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**MULTI-GRADE CLASSES AND VISIBILITY:
Implementing Change in the Northwest Frontier of Pakistan**

Andrea B. Rugh

1 BACKGROUND

It is no secret that government primary schooling in Pakistan has reached an all-time low in terms of quality. Letters to editors complain of it, documents of international assistance agencies are full of the details, and politicians publicly criticize it. Local education authorities are acutely aware of problems but feel powerless to make changes. Decades of limited resources and a bureaucracy which stifles initiative create lethargy in the system. Classes suffer from large numbers of students--not uncommonly 60 to 100 students in the lower grades. Teachers come late, leave early or do not come at all or, when they come, give over class instruction to student monitors. Poorly paid, with little training in what is applicable to classrooms, often knowing little more than their students and faced with textbooks that are difficult for the age levels of the children, it is little wonder that teachers become discouraged. Whether teachers work or not goes unnoticed in a supervisory system with inadequate transport to reach schools regularly, and which sees its role mainly as one of inspecting school inventories instead of supporting learning quality. District officials though closer to the problem are not much more effective--tied up as they are with passing files on teacher transfers, recording the minutest expenditures, following up on the distribution of supplies and sending in to headquarters complicated requests to secure more teachers. Strict civil service regulations making promotions a matter of time in grade, do not encourage staff to try harder to earn advances up the career ladder. Years of poor quality schooling bring the circle to closure with poorly qualified products of the system not possessing the skills to implement school programs even when they are motivated to do so. One day of visiting classrooms is usually enough to produce a sense of despair in the observer. Where can improvements start in a province with 7,000 primary schools, 16,000 teachers and hundreds of thousands of students?

Multi-grade classes offer a special case in this dismal picture. The majority of schools in the Northwest Frontier Province (NWFP) are multi-grade, that is they are taught by fewer teachers than would be required if each grade level were to have its own teacher. As a

matter of routine in rural areas of the province, new schools are constructed with two rooms and provided two teachers regardless of local needs. In theory, when schools enroll more than 80 students (40 for each one of the originally assigned teachers) another teacher is sanctioned for each additional set of 40 children. The reality, however, is that some schools have an overabundance of teachers, some have too few and some have none at all. Moratoriums on hiring, such as occurred in 1990-91, and liberal leave policies that allow teachers to be absent up to a quarter of the school year without penalty, create temporary multi-grades that do not appear on any official register.

Despite the obvious presence of multi-grade classes in NWFP, at certain levels of the bureaucracy, multi-grades are invisible--that is, they are treated as though they were single grades. For example, teacher certification courses have no provision for training teachers in how to cope with multi-grades. Such courses, if they consider practical application at all, assume teachers will be able to teach any group as if it consisted of 40 children in a single grade--the number of children upon which rough estimates for appointing teachers are based by provincial planners. When asked why teachers are not prepared for the real conditions they will face in classrooms, the standard answer is "We train teachers for the ideal conditions we hope to produce some day, and not for the poor conditions we have now."

Similarly, instructional materials writers write "to the subject" and not "to the children" or "to real conditions" such as are found in multi-grade classes. Current textbooks require an almost constant involvement of the teacher, directing the students in what to do next, and helping them with the few independent exercises the children should be able to do on their own. When teachers ask children to memorize the text material, they are exercising one of the few options open to them to keep the children engaged in learning. The memory work avoids the problem of trying to teach children material that is too difficult for them, and keeps classes with too many children, too little space and too few resources occupied with less attention from the teacher. Only teachers and their close supervisors seem to know that multi-grades create special kinds of problems that are not amenable to the same solutions as single classes. When teachers were asked what their most difficult problems were, they invariably answered (usually along with complaints about inadequate space in buildings) that teaching more than one grade at a time is the most difficult part of their work. However, none could offer a more imaginative solution than to abolish multi-grades, a solution well beyond the resource capacity of the system.

BRIDGES studies (see Warwick, et al ? and Rugh 1991) confirmed for Pakistani education many of the problems noted above in primary education. Warwick ? noted for the first time the comparatively poor academic achievement of students in multi-grade, as opposed to single-grade classes. Research conducted elsewhere and summarized in the Northwest Laboratories Handbook (Miller 1989) on multi-grades suggests that this situation is not inevitable--that learning in multi-grade classes can be as enriching to children as in single-grade classes and, in some cases, notably in social areas, they can provide a potentially richer environment. The Handbook suggests that if a choice needs to be made, it would be better to organize the resources of education around multi-grade conditions rather than

single-grade conditions, since it is easier to make modifications from multi to single-grades rather than the other way around.

The purpose of this paper is to describe activities that have been undertaken over the last two years by the Directorate of Primary Education in NWFP¹ to improve the quality of classroom learning. An important objective of these activities has been to give the issue of multi-grades more visibility. "Quality improvement" activities started in 1987 in Pakistan with a series of BRIDGES studies and have continued under the USAID-funded Primary Education Development (PED) Program.² The PED Program has also been concerned with the quantity problems of increasing the enrollments of primary age children, and so, to talk of PED activities related to improving the quality of instruction is to talk of only one part of a very large overall program. A major quality effort that will be described here, the "School Improvement Program" (SIP), is currently being implemented in classrooms of selected districts and, though there are encouraging signs, it is not clear yet whether significant improvements will occur as a result of the program activities.

The paper consists of three sections: 1) the background introduction above; 2) a description of the activities being conducted to make quality improvements in the primary program, namely, an initial training workshop, a multi-grade study, and the development and testing of new instructional materials; and 3) a summary with discussion of the implications of the paper. The paper tries to show how "research" in an expanded role can and perhaps should become an integral part of the solutions to education problems.

2. PROGRAM ACTIVITIES

With the exception of a few donor-funded projects that have not become part of main stream government schooling, few efforts in recent years have been directed at improving the quality of the schooling program in NWFP. This fact and the generally low literacy rates in the Province prompted USAID to fund an ambitious effort by the then NWFP Department of Education to overhaul its education program. From the beginning, there was a strong emphasis on addressing quality as well as quantity issues. The original PED design, worked out by an American team in collaboration with a team of Pakistani educators in the summer of 1989, called for making improvements in a number of education components,

¹Balochistan is also part of the program but has a separate resident technical assistance staff.

²PED is headed by an overall Chief of Party, Wade Robinson for the main contractor, the Academy for Educational Development (AED), and in NWFP the resident technical advisors are Mona Habib and Nick Cowell. HIID has provided technical assistance for EMIS with resident Tom LeBlanc and for policy research, short-term consultant, Andrea Rugh.

most importantly instructional materials and the training of teachers, managers and supervisory staff. These improvements were to be set in a standard cycle of research and development: identifying important educational problems, collecting information about them through focused studies, suggesting reasonable "solutions" based on the results of the studies, experimenting in limited cases with the solutions, and evaluating and modifying them before disseminating them to other parts of the system. Virtually none of the elements in this cycle existed in the NWFP system, and therefore the exercise of putting such a cycle in place was expected to constitute a major portion of the activities devoted to improving program quality. It was assumed that institutionalizing a continuous improvement system of this sort would be the only way to ensure a long-term impact for the program.

2.1 Workshop on R and D

The newly-bifurcated NWFP Directorate of Primary Education began its formal activities in June of 1990 with a workshop on educational research. The purpose of the workshop was to identify critical education problems and demonstrate how small focused studies could provide the information upon which to base viable solutions. The workshop was important symbolically in that the first major activity of the Directorate brought issues of quality to the attention of provincial staff who were geared almost exclusively to the brick and mortar issues of building and staffing schools. The workshop was intended to be the first effort to discuss issues of quality and to begin building some basic skills in the research and analysis of educational problems. In the absence of a research department, participants were drawn from each of the major teacher training institutions in NWFP and Balochistan under the assumption that research units might either be constructed in or later involve staff and students of these institutions.

The workshop started with discussions of quality issues in Pakistani schools, then related these to R and D cycles, and finally offered relevant findings of BRIDGES studies, including especially the findings from an "effective practices study" that BRIDGES had carried out in Pakistan. The BRIDGES survey finding of low achievement in multi-graded classes was then taken up as an issue that might be examined more closely in practical exercises during the workshop. The participants, working in groups under technical assistance (TA) supervisors devised 3 simple observation proformas covering a few teacher behaviors, some student engagement measures and some estimates of times spent on different activities during the course of a lesson. The participants took their proformas to schools, some to single-grade classes and some to multi-grade classes and brought back "data" that were compared to suggest what might be some factors associated with lower achievement in the multi-grade classes (with many cautions, of course, about the preliminary nature of the quickly gathered data).

The PED team also had two other agendas for the workshop: to learn more about the ways local educators conceptualized their education problems and to gain experience in how to conduct training exercises in the future. The workshop provided a number of insights,

including the realization that there was much less common conceptual ground between the TA team and the participants than had been expected. For example, the idea that time might be considered an educational resource was, as one Pakistani participant put it, "an idea we thought was an American invention that didn't apply to us." Nevertheless, as he also noted, the participants saw concretely through the data they collected that there was an important difference in the amounts of time children spent in instructional tasks in multi- as opposed to single-grade classes. They were able to conclude that if the data stood up to a more rigorous study, multi-grade students were experiencing perhaps only two-thirds the instructional time of single-class children. The TA staff, on their side, learned some of the complexities of improving the quality of programs during the discussions of "problems," a topic for which the participants showed much enthusiasm. Any suggestions for change by the TA staff evoked numerous reasons from the Pakistanis why they would not be possible, given the well-entrenched rules and practices within the education bureaucracy. Overall, the workshop was as discouraging as it was enlightening to both sides. Its most positive aspects were perhaps that it required Pakistani teacher trainers to visit primary school classrooms for the first time since they were students, and that it gave a more realistic view to both the TA team and the Pakistanis of each side's capabilities for making meaningful changes in the classroom.

2.2 Multi-grade study

A second program activity, also directly concerned with multi-grades, was a study to find out some of the conditions that existed in such classes in NWFP and if possible to identify some examples of where teachers were coping well with multi-grade conditions. Other than to confirm with more systematic data collection what most people already knew, information was not the primary reason for conducting the multi-grade study. Instead the study had four major objectives that would be important in improving the quality of the primary program generally: 1) to bring to the attention of provincial and district staff the importance of multi-grades as an education issue;³ 2) to begin developing in the individuals who would need them, skills in classroom observation and data collection; 3) to establish a chain of responsibility that could be used in introducing future innovations to classrooms; and 4) to develop and test some reasonably reliable measures that could be used later to assess changes as innovations were introduced.

³Another study undertaken at the same time, of kindergarten classes had virtually the same objectives and was a similarly "invisible" phenomenon, though kindergarten children made up 25 percent or more of the enrollments of most primary schools.

An intensive, largely observational study was designed with these objectives in mind and its instruments field-tested in the spring of 1991. The study was conducted in September of 1991 when there was overlap in the school schedules for "winter" and "summer" areas of the Province. The sample consisted of multi-grade classes in 64 NWFP schools selected randomly from categories based on gender, number of classes taught by a teacher and the "quality" of the teaching as ranked by the supervisors. "Academic" Deputy Education Officers (ADEOs) and Assistant Sub-Divisional Education Officers (ASDEOs or supervisors) from 8 districts⁴ came together in the provincial capital Peshawar for a general orientation, including discussions about general conditions in multi-grade classes, and the findings about multi-grades in the BRIDGES survey. The ASDEOs stayed on for intensive training in the study instruments and for practice conducting observations in local classrooms. They then returned to their districts and each trained 4 learning coordinators to collect the data by the same training program they had received. This system of introducing an innovation through an Academic Supervisor, who supervised the ASDEOs, who received specific training in the component which they in turn imparted to field personnel, who took the innovation to the classroom was one that though appearing obvious on organization charts had not been fully utilized up until then. Using this system for the study may have compromised data accuracy because of the numbers of individuals involved, but the benefits of making the supervisory system work as it was designed to work, as well as developing the basic skills of classroom observation in those who would need them, more than offset any minor negative effects that may have resulted from the way the study was conducted.

The study showed many of the conditions in multi-grade classes that were expected and some that were not so apparent. Class size varied considerably in the sample (from 6 to 114 students) but on average, classes contained about 36 children, small when compared with many single classes.⁵ The ages of the students in the classes spanned up to 6 years making it difficult to teach whole group sessions. Instructional aids rarely included more than textbooks and blackboards. School facilities were extremely inadequate with over half having no toilets, a third having no drinking water, a quarter having no washing water, two-thirds having no playgrounds and 38% where the classes were unsheltered. As is true also for single-grade classes, multi-grade instruction is heavily dependent on teacher direction at least partly because the textbooks are difficult to use without teacher explanation. There are few specific directions in the texts and only limited exercises, which especially reduces their usefulness in multi-grade classes. Teachers also appeared to be weak academically, as evidenced by their low graduating scores (half were third division and only a few first division). Many said they found the primary curriculum difficult and some were observed teaching incorrect information, including some very basic arithmetic problems where one teacher, for example, was seen consistently mixing up addition and multiplication signs.

⁴The remaining 8 districts conducted similar studies of kindergarten classes.

⁵According to the kindergarten study, teachers taught classes averaging 72 students.

Supervisors saw their role mainly in terms of inspection, and testing for promotion; if their role were redirected, they might be able to exert an influence on academic quality. Some teachers created such dependence in their students that the latter were unable to act without specific instruction, and therefore spent a great deal of time waiting until the teacher was able to pay attention to their grade.

The study also identified elements in multi-grades that could be built upon in a school improvement program: the fact that almost all the teachers were at least minimally qualified to the tenth grade standard required for recruitment to teaching and that they had been professionally trained (thus improvements in training and general academic programs would have an effect on the new recruits to teaching); that two-thirds had had access to in-service training; that most teachers maintained an orderly environment in their classrooms, were aware of how they might use student monitors to extend their own limited time in instruction, and most used a progression of systematic steps in teaching although the instructional effectiveness of these steps could be enhanced. Almost all classes had the most essential instructional aids of blackboards and textbooks, and most instruction was conducted in local languages the children understood. This last point is important since it is sometimes difficult to appoint teachers with knowledge of local languages to the appropriate schools.

Using simple measures of student engagement and the use of "effective practices" as proxies for learning,⁶ efforts were also made to identify factors that might be associated with higher levels of learning. The factors which seemed to be most associated with higher learning were the number of grade levels combined (the fewer the better), the amount of direct teacher involvement (the more the better), and the capabilities of teachers (the higher the division level the better). There was also a correspondence between the two measures, that is, the more the teachers kept their students engaged in learning, the more they were likely to use "effective practices."

The study made 7 major recommendations to improve the academic program:

- 1) Instructional materials need to be made more self-explanatory, and contain more exercises that can be carried out by students independent of the teacher. Exercises should contain "contingent" tasks when it appropriate--that is, tasks which require students to show a product when the teacher returns from working with another class. These tasks were found more likely to keep students engaged when teachers were not directly involved with in teaching them. When possible, subjects should be integrated or reduced so instruction can focus on the most essential skills.
- 2) Teachers require more support materials such as "annotated student texts" that suggest step by step how they might teach each lesson, with practice problems, correct answers, and assessment questions to see how well students are doing. These

⁶These measures have correlated with higher achievement levels in another BRIDGES study conducted in Pakistan.

texts would ease the teachers work and provide a structure within which new forms of instruction other than reliance on memory work might be introduced.

3) Pre and in-service training programs need to be developed to teach techniques of how to manage and teach effectively in multi-grades, including appropriate ways to short-cut a sometimes too full curriculum, ways to keep children engaged in learning tasks as much as possible and methods for extending the instructional role of teacher to peers or self-instruction. Rather than relying on prescriptive principles, these courses could include discussions of the implications for learning of a list of repetitive practices commonly used in classrooms, so teachers would have a repertory from which to select the most appropriate ones for the conditions in which they teach. The study suggested a few practices which might be considered, including forms of discipline, feedback to help children feel successful, the order for calling on students in question-answer periods, and ways of monitoring student practice.

4) Supervisors and managers need to be trained to support the special needs of multi-grade teachers, including support for activities such as those suggested above. If they take part in training activities, they can later follow-up with teachers on what is learned there. They presently have no resources at their disposal to aid teachers.

5) New schools need to be designed in a way that improves the management multi-grade classes and keeps children as much as possible under shelter so their schooling is not interrupted by inclement weather.

6) Teaching candidates should be selected as much as possible from the higher first and second division graduates, and, based on the BRIDGES survey, given preference if they have more years of academic training, over professional training, at least until the latter is improved.

7) The study results suggested that with the currently existing educational inputs, it is difficult for teachers to teach more than two classes at a time without student achievement suffering. Since enrollments in rural schools are often too small to make this a cost-effective option, the alternative is to train teachers to cope with more grade levels so student learning is not hurt by these conditions.

The multi-grade study was printed and circulated and has served as the basis for continuing improvements in the PED Program.

2.3 New instructional materials

There were several reasons why instructional materials took priority on the agenda of educational components needing improvement. Time and again, teachers and supervisors

complained of the difficulties in the existing books (see above). Both groups universally believed it was the teachers' responsibility to see that children absorbed the textbook materials almost verbatim, and therefore the materials were constituting the core of what the children were learning. It was unreasonable to expect teachers to depart from these texts or to train them in more effective teaching practices without first considering the quality of the materials they were being asked to teach.

In the fall of 1991, an Instructional Materials Development Cell (IMDC) was established in the NWFP Directorate of Primary Education and charged with the responsibility of developing primary school instructional materials and their associated annotated teachers' editions. The staff of the Cell were also required to test their materials in limited trials. These functions of the IMDC were intended to replace the old system of privately contracting out textbook writing to subject specialists who usually were not familiar with the classrooms or students for which the books were intended. Thirteen staff members were selected for the IMDC on the basis of their performance in a curriculum writing workshop. The workshop attracted 50 volunteers who were university-qualified teachers with at least five years teaching experience in primary schools. The 13 primary school finalists began developing materials in October 1991 under the supervision of Dr. Mona G. Habib, an instructional materials development consultant provided by PED.

There were three specific objectives for the new materials: They should 1) teach the skills of the subject matter; 2) prove interesting to the students; and 3) support the teacher to teach effectively in the main schooling environments found in NWFP, specifically small and large classes, and multi-grade and single-grade classes. The materials were also supposed to link the content and methods of instruction,⁷ and bear a substantial part of the burden of training teachers by being as self-evident as possible. Each year, according to the plan, the writers were to develop and test materials for a new grade level that were consistent with the curriculum objectives set down by the National Curriculum Bureau in Islamabad.

In the year since they began their work, the IMDC staff has prepared and tested Urdu, Pashto, and Math/Science textbooks and annotated teachers' editions for the Kindergarten classes and has begun preparations for Grade One materials. Even though most schools enroll Kindergarten children, like multi-grades, they are not recognized with resources, and have to use teachers and instructional materials meant for other classes. The new materials

⁷ Lee Shulman (1987) has a valid point when he cautions against "bifurcating content and teaching processes" where "teaching processes (are) observed and evaluated without reference to the adequacy or accuracy of the ideas being transmitted" (:6). PED has attempted to join content and teaching process in the annotated teachers' editions, using the experience of the primary teacher writers to determine viable ways to co-mingle the two. Though not rich in options, the annotations offer one way to teach the content that the writers believe will work with appropriate age children.

thus constitute the first time textbooks have been explicitly directed at this grade level. In addition to following the obvious requirements of carefully sequencing subject matter from simple to more complex, and gearing lesson content and vocabulary to the age levels of the children, the developers have organized the lessons of the text around the sequence of teaching steps that were found to be associated with higher student achievement in the BRIDGES study of effective teaching practices.⁸ Teachers' annotated editions of the student texts give specific examples for using the steps in each lesson and provide exercises so teachers can help students practice the skills of the lesson. Consequently, using the steps, each lesson states an objective, some relevant review work, suggestions for presenting the new material, questions and answers to guide the children in practice, exercises for independent practice, and evaluation questions to assess how well the students' are learning the new work.⁹ Evaluation was added to the steps even though effective teachers in the original BRIDGES study did not evaluate student work in ways that were obvious to the observers. The assumption in adding evaluation was that a good teacher needs to know how well students are accomplishing the work in order to plan for reteaching and review.

The Kindergarten text included mainly readiness exercises: in the language courses, introducing phonetic representations of alphabet letters and practices for decoding simple words and sentences, and in the math/science courses introducing concepts of size, shape and pattern that form the basis for beginning analytical skills. Thus the materials required teachers to move away from the rote forms of learning they had previously employed where children only copied and recited letters and numbers.

The first trials of the kindergarten Urdu, Math/Science and Pashto textbooks began in April 1992, at the start of the academic year for the schools involved. The writers set standards they hoped to achieve on the three objectives stated above: skills, student interest and teaching effectiveness. Data was collected on forms similar to those used in the Multi-Grade Study and by essentially the same district staff. The writers also prepared simple achievement tests covering the essential points of the lessons covered during the trial. Deficiencies in any aspect of the materials were to be corrected before the textbooks and teachers' editions were introduced to larger numbers of schools and students.

The writers also wanted to see if the materials, with their simple and repeated pattern of effective teaching steps, could be taught to teachers in a short period of time through local trainers, thus minimizing the effort and resources that would be needed eventually to introduce them to all the schools of the province. Shortly before the new materials were introduced, the materials' developers conducted an intensive training workshop of 6 days for the local supervisors and a set of teachers (the T1 sample) from randomly selected schools within a reasonable radius of the district capitals (to make it easier to monitor the trials).

⁸These steps are similar to those summarized by Rosenshine 1986 as "Explicit Teaching."

⁹The kindergarten lessons did not include homework.

The developers first taught the 6 effective steps that would form the basis for each lesson. Then they gave demonstration lessons conforming with instructions in the annotated teachers' edition. The rest of the training required the teachers to practice the lessons using the effective steps, first in the workshop and then in the classroom. At the end of the training, the developers returned to the provincial capital leaving the supervisors who had participated in the teachers' training to give a 2 day course to a similarly selected new sample of teachers (the T2 sample). The supervisors also monitored the trials and collected the evaluation information and proformas on teacher characteristics, teacher comments on each lesson, and classroom observations. After a six week period the developers returned to the districts to administer the achievement tests and conduct an interview with the teachers about the materials they had been using.

Altogether the materials were tried in 109 classes (32 Urdu, 45 Pashto, and 32 Math/Science) and achievement tests were administered to 3,809 students. Despite what was for many teachers an entirely new approach to kindergarten teaching, the results of the tests were encouraging. Class averages were high for all subjects--Urdu (73% correct), Pashto (76%), and Math/Science (79%). Moreover, in all subjects the results were virtually the same for the students of teachers trained in the two different ways, intensively by the materials' writers or indirectly by the supervisors trained by the writers. Thus it appeared that the teaching pattern using the effective practices was simple enough, when accompanied by the explanations of the ASDEOs to serve the materials-specific training needs of the program.

Other promising results included the fact that class achievement averages were almost the same under conditions where earlier BRIDGES studies had indicated there might be significant disparities: in single as opposed to multi-grade classes, and in large classes as opposed to small classes (in the trials, more than 40 or fewer than 40 students were defined as large and small classes). Students of female teachers also outperformed students of male teachers on all subject tests, including Math/Science.¹⁰ While most of these results are encouraging, they are also preliminary. The success of kindergarten materials may present a special case that will prove different in the higher grades where students are capable of more self-learning.

Other activities are continuing to fill out missing elements in the program. Supervisory staff are learning to monitor the long-term use of the materials and to administer achievement tests periodically. Short-term teacher training will be devised to help teachers improve their general teaching skills as well as to upgrade their subject knowledge, as need becomes

¹⁰Past studies in Pakistan by the BRIDGES group had found higher achievement in fourth and fifth grade math and science in single classes than in multi-classes, in larger rather than smaller classes, and in students of male teachers rather than female teachers. The larger classes tend to be single grades and located in urban areas where teachers are generally more qualified.

apparent from a study now going on of the content knowledge of pre- and in-service teachers. Supervisors and managers have also been receiving and will continue to receive training in their responsibilities with regard to program quality. In each of these activities, staff are trained and then drawn in to a continuous process with concrete requirements that "force" them to use their new skills.

3 SUMMARY AND DISCUSSION

The problem of multi-grades in NWFP, as much as any education problem, illustrates the fact that schooling and particularly learning are "situated" acts, that is, they take place within specific social contexts and under a set of specific conditions. In trying to improve the quality of education programs, PED's experience to date has been that it is just as important to consider *how* improvements should be made as it is to consider *what* improvements should be made. The problem of multi-grades in NWFP has been intensified by a lack of visibility that has meant that education components such as training and instructional materials are not designed to meet the needs of multi-grade classes. In NWFP, these issues of quality in multi-grades are, with few differences, the issues of all classes in the system.

Research has been used in the province as a tool in program improvement--not just in informing design, but as part of the core effort to address quality issues. It has done this for multi-grades by:

- o attempting to bring the issue of multi-grade classes to the attention of relevant policy makers, through a major study of the conditions existing in those classes;
- o identifying ways to improve learning in multi-grade classes without resorting to the costly solution of appointing more teachers;
- o developing "aware" and skilled local district officers who can see the need for and support the introduction of solutions to education problems in the field;
- o activating a chain of responsibility through the research process that will be used in the introduction of all future innovations to classrooms;
- o helping instructional materials writers set standards for their work and ultimately evaluate whether they have reached their goals, including whether satisfactory achievement results in multi-grade classes has been achieved; and
- o developing simple ways to observe and reliably measure critical deficits and ultimately successes in multi-grade environments.

More generally, also, research has played a significant and integral part in the activities to

improve the quality of the primary program in NWFP. It has had a role in developing specifications for improved instructional materials and in identifying the teaching methods that make the success of these materials more likely. It has described a range of classroom conditions, so that materials can be prepared that are not only more suited to developing basic skills in children but are also better suited to teaching children under the variety of conditions that exist in NWFP schools. The research has been sensitive to the "cultural" expectations of the participants, and has suggested ways the activities can be carried forward so that everyone feels comfortable with the process and products of the education system. For example, annotated lesson plans based on findings from a BRIDGES study, not only give teachers help in their everyday teaching but support them through the period when they must move from rote forms of learning to learning based on comprehension, application and analysis. The lesson patterns are presented in a way that preserves the hierarchical respect relations between students and teacher that Pakistanis expect to find in classrooms. These annotated editions, based on research findings, serve as training manuals for teachers and supervisors. Thus training is focused specifically on the routine use and maintenance of the materials, and can be easily evaluated because of the clear objectives that are presented. Supervisors have also learned through studies in which they have participated to perform routine monitoring with observation proformas and achievement tests, and to feedback the results to their superiors and to individual teachers.

In the Directorate of Primary Education, the IMDC continues to develop and field-test instructional materials for the rest of the primary grades. The first trials of the materials have been promising. It remains to be seen whether future efforts will be similarly successful and whether a sustainable improvement program can continue to be organized in this way around the use of instructional materials. The Directorate of Primary Education in NWFP is beginning to affect the inputs that have made the multi-grade context a disadvantaged one. Eventually it would be nice if Pakistani educators began to see these multi-grade classes not as a problem so difficult it must be ignored, but rather as a rich and desirable environment in which to educate children.

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