaching methods

The study was designed to compare the practices which distinguish effective teachers in the sample with explicit teaching methods used effectively elsewhere. According to Rosenshine (1986)[5], research on explicit methods over more than a decade show them to be useful in any "well structured" discipline, where the objective is to teach performance skills or mastery of a body of knowledge.
They are especially useful in:

> "the teaching of mathematical procedures and computations, reading decoding, explicit reading procedures such as distinguishing fact from opinion, science facts and concepts, social studies facts and concepts and rules, and foreign language vocabulary and grammar...(They) are less relevant for teaching in areas ...where the skills do not follow explicit steps or the concepts are fuzzier and

> entangled (such as) writing term papers, reading comprehension, analyzing literature or historical trends, or for teaching entangled concepts such as "liberal" or "modernism"" (Rosenshine 1986:60).

The explicit teaching method has been chosen here as a basis for comparison because its disciplined and orderly approach seems most similar to that which is used, and considered sound, in the present Pakistani instructional context. The details of this approach have been embedded among other instructional practices in the observation forms used in the study. Table 1C summarizes the extent to which these explicit teaching practices are found to be characteristic of the more effective sample. The assumption is that if the effective sample possesses enough of the characteristics of explicit teaching to demonstrate its compatibility in the Pakistani context, and if the characteristics of explicit teaching also tend to be those which distinguish between the effective and less effective samples, then there may be important implications for school improvement in Pakistan. A vast body of literature on explicit teaching already exists and could be adapted to the particular needs of Pakistan.

Besides providing a rich background literature, explicit methods may suggest a direction for further improvements that, given compatibility of approach, are more likely to succeed than approaches which are less similar to those presently in use in the Pakistani context. The term 'explicit' is important in this respect, for even when an effective teacher uses what turns out to be an effective practice, he or she may be acting out of intuition, rather than out of secure knowledge that the practice is appropriate. From the low overall achievement score, the present study suggests a need for improvements in all schools of the sample[6]. Samples were distinguished by their comparative performance, but none demonstrated outstanding performance on the achievement tests. In any comprehensive improvement program it would be important to look for practices which could also increase the performance in effective schools. Before establishing such an improvement program, it would be important to identify methods and approaches which have demonstrated capability in and compatibility with the local situation. From the similarities of the effective practices with explicit teaching methods, this may be one such approach.

The explicit teaching method emphasizes the following instructional behaviors. The teacher:

- o begins a lesson with a short statement of goals;
- o begins a lesson with a short review of previous, prerequisite learning;
- o presents new material in small steps, with student practice after each step
- o gives clear and detailed instructions and explanations

o provides active practice for all students;
o asks many questions, checks for student understanding, and obtains responses from all students;
o guides students during initial practice;
o provides systematic feedback and corrections;
o provides explicit instruction and practice for seat work exercises and, where necessary, monitors students during seat work; and
o continues practice until students are independent and confident. (Rosenshine 1986:60,62).

Table 1C in Annex 1C compares the distinguishing characteristics of the effective sample with these step by step procedures of explicit teaching. Overall as a sample, the practices distinguishing effective teachers are similar enough to those recommended for explicit teaching to suggest that the latter might prove a satisfactory model for effective teaching in Pakistan.

ANNEX 1A

Most Frequently Used Practices of Effective Teachers

In Table 1A, the most common instructional practices of more effective teachers are listed. The major categories (review, preliminaries, etc.) are all reported as a percent of the total effective sample, while the subsumed practices are noted as a percent of the major category. The latter are only reported when more than a half the relevant group use a practice. For example, the table may be read as follows, "Of those who use some form of review, such and such a percent review the previous lesson." These are the most common practices of the effective sample but they are not necessarily the practices which distinguish the effective from the less effective group. (The distinguishing characteristics appear in Table 1B of Annex 1B).

Table 1A: Most Common Instructional Practices of Effective Teachers

CATEGORY	URDU Eff%	MATH Eff%	SCIENCE Eff%
Review	46	57	79
previous lesson	50	70	67
Preliminaries	88	77	92
turn to text	86	69	71
topic of lesson	84	68	83
objectives	X	83	83
Presentation	83	77	96

lecture method	58	X	67
definitions	50	X	79
examples	X	62	75
blackboard ex.	X	70	50
Clarity of present.	76	87	83
explanation clear	78	92	79
words appropr.	63	60	63
lang.understood	88	95	97
Tasks/guided prac.	90	96	89
textbook tasks	90	91	94
explan.tasks	X	X	67
repetition task	55	X	50
reading practice	68	X	X
show underst.tasks	66	X	72
basic facts tasks	X	53	72
writing task	58	X	X
watch demon.tasks	X	X	61
Response expected in guided practice			
one correct ans. showing know.	55	80	72
name parts of item	X	X	56
Activities:guid.pr.			
seat work	66	93	53
respond orally	X	X	77
Signs of understanding at the end of guided practice.			
ch. answer corr.	58	51	56
many ch.raise hands	50	X	72
teach.asks	76	76	83
ch.wk.wo hesitation	63	80	67
Teacher feedback			
for correct ans.			
praise	X	60	67
teach. repeats ans.	68	60	83
teach.says"yes,bec"	58	X	67
for incorr.ans			
teach.simplifies	53	64	83
teach.hints	X	60	61
teach.gives cor.ans	82	60	56
teach.expl;ch.redo	X	76	50
Independent pract.	89	73	70
seat work	93	86	87
practice writing	53	X	X
solve problems	X	56	X

textbook tasks	92	89	93
ch.come to teach. when finished	54	58	67
teach.walks around	54	69	57
ch.indicates need from seat	X	64	X
fdbk to individs.	X	X	53
fdbk to whole gr.	X	61	X
Homework assigned	29	35	33
explan./answers	X	X	63
solves problems	X	80	X
rewrite mater.	53	X	X
pract.calligraphy	53	X	X
teach.corr.books	73	67	X
hmwk but not obs.	X	X	60
ch.corr.mistakes	77	80	60

(Other findings will be added when the analysis is complete)

Note: Percentages may add up to more than 100 because of multiple answers.

ANNEX 1B

Instructional Practices Which Distinguish More and Less Effective Teachers

Table 1B identifies those practices which distinguish the more effective from the less effective sample by their greater or lesser incidence in the more effective group. Those practices reported may not, however, be used by a majority of the more effective sample. The general category shows the incidence of a practice in the whole sample, while the subsumed practices are reported as a percentage of those who use the general practice. The first number represents the more effective group and the second number the less effective group A difference of ten or more percentage points is considered worthy of comment in the subsumed practices. It is important to note the direction of the difference.

Table 1B: Instructional Practices Which Distinguish Effective From Less Effective Teachers

CATEGORY	SAMPLES URDU Eff:LE%	MATH Eff:LE%	SCIENCE Eff:LE%
Review	46:42	57:29	79:48
previous lesson	X	X	67:42
previous work	42:21	X	28:50
Preliminaries	88:88	77:77	92:78

turn to text	X	X	71:95
topic of lesson	84:75	X	X
objectives	X	X	83:19
Presentation	83:66	77:67	96:82
small steps w.prac.	23:39	X	29:18
lecture method	58:46	30:63	X
definitions	X	46:32	79:46
examples	X	62:46	75:27
blackboard ex.	X	70:59	50:23
teach.begins w. practice	X	35:24	21:55
Clarity of present.	76:61	87:72	83:52
confusing present.	X	14:32	25:50
explanation clear	78:55	92:66	79:36
words appropr.	63:39	X	63:27
lang.understood	X	95:83	92:82
Tasks/guided prac.	90	96	89
textbook tasks	90	91	94
explan.tasks	X	X	67
repetition task	55	X	50
reading practice	68	X	X
show underst.tasks	66	X	72
basic facts tasks	X	53	72
writing task	58	X	X
watch demon.tasks	X	X	61
Response expected			
one corr.ans.exp. showing know.	55	80	72
name parts of item	X	X	56
Activities:guid.pr.			
seat work	66	93	53
respond orally	X	X	77
Signs of under.after guided prac.			
ch. answer corr.	58	51	56
many ch.raise hands	50	X	72
teach.asks	76	76	83
ch.wk.wo hesitation	63	80	67
Teacher feedback			
<u>for correct ans.</u>			
no response	21:41	X	X
praise	X	X	67:54
teach. repeats	X	X	83:46

teach."yes,bec." for incorr.ans	58:34		67:46
teach.simplifies	X	64:50	83:47
teach.hints	34:47	60:48	X
teach.gives corr.	82:63	X	X
teach.goes to next child	11:22	X	0:21
teach.expl;ch.redo	42:28	76:61	50:31
Independent pract.	89:55	73:54	70:65
seat work	X	X	87:100
small gr. work	0:15	X	X
explan. tasks	X	25:40	X
copy material fr. text	X	X	47:35
copy from guid. practice	33:46	X	X
practice writing	X	X	20:47
recite out loud	10:23	X	X
practice reading	X	X	40:53
copy meanings	22:12	X	X
copy labels	X	X	29:0
teach. creates some or all tasks	X	14:24	0:18
textbook tasks	92:77	89:73	X
task source:copy fr. guid.pr.	X	X	33:6
task source:rework fr. guid.pr.	X	39:23	13:0
teach.ignores ch. in ind. prac.	26:50	19:33	X
ch.come to teach. when finished	X	X	67:41
teach.walks around	X	X	67:53
ch.indicates need from seat	X	64:40	X
fdbk to individs.	44:56	X	53:35
fdbk to whole gr.	X	61:47	33:53
Homework assigned	29:33	35:19	33:19
explan./answers	33:19	0:17	63:20
write examples	20:38	13:25	X
summarize mater.	X	X	13:0
solves problems	6:31	80:68	X
rewrite mater.	X	47:17	25:60
memorize prose	X	X	38:20
memor. basic facts	X	X	25:0
origin.essay	X	0:83???	X
pract.calligraphy	53:19	X	X
artwork	27:6	X	X
ch.corr.mistakes in homework	77:56	X	60:100

(More practices may be added when the analysis is complete)

Note: Percentages may add up to more than 100 because of multiple answers.

ANNEX 1C

Explicit Teaching and Effective Instructional Practices

Table 1C summarizes the extent to which effective teaching practices identified through this study are similar to those found elsewhere in explicit teaching to be effective in increasing academic performance. The similarity is only reported when the practice distinguishes the effective from the less effective sample.

Table 1C: Explicit Teaching and Effective Instructional Practices*

CATEGORY	SAMPLES URDU Eff.	MATH Eff.	SCIENCE Eff.
Begins a lesson with a short statement of goals;	O	O	X
Begins a lesson with a short review of previous, prerequisite learning;	X	O	X
Presents new material in small steps, with student practice after each step	X	O	X
Gives clear and detailed instructions and explanations	X	X	X
Provides active practice for all students;	X	X	O
Asks many questions, checks for student understanding, and obtains responses from all students;	X	X	X
Guides students during initial practice;	X	X	X
Provides systematic feedback and corrections; (consistently uses more appropriate types of feedback)	X	X	X
Provides explicit instruc-			

Provides explicit instruction and practice for seatwork exercises and, where necessary, monitors students during seat work;	X	X	X
Continues practice until students are independent and confident.	?	?	?

* Behaviors which distinguish the effective group in a way that is noteworthy or consistent across categories are marked with an "x".

1. See Montero-Sieburth, Martha 1989. Classroom Management: Instructional Strategies and the Allocation of Learning Resources. BRIDGES, Harvard University: Cambridge for a literature review of this research.

2.The sample consisted of approximately 260 observations of instruction in Urdu, math and science in 32 schools of Pakistan. Eight schools were selected from middle range districts (neither the provincial capital nor the most remotely rural) in each of the four provinces of Pakistan. Lists of schools were then ranked on the basis of supervisor assessments to reflect a range of quality in classroom instruction. The best and worst of the schools were chosen to form a sample of effective and less effective learning situations, and from these lists schools were chosen to reflect approximately equal numbers of boys, girls, urban and rural institutions. There are two assumptions underlying sample selection: one is that by examining the extremes of instructional quality, it would be easier to identify the distinguishing features of effective practices, and, two, that the sample provide a middle range of schools typical enough of the largest proportion of Pakistani schools so that the findings would have relevance to school improvement programs in general. The sample is not and was not intended as a representative sample of Pakistani schools.

3.Initial fieldwork preliminary to the formal study convinced us that classroom practices could be collected for convenience under these headings.

4.In most cases and unless otherwise stated, numbers in the tables represent the proportion of the samples which manifest a particular characteristic. Usually when there is a ten percent or greater difference between the two samples, the difference is considered "noteworthy." When a difference is smaller yet the characteristic follows the tendency of related variables, positive or negative, then the event is reported as a "consistent

tendency." Otherwise, differences are usually considered too small for notice.

5. Rosenshine, Barak V. 1986. "Synthesis of Research on Explicit Teaching." Educational Leadership, April 1986:pp.60-69.

6. Assuming of course that the achievement tests are a fair measure of the product of the system.