The Implementation of Educational Innovations in Pakistan: Cases and Concepts

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Abstract

This paper presents a framework for analyzing the implementation of educational innovations, programs, and policies. The framework can be used: 1) as a tool for planning when designing an innovation; 2) as a source of feedback during implementation; and 3) as a way of learning lessons about completed experiences with planning and implementation.

The conceptual framework suggests twelve issues that affect the implementation of social programs: 1) organizational intelligence; 2) process; 3) technologies; 4) management and organization; 5) culture; 6) politics; 7) field implementers; 8) clients; 9) facilities; 10) costs; 11) quantity and quality of services; and 12) institutionalization of change. The paper then applies these issues to five educational innovations in Pakistan: learning coordinators, teaching kits, mosque schools, residences for female teachers, and the Nai Roshni program. Information for the study came from interviews with federal, provincial, and district education officials and a sample survey of 500 primary schools, 900 teachers, and 12,000 students.

The findings show different patterns of success and problems for each innovation. Two conclusions stand out. One is the need to address the fit between an innovation and national culture from the very beginning of planning. The mosque schools benefited from attention to Pakistani culture while the program of female residences failed by ignoring culture. The second is the need for a tentative, experimental approach to implementation in large projects, such as changes in curricula or systems of supervision. Instead of beginning with standard blueprints for project execution, governments may profit from an evolutionary approach in which lessons are learned and programs change as implementation moves along.

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THE IMPLEMENTATION OF EDUCATIONAL INNOVATIONS IN PAKISTAN: CASES AND CONCEPTS[1]

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Implementation is the process by which laws, executive orders, and other policies are turned into action. This paper begins with a brief overview of research on implementation. It then presents a framework for analyzing implementation and applies it to five educational innovations in Pakistan. The aims are to understand those cases in themselves and to use them to derive broader insights about the dynamics of implementing changes in schools.

Research on Implementation

Over the past twenty years policy implementation has become a distinct area of research in the social sciences. Pressman and Wildavsky (1973) established the field with their study of a federally sponsored program to create employment in Oakland, California. The title of their book conveys the tone of its conclusions: *Implementation: How Great Expectations in Washington are Dashed in Oakland.* Through careful analysis of what happened in Oakland they showed the effects of contradictory criteria of success, the confusion caused by many collaborating organizations, and the multiplicity of decisions that had to be made to spend money.

In the late 1970s and the 1980s, research and writing on implementation in the United States grew rapidly. Williams and Elmore (1976) published cases showing the difficulties of implementing changes in education, the federal Model Cities Program, and other areas. With examples such as mental health reform in California, Bardach (1978) described implementation with the metaphor of a game. Drawing on his experience in New York City, Chase (1979) illustrated his framework of implementation with programs to remove lead paint, provide methadone to drug users, and to offer health services in a prison.

Particularly influential for understanding change in education have been the studies on school reforms by Berman (1978, 1981), McLaughlin (1976), and Berman and McLaughlin (1977, 1981). They show that strategies of change must be adapted to the specific settings in which they will be carried out. McLaughlin (1976) gives examples of why the designers and managers of classroom innovations should accept suggestions from the teachers who apply them and refine the interventions, as well as their own behavior, in light of those reactions.

The intensive research by Huberman and Miles (1984) on twelve attempts to improve schools in the United States has also led to a better understanding of innovations in education. They state:

> School improvement is a messy, rich process full of coercion and shared struggle, indifference and heavy involvement, uncertain results and real payoffs. That process, deeply conditioned by local history, takes place over a long period of time—usually several years—in a uniquely defined context that includes a specific district. The process unwinds in its own terms, mocking standard frameworks, and challenging the researcher to make a coherent summary from the welter of observed and reported events (1).

Through his research Fullan (1982) has helped to advance knowledge about the implementation of school reforms, including the stages through which most reforms pass. Schorr (1989) has contributed to implementation studies by showing the conditions required for the success of educational and other social programs for disadvantaged children.

Cross-national publications about implementation began with an edited volume by Iglesias (1976) on experiences in Asia. In that same year Warwick and several colleagues at Harvard University used case studies of policy implementation to show the uses and limits of formal theories of educational planning (Warwick 1979). In 1979 the Harvard Institute for International Development began one of the largest field studies ever done on the implementation of development programs. Merging insights from economics, anthropology, and implementation research, the Development Program Implementation Studies used the same sample and methods to analyze four large development programs in Indonesia. Among these was Indonesia's massive and

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successful program to expand access to primary schooling (Development Program Implementation Studies 1984). Warwick's (1986) study of the Indonesian family planning program also illustrates the outcomes of this research. Grindle (1980) made a substantial contribution to the literature with her edited volume on the politics of policy implementation in Zambia, Peru, India, Colombia, Mexico, Kenya, and Brazil.

In 1973, Warwick and his colleagues in eight countries undertook a study on the formulation and implementation of population policies. In a book drawing together the findings, Warwick (1982) presented a transactional model of implementation and used it to interpret population programs, or their absence, in Egypt, Mexico, Kenya, the Philippines, India, Lebanon, Haiti, and the Dominican Republic. Parts of his framework were applied to the implementation of educational change in the residential science schools of Malaysia (Abdullah 1985), the Exemplary Schools Project carried out in Puerto Rico between 1960 and 1969 (Feliciano-Valera 1985), and the programs for Universal Primary Education in Nigeria (Agu 1986).

Several international organizations have also considered the dynamics of implementing educational change. In the early 1970s, the Center for Educational Research and Innovation of the Organization for Economic Cooperation and Development (OECD) in Europe studied educational change by reviewing seventeen case studies from OECD countries (OECD 1973). Between 1977 and 1980 the International Institute of Educational Planning at UNESCO organized a project to explore the implementation of educational innovations. A team of local researchers analyze the similarities and differences of innovations in seven countries and developed a framework to make sense of their findings (Adams and Chen 1981). More recently the World Bank has carried out research on the implementation of educational change programs funded by the Bank. A paper by Verspoor (1986) began by analyzing the Bank's experience in improving educational quality between 1963 and 1984. Using an explicit conceptual framework of implementation, he (1989) then explored improvements of educational quality in a sample of twenty-one Bank-sponsored projects that had shown a moderate or high degree of success. The conceptual framework draws on the models proposed by Berman (1981), Berman and McLaughlin (1978), and Huberman and Miles (1984). Among Verspoor's conclusions are the need for more focused supervision, systematic monitoring of project experience through reports from local implementers and visits to field sites, and adapting or redesigning project objectives or implementation strategies in light of the lessons of experience.

A Transactional Model of Implementation

Effective implementation requires transactions among policy proponents, implementers, and others whose support is necessary for action to happen. As Warwick states:

> Implementation means transaction. To carry out a program, implementers must continually deal with tasks, environments, clients, and each other. The formalities of organization and the mechanics of administration are important as background, but the key to success is continual coping with contexts, personalities, alliances, and events. And crucial to such adaptation is the willingness to acknowledge and correct mistakes, to shift directions, and to learn from doing. Nothing is more vital to implementation than self-correction; nothing more lethal than blind perseveration (1982, 190).

The transactional model suggests twelve issues affecting the implementation of social programs:

1. Implementation depends on the *adequacy of the organizational intelligence* used in developing policies and managing programs. Organizational intelligence means the total set of information relevant to a policy or a field program (Wilensky 1967). Effective implementation requires that intelligence be applied at every stage of policy analysis and program execution, from the definition of the problem to be solved through the evaluation of a program's impact.

Implementation requires two kinds of organizational intelligence. *Initial intelligence* is needed during the analysis and planning that generates the policy to be implemented. The challenge to answer the questions of whether there should be a new policy at all, how it should be defined, and whether it can be implemented. For example, a policy on the use of local languages in Pakistan's province of Balochistan would need information on what languages students and teachers speak in each school districts and in different schools within a district. In that multilingual province mistaken intelligence could lead to a language policy that could not be carried out or that caused tensions among the region's ethnic groups. Initial intelligence might also require planners and policy analysts to answer the questions raised in the framework now being presented.

Ongoing intelligence focuses on progress during implementation. Program management needs information about what is happening in the field. It can take such forms as statistics on enrollment, attendance, dropouts, and other indicators of school per-

formance; interviews with teachers, school administrators, parents, religious leaders, and other opinion leaders; data on the success and limitations of pilot projects; and direct observation of teaching and patterns of supervision. The purpose of such intelligence, which is also called formative evaluation, is to provide program managers with the information necessary to change programs as they move along. Through such information managers can decide whether the original objectives for the program were correct, the success of the process followed in policy development, tasks to be performed are clear, and other points covered by this framework.

2. The *process* by which policies are set and programs are developed should create a sense of ownership among those critical to field action and not alienate those who count during implementation. Programs are most likely to be implemented when persons with influence on policy and implementation participate in their formulation and design, when the resulting actions are adapted to a country's or a region's culture, and the way policy is set does not create political conflicts. A policy that is seen as alien to a country's education system or offensive to a region or ethnic group may be resisted even if its elements are technically sound. The most delicate transaction is in having critical figures participate to the point where they feel they have had an adequate impact on policy development.

3. Implementation requires a set of *tasks* to be performed and adequate *technologies* for carrying them out. Managers and implementers, such as school heads and teachers, should know what they are expected to do and have the means available to act. Tasks are more specific than goals. It is not enough to tell district education officers that they should improve the quality of teaching or have better supervision. Tasks show some specific ways of achieving those goals. Likewise, poorly trained teachers will not improve the way they teach mathematics by being told that their students should learn more in that field. For implementation to take place teachers need to know the specific tasks they should perform to improve their instruction in mathematics. Technologies become crucial to implementation when the performance of a task requires materials, such as laboratory equipment for the teaching of science, calculators, or even a blackboard and chalk.

Implementers need a clear sense of direction, but they should not be programmed to perform tasks and apply technologies without regard to their work setting. Effective implementation often means trying a set of tasks and technologies, evaluating their impact, changing them to adapt to local circumstances, and continuing this process until there is a good fit between the work to be done and the immediate environment (see McLaughlin 1976; Berman and McLaughlin 1978; Verspoor 1989). Often this cycle of adaptation will require change not only by implementers, such as teachers, but by those promoting the innovation. Such transactions convince implementers that the tasks make sense, and they result in innovations that are tailored to the specific work situation.

4. A program has the greatest chance of being carried out when there is effective *management and organization*. In Pakistan the setting for innovations in primary education includes the federal ministry and provincial offices of education, the District Officers and their staff, Learning Coordinators, and school personnel. Reforms are most likely to be implemented if (a) they can be integrated into the administrative structures and operating routines of the organizations involved; (b) one agency or level, such as the District Officer, has the responsibility and the will to carry out the reforms; and (c) the proposed changes do not stir bureaucratic rivalries.

5. A reform stands the best chance of implementation when it seems to grow out of or be compatible with a region's *culture*. Educational innovations in Pakistan will be helped when parents see schooling in general and the schooling of girls as compatible with Islam; and when local interpreters of culture, particularly tribal chiefs and religious leaders, encourage or do not oppose attendance at school. Change will be particularly hard to carry out when the community sees education or the education of women as violating the precepts of Islam.

6. The chances of implementation rise when national, provincial, or local *politics* support educational change. A critical effect of politics is decisions on how much national funding to allocate to education. Politics can also hurt educational innovations when teaching or administrative appointments are based on patronage. Implementation can likewise be held back by local political conflicts that prevent children from attending school. Politics can thus be a driving force for educational change or a source of inaction, hostilities, and boundary wars.

7. Implementation is most likely when *field implementers*, including school heads and teachers, understand the purposes and methods of the change; are able to carry it out; are motivated to perform the necessary tasks; and do what is necessary for program success. Field personnel can carry out instructions from above or develop their own ways of promoting change. Implementation is least likely when implementers do not understand what they are expected to do; are hostile to, ambivalent about, or uninterested in the changes; find that an innovation conflicts with their culture; are concerned that a change will create some risk or cause them harm; and are worried that an innovation will bring more work

but no other compensations. Field implementers are vital to the implementation of innovations in schools; without their cooperation little will change.

8. The chances of implementation rise when *clients*, such as students and their parents, want the innovation and are willing to support the actions needed to carry it out. In Pakistan's primary schools educational change is most likely when parents are willing to send their children to school, provide the funds for textbooks and other instructional materials, insist that homework be done, and otherwise encourage cooperation with the school.

9. The possibilities for implementation improve when the *facilities* required for the reform are present. One of the greatest barriers to expanding enrollment in Pakistan is the "shelterless schools." These have no building or buildings in such poor condition that they were abandoned. The absence of a school building or schools operating in cramped quarters have made it hard for teachers to use the teaching kit, which requires storage space. Other common problems are the lack of transportation for supervisors; a shortage of chairs, desks, and other school equipment; and the lack of toilets in the schools.

10. Implementation is helped by three aspects of *costs*: efficiency in the use of funds needed to begin the innovation; the provision of funds to support ongoing field activities, such as maintenance expenses for buildings or transportation for staff; and the perception among those who count for the program that the expenditures made are worthwhile and justified.

11. Implementation depends on the *quantity and quality of services* provided by a given program. For reforms of primary schooling the most important indicator of quantity is often enrollment. Implementation is also helped when the quality of services is high and harmed by perceptions that the innovation is not providing adequate education.

12. Implementation success is reflected in the degree to which *change has been institutionalized*. Institutionalization takes place when the policy, program, or project being implemented becomes built into the system of which it is a part, such as a school district. Positive indicators of institutionalization are funding from normal rather than ad hoc sources; the assignment of regular staff, such as public school teachers, rather than temporary personnel; continued legal, political, and organizational support; and other signs that the initiative has a lasting place in the system. Negative indicators are heavy dependence on funding from outside sources, such as international donor agencies; staff whose appointments can be ended by political fiat or the end of temporary funding; a controverted or precarious place in the surrounding organization; and heavy dependence for continuation on a single sponsor, such as a politician who created the program. A program becomes institutionalized when it shows the usual signs of being a lasting part of the system in which it is located. It is weakly institutionalized when it does not have the political, financial, or organizational roots to sustain it against shifts in its environment.

A high degree of institutionalization does not mean that a scheme cannot change. Change is common among many institutionalized programs. Government schools, among the most institutionalized of public services, are constantly subjected to reorganizations, reforms, and other changes. The true test of institutionalization lies in whether the structure of a system persists after repeated modifications have been made.

The framework of implementation can now be applied to five educational innovations in Pakistan. The next section gives a brief history of each innovation and applies the framework to its experience with implementation.

The Innovations in Pakistan

The five innovations are: the use of Learning Coordinators to improve the supervision of schools and the quality of teaching; the introduction of teaching kits; the addition of primary schools to mosques; the construction of residences for women teaching in rural schools; and the Nai Roshni project of drop-in schools for students who had never attended or had left school.

The information about the innovations comes from interviews with over 100 Pakistani officials and a survey carried out in a sample of nearly 500 primary (elementary) schools. This research was done through Project BRIDGES, a joint effort between the Harvard Institute for International Development (HIID) and the Academy of Educational Planning and Management in Islamabad (AEPAM). Interviews were held with key officials from the federal government and provincial Departments of Education, District Education Officers and their staff, Learning Coordinators, faculty members of universities, and researchers in Pakistan.

Learning Coordinators

In 1979 the World Bank and the Government of Pakistan began their Fourth Education Project, better known as the Primary Education Project (PEP). Its objectives were to increase access to primary education; reduce dropouts and repetition; improve educational quality; and to reduce costs and otherwise improve the efficiency of the government's primary education system. With an original estimated cost of U.S. $ 17.2 million, the project financed the construc-

tion of over 1000 classrooms; the salaries of a new category of assistant teachers; a program of in-service teacher training; the salaries of persons holding two new supervisory posts; textbooks, teachers guides, library books, and the development of other instructional aids; furniture for classrooms; residences for female teachers; and other initiatives. The project was conceived as a set of experiments to discover the best ways of improving quality and access in education. The project officially closed in June 1985. When the last expenditures were made in January 1986, the amount spent was U.S. $ 11.7 million, 32% less than the initial estimate. Pakistan and the World Bank have built on the lessons of the first PEP for later projects.

A critical element in the PEP was the addition of Learning Coordinators, a tier of officials who would supervise and work with teachers in ten to twenty schools. Within the Union Council, the smallest administrative unit of government, they would visit the schools at least once a month, observe teachers in the classroom, inspect their lesson plans, and take other steps to improve the quality of teaching. Learning Coordinators were introduced in all four provinces. However, that name does not have the same meaning in every district. In one province, Learning Coordinators in some districts followed the PEP model while in others they served mainly as attendance checkers for their schools.

Interviews with federal, provincial, and district officials showed that the tasks LCs perform vary from place to place and person to person. A coordinator in Sindh reported a set of tasks close to those envisioned in the original plan:

> The Learning Coordinator visits classes and supervises the teacher, once a month. If the teacher is not doing well, I tell the teacher how to do it better. I also help in preparing audio-visual aids. I sit in the classroom, and when the teacher is not doing well I give a demonstration. I teach one hour in each class in the school, and stay all day in the school....The teachers come to class more now. I don't announce my visits, so they have to be there.

When HIID/AEPAM staff visited a primary school in Punjab they found a different conception of the work to be done. A coordinator came to the school every day to observe its construction and to ensure that he would obtain an office there. When asked what he did when he visited other schools, he said that he inspected the building and the school records but didn't bother to observe teachers because his work had little to do with the academic aspects of teaching. During the interview another coordinator came in. Although this school was not part of his responsibility, he stated that he visited it often to be sure that he, too, would have an office there.

The interviews and other reports showed benefits and problems in the work of the Lcs. The main benefits were: (1) a significant reduction in teacher absenteeism; (2) improvements in the quality of teaching; (3) increased enrollment and better attendance by students; (4) an opportunity for teachers to discuss their problems with persons not primarily concerned with administration; (5) a greater sense of professionalism among teachers; (6) the use of coordinators as substitutes for missing teachers; and (7) better communication from district management to the schools. When asked about the single most important innovation in primary education during the last ten years, a provincial Secretary of Education said: "The Learning Coordinator."

The main problem with this innovation arose from the way Learning Coordinators were brought into the district educational offices. The World Bank developed a system in which the Lcs would begin working under the Project Implementation Units (PIUs) and eventually become part of the mainstream district administration. In theory, this arrangement gave the PIUs control over critical aspects of the hiring and payment of Lcs at the beginning, but made provision for gradually integrating the Lcs into the district offices. The project wanted to have separate control but avoid the liabilities of a dual personnel system.

One immediate effect of this arrangement was to leave district officials with the feeling that LCs were not under their control. These comments from a District Education Officer (DEO) in Sindh bring out that point:

> The Learning Coordinators really don't do anything. They are supposed to teach in class but they aren't teaching anything. They are just dictators. They are not under the control of the District Education Officer, so they can do what they want.

Another DEO in Sindh claimed that the supervisors to whom LCs had to send their reports felt that any negative comments in those reports made the supervisors look bad to their superiors. An LC in Sind also reported a lack of cooperation between the schools funded by PEP and the regular schools.

Supervisors and other administrators further resented what they saw as special privileges given to the LCs, such as motorcycles and extra allowances. A PIU official in Sindh remarked:

> The supervisor has so many demands on his time, so many meetings, and gets only 100 rupees per day as a travel allowance, while the Learning Coordinator gets a full allowance.

A Sub-Division Education Officer in Sindh made a similar point:

> There used to be problems of absenteeism, but now that there are more Learning Coordinators and supervisors the problem has been resolved. But we lack transport for supervisors. The Learning Coordinators have motorbikes but the supervisors do not.

A provincial director for the second PEP project also complained that even when motorcycles were available, there were no funds to repair them. Over 40% of the motorcycles in his project could not be used for that reason.

How well does the introduction of Learning Coordinators meet the standards in the model of implementation? The greatest strength of this innovation is that it dealt with a widely recognized need for better supervision in the districts. In this sense the initial intelligence applied to policy design was sound. But that intelligence failed to consider the difficulties likely to be created by the PIUs. Ongoing intelligence was also flawed. It did not pay enough attention to the negative reactions from government officials to the parallel administrative structure. The process of design was strong in having top officials agree to adopt the innovation but weak in consulting other education officials, such as District Education Officers, who would have to endure the frictions it caused. During implementation, with some differences across provinces, program management usually was serious about carrying out this innovation. But, for reasons indicated, it was difficult to integrate the Learning Coordinators into the normal education bureaucracy.

The interviews showed that some Coordinators, the implementers of this change, were not clear about the tasks they were supposed to carry out. The reasons included inadequate training and weak supervision of the LCs. Implementation was further complicated by the decision of some districts to apply the name Learning Coordinators to supervisors who were expected only to monitor attendance in schools. This decision reflected weak control over the specific meaning of the innovation.

Implementation was helped by providing the Learning Coordinators with motorcycles, a facility not available to most other supervisors. As time went on many of the motorcycles developed such serious repair problems that they could no longer be used. While they lasted the motorcycles did help LCs to reach their schools, but they also provoked jealousy among the supervisors who did not have them.

The Primary Education Project assisted this innovation by providing funds for ongoing field activities. The individuals interviewed for this study usually felt that the expenditures made were worthwhile, though some saw the program as a waste of money. Their ratings of the quality of services were mixed, with some highly enthusiastic and others quite critical. Few commented on the impact of Learning Coordinators on enrollment and almost none on the reactions of parents and students to this innovation.

The greatest risk with this program is that the original concept of Learning Coordinators will not be institutionalized. In some areas it may continue to be seen as a foreign element in school administration. Elsewhere the name may be kept but the parts of the innovation aimed at improving the quality of teaching may never be carried out or, if they are, cut back. In a 1988 report the World Bank expressed concern that some Learning Coordinators were abandoning initiatives to improve teaching and were being assigned to administrative tasks: "The sparse documentation available suggests that LCs are being used more to monitor teacher attendance and for record keeping than to assess pupil achievement or to introduce qualitative reforms... (1988, p. 27)." The unanswered question is whether the notion of Learning Coordinators embodied in the Primary Education Project has strong enough roots to keep it from administrative routinization.

Teaching Kits

In 1974 the Ministry of Education, following a recommendation from UNESCO, decided to give each school in Pakistan a teaching kit. The aims were to make it easier for students to learn abstract concepts from concrete examples and to move instruction away from rote learning. The resulting box contained 100 items such as charts, cutouts, a flannel board, chemicals, test tubes, beakers, a magnet, and pictures of famous personalities. After some pilot-testing of the items the project began in 1976 with funding from UNICEF. The government asked the National Education Equipment Centre (NEEC) in Lahore to produce the 60,000 kits needed for the project.

Most officials interviewed by Project BRIDGES gave this innovation negative or mixed reviews. They claimed that the kits were being used in few Pakistani classrooms and that some school officials did not know what they were.

> The concept is very good, but it is not being used.... A survey of 10% of the best schools in Islamabad shows that it is not being used. These are the most highly qualified teachers we have. What do you expect of the lesser trained teachers (Education official, Islamabad)?
>
> There was an all-Pakistan assessment. The majority of the schools proved to be not using the kit (Education official, Islamabad).
>
> We have only one kit. There are 5-6 sections of the juniormost classes. It is not possible (to use it). We have simply put it away safely (Headmistress).

Visits to schools by BRIDGES staff showed that the kit was available in about half of them, was rarely used, and had many items missing. Charts from the kits were sometimes used as decorations for walls in the classroom.

In late 1988 and early 1989, BRIDGES carried out a probability ("random") sample survey of 487 schools in Pakistan's four provinces and the federal district. Interviews were held with over 900 teachers and headmasters who taught classes.

When asked if they had a teaching kit about 60% of the teachers and headmasters replied that they did. The lowest report (35%) was for Balochistan, the highest (70%) for North West Frontier Province (NWFP). Those who said that they had a teaching kit were then asked if it was in the school. About 80% reported that it was, with NWFP showing the highest figure (92%) and Balochistan the lowest (67%). Only about half of the teachers had teaching kits available for use in the school.

A critical question was whether teachers had ever used the teaching kit in class. Among the teachers with access to a kit about half (53%) stated that they had used it. Across the provinces and the federal district the average (mean) number of lessons in which it had been used ranged from seven in Punjab to over eleven in Balochistan, with a national average of eight for that school year.

Teachers were asked if they had ever received training in how to use a teaching kit. About three-fourths of those with access to a kit stated that they had received no training; 70% said that the kits had broken or missing parts; and only 12% that the government repaired or replaced those parts. Among those with a kit 66% mentioned that it still contained the training manuals for its use.

These findings suggest that the teaching kit is physically present in about half of Pakistan's schools but used by teachers in only a few lessons a year. Parts are missing and the government provides few funds to replace them. Although the Ministry of Education is making efforts to improve it, the teaching kit is rarely cited as an innovation that has taken hold in schools.

What lessons about implementation can be drawn from Pakistan's experience with teaching kits? One is the urgency of organizational intelligence in project design. The planners of this innovation did not ask how implementation would be carried out, by whom, and under what conditions. A federal official remarked:

> [that the commission designing this innovation] was so focused on the teaching kit that nobody thought about the real problems: about the fact that more than half the schools did not have buildings, that DEOs are not good delivery mechanisms (I have visited the office of a DEO and seen where they have stocks of furniture being eaten by termites, materials which are not delivered), but the committee was so focused on the kit that these issues were not considered.

Related to this failure in intelligence was the limited consultation with those who would carry out this innovation. The process of policy design focused heavily on technologies to be applied in the classroom and little on the people who would have to distribute and use the resulting kits.

For a technical innovation to succeed the necessary materials must get to the field implementers. With the teaching kits there were problems in moving the boxes of items from NEEC to the District Education Officers (DEO) and from there to the schools. In July 1979, the Director of NEEC wrote to the government of Punjab that 4337 kits for that province had not been claimed. By June 1980, only five of the thirteen DEOs in Punjab had picked up their kits. Similar problems arose in other provinces. And even when they reached the district offices many kits stayed there for months or years. Items in the kits were stolen or suffered damage from rust and insects. DEOs and their assistants did not have the funds to take the kits to the schools and saw this task as onerous. The assumption of Ministry staff that district officials would follow orders to pick up and deliver the kits was often mistaken.

The chances of implementation rise when those who use an innovation feel some ownership in its development. That feeling was typically missing among the teachers and school heads who were given the teaching kits. The kit's contents were developed by the central government with the help of UNICEF rather than by or with the potential users. When the kits arrived teachers and school heads often saw them as another bright idea imposed on them by the government.

Implementers will be most likely to use an innovation when they understand it. With the teaching kits teachers needed a clear sense of what tasks they should perform with it and how the items (technologies) in the kit were related to those tasks. Training was particularly important with this innovation because the teaching kits implied a departure from traditional methods of rote learning. Yet teachers often did not know what was to be done with the items in the kit. Each box contained manuals of instruction, but they were not enough to show most teachers how to apply the items in the classroom.

> We got 3300 teaching kits from UNICEF. We distributed those, but the teachers were not oriented to the teaching kit; we provided them boxes which were never opened.... There was no supervision, no training provided on how to use the kits (Senior official in education, Province of Balochistan).
>
> The teaching kits started in collaboration with UNICEF....A sham of training was arranged....The training of teachers was not good and it got diluted (Senior official in education, Islamabad).
>
> Almost all the schools have kits.... The teachers are not properly trained to use them. But then, neither are the supervisors, nor the Sub-District Education Officers or the District Education Officer! I visit the schools and have seen that the kits are not being used (District Education Officer).

The chances of implementation increase when field implementers, such as teachers and head teachers, are motivated to use an innovation. Given the way in which the teaching kits were developed, there was little demand for them among field staff. It was not designed to satisfy their needs but to promote concepts of educational change originating in UNICEF and the Ministry of Education. Teachers also feared that if an item in the kit was lost, stolen, broken, or worn out, they would have to replace it.

> Any innovation faces a lot of opposition....If the teacher is fully reassured that breaking an item is all right and he will not be penalized for using it, he would use it. If the concept of safeguarding the kit in a religious manner is removed, it will be used. Thus teacher accountability should be reduced (Senior educational advisor, Islamabad).
>
> Audit proves that when an item of the kit was missing the Head of the School was penalized. This affected the head's salary so he or she locked it up (Educational research officer, Islamabad).
>
> There are a number of reasons why (teaching kits) didn't work too well.... Teachers were afraid that if they damaged the kit or lost an article they would be held responsible. That has to be the fate of any centralized project (Provincial Secretary of Education).

Successful implementation requires that conditions in the environment—here the school—are consistent with what must be done through the innovation. One difficulty with the teaching kit was that many schools either had no buildings or no space within the building for storing the material. A senior official in the Ministry of Education commented:

> Our education system is poverty stricken. We have 29,000 shelterless schools. Sixteen thousand schools have only one room. Seventy percent of these impoverished schools have no place to keep the kit. One cannot expect teachers to carry the box back and forth from home to school every day. So if there is a place to keep the kit within the school vicinity, only then you can expect it to be used.

School staff likewise complained that the teaching kit could not be used when classes were large. According to a Headmistress, the kit does not work when there are more than forty-five children in a class. "By the time the teacher makes the children bring out their books and the lesson is initiated it's time for the next class." Another Headmistress felt that the atmosphere of village schools works against the use of teaching kits.

> There is no light, no fan. It is very depressing and dreary and suffocating....There is no toilet, no sweeper in any of the schools. When they need a latrine, the girls have to go home during school hours, wasting a considerable amount of time.

Some teachers also found that the teaching kits did not fit their teaching style, which emphasized lecturing and rote memory rather than illustrations and experimentation. Others said they were so exhausted by teaching that they had no time for anything new.

Implementation would have been helped by feedback about what was happening with teaching kits in the classrooms. Through ongoing intelligence, the program's managers might have used feedback from evaluation studies to make improvements in areas such as the training of teachers.

The teaching kit was an innovation driven more by technology than by the interest of teachers and

school heads. Because it was developed by the Ministry of Education with aid from an international donor, it seemed to be a top-down experiment being force-fed into a system that was not ready for it. Provincial officials found it burdensome to implement while teachers often did not know what it was or how it should be used. Fears about having to pay for missing parts, inadequate storage space, large class sizes, and difficult working conditions further dampened enthusiasm for the kit. This innovation did enjoy some degree of institutionalization. The kits were sent to the schools and are still found in about half of those studied. But if institutionalization means not only the physical presence of materials but the ability and commitment of implementers to use them, the teaching kits fall far short of what the government and the international donor had originally expected. Teachers rarely use them and their net impact on the quality of education seems slight.

Mosque Schools

The third innovation is the addition of the curriculum for the government primary school to about 30,000 mosques. The essential features of this program were described in a 1978 statement from the federal Ministry of Education:

> The mosque will be used as a place of learning for children, for out of school youth and for adults. In addition to Islamiat, the children will study the modern curricula for primary school....In order to teach modern subjects, a primary school teacher will be appointed in such school who in cooperation with the Pesh Imam [religious leader] will teach children and adults at hours convenient to the community. Free books and teaching aids would be supplied to children going to mosque schools. This will ensure rational utilization of the mosque and re-establish its traditional role of spreading the light of knowledge in the community.

The mosque schools program received strong support and adequate funding from the government, and was seen as politically clean.

The strategy for implementation was as follows (see Anderson and Chaudhry 1989, 5-6). Mosque schools would be opened in villages where there were no primary schools, with preference given to the poorest areas. Each school would be assigned one teacher whose salary would be paid by the government and who would teach the normal primary school subjects. Schools would follow the regular curriculum, be given free textbooks, notebooks, and uniforms, and be supervised by the District Education Officers. They would normally provide only three years of schooling. The mosque leader would be paid a stipend for teaching the Koran and lessons in Islamiat. Qualified students from mosque schools could transfer to regular government schools at any time.

Field research by Project BRIDGES showed that the implementation of the mosque schools policy differed from the original strategy. Classes were often held in buildings some distance from the mosque rather than in the mosque itself. In Sindh mosque schools were supervised under a special administrative arrangement within the province rather than by District Education Officers. Further, though the government's intention was to use the mosque schools as a second-best alternative in areas where there were no regular primary schools, in some regions they were built close to existing government primary schools. Some mosque schools also provided the full five years of primary education rather than just three years. In short, when the policy was actually carried out changes were made to increase its effectiveness and solve some of the problems it created.

One problem was the feeling of some imams that they did not want the mosque, a sacred place, contaminated by the constant presence and occasional poor hygiene of young children. Placing the school some distance away from the mosque kept the connection sought by the government but allowed the mosque to work in its normal ways.

The government's main reason for establishing mosque schools was cost efficiency. The plan called for the addition of the primary school curriculum to existing mosques rather than the construction of new schools. The intended result was a dramatic expansion of access to schooling at low unit cost per student. By avoiding the delays and costs of finding land and constructing new buildings, the government would save money and have swift implementation. Even when the school rooms were built some distance from the mosques, the responsibility for land and construction fell on the imam and his community rather than the government.

What have been the results of mosque schools? As intended, the main benefit has been greater enrollment by all students in primary schools. Estimates of new students run in the hundreds of thousands. Critics claim that some of this increase is accounted for by students who transferred from government schools to receive free textbooks, notebooks, and uniforms. An evaluation in Sindh (Government of Sind 1984) shows that in a sample of 282 mosque schools only 9% of the pupils had previously been in government primary schools. That study and comments from informed officials suggest that most of the enrollment in Mosque Schools is new.

A second benefit of mosque schools is the incentive for enrollment by girls. Because mosques have long given religious education to boys and girls, the program was building on a cultural tradition rather than trying to create a new one. The imam is usually a respected figure in the community and a person who can allay the fears some parents have about sending their daughters to school.

The evaluation in Sindh concluded that the participating communities had a positive attitude toward the education of their children and that "the mosque schools motivated the parents to send their girls to the schools" (*ibid.*, p. 17). A study by Project BRIDGES (Anderson and Chaudhry 1989) found that increased access to schooling for girls was most common when mosque schools were the only primary schools in a region. They also found that this benefit was most evident when the schools were no more than one kilometer from the child's village. Parents' decisions on whether to send their daughters to school are influenced by their sense of whether the journey to school will be safe. When schools are more than a kilometer from the village, concerns about safety rise. Similar statements were made in interviews for Project BRIDGES:

> The leadership of the mosque school project was very enthusiastic and active. The success of the project also belied the belief that parents were not willing to let their girls go to school with boys—about 30% of the enrollment in the mosque schools are girls (Education official, Sindh).
>
> We have done an experiment with mosque schools which showed a very interesting thing: 30% of the enrollment was girls. The man involved as a teacher was a local man in the same village....When the teachers are known to everyone, parents have confidence in sending girls to school (Education official, Sindh).

While the benefits of increased enrollment and increased access for girls are found everywhere, education officials agree that in the two largest provinces the mosque school program has been more successful in Sindh than in Punjab. The advantage of the mosque school in Sindh is that it can serve scattered rural settlements with populations of under 200 and sometimes under 100. In 1984 there were 68,434 settlements of that kind, 60% of which had fewer than 200 inhabitants (Government of Sind 1984, p. 3). Given the financial and logistical difficulties of building government primary schools in such communities, the use of existing mosques for schooling was a convenient solution. In Punjab there are few small settlements. An experienced observer of mosque schools also criticized the inflexibility of Punjab's administrative system.

> Punjab is rigid to innovation. It has a very large administrative system. So promotions are very slow. People wait a long time in the pipeline. No new blood is injected into the system. Any new program given to them is sure not to succeed.

The most frequent criticism of mosque schools concerns the quality of their education. A weak point cited by several officials is the low level of education of the imams and of the other teachers. A senior education official in Islamabad said of the imam:

> As a teacher he must be phased out....I had earlier advocated that he should be trained to take on more load of teaching. This is not feasible since his formal schooling is highly doubtful.

A District Education Officer in Punjab argued that the imams are poor teachers because they are illiterate. Others noted that the imam is a person whom parents respect, but that poorly trained imams led to inferior schooling.

Some have also questioned the credentials of the teachers working with the imams. And even if they are well-qualified they must operate under the rules set by the imam. If he has reservations about secular education, as some do, his attitudes may affect what the teacher can do in school. Because the imam has the final word on what is and is not done in the mosque, teachers may be forced to work with students in cramped or unpleasant quarters elsewhere. In a mosque school in Balochistan, BRIDGES staff had to interview a teacher in a dark room without windows because the imam did not allow students in the mosque.

Systematic information about the quality of mosque schools is not available. Future studies on quality should make systematic comparisons on government and mosque schools in areas such as achievement in mathematics, science, social studies, and Islamiat. Another key question is whether three years of education is enough to make students literate and numerate if they stop their schooling at that point.

On the categories of the implementation framework mosque schools can be rated high on the initial intelligence of project design but low in ongoing intelligence. While decisions about design were made in Islamabad, the process followed in developing the mosque schools policy did lead to a sense of owner-

ship by key figures, particularly the imams. As implementation went on the innovation was also adapted to local settings, as seen in the different ways the program has been administered in Sindh and the other provinces. The project had a clear definition of tasks, and in many areas provided such technologies as textbooks and notebooks for students.

In all of the provinces the program's management and organization suffered from a lack of integration with the departments of education. The resulting administrative structure created some tensions with the provincial offices of education.

The three greatest merits of this innovation are its efficiency in costs, its respect for the concerns of clients, and its compatibility with the culture and religious traditions of Pakistan. The government's expectation that parents would respond favorably to mosque schools and would send their daughters to them were supported when the program was carried out. An essential reason for the favorable response of parents was their belief that girls would be safe in the religious environment of the mosque. Also accurate was the government's assumption that access could be expanded at relatively low cost through this method.

The greatest single achievement of the mosque schools was increased enrollment. Their greatest potential weakness is in the quality of the education they offer. The data are not in on that subject, but there are good reasons for asking whether the results of mosque schools on literacy, numeracy, and other aspects of student achievement are as good as those for government schools.

For the moment this innovation seems to be institutionalized. Its success in raising enrollment, especially the enrollment of girls, and the lack of alternatives for education in many areas served by Mosque Schools make them an attractive option for the government. But if the number of government schools in those areas increases and if parents see the quality of their education as better than that of the mosque schools, the flaws in this innovation may reduce its attraction to parents and the government.

Residences for Rural Female Teachers

A critical problem for rural government schools is the shortage of female teachers. One reason is the lack of housing for teachers near rural schools. To deal with this problem the World Bank and the Government of Pakistan, under the first Primary Education Project, built 320 residences for single teachers in Punjab, Sindh, and Northwest Frontier Provinces, and ten cluster school hostels for married teachers in Balochistan.

Reports by the World Bank and BRIDGES interviews show that this innovation worked only with the ten hostels in Balochistan. Most of the other residences were not occupied at all or were occupied and abandoned soon after.

> The idea of female residences was not successful, so we did not repeat the mistake. Not even married women would put up in such residences (Education official, Islamabad).
>
> They are underutilized, sometimes totally abandoned (Education official, Islamabad).
>
> There is the project of construction of residences for female teachers. This did not work well.... (Senior education official, Sind).

The hostels in Balochistan were more successful. They were occupied by married couples, often both teachers, who felt secure with that living arrangement.

The main reason for the failure of this program was cultural. Single women in Pakistan usually do not live alone. They stay with their families and if they must travel to outlying areas they do so in the company of male relatives or other women. For women raised in most of Pakistan the prospect of living alone or even with another woman is foreign and intimidating. Given the lawlessness in some parts of the country concerns about safety are well-founded.

An education official in Islamabad mentioned social taboos against women staying away from home. A senior official in Sindh stated: "The teachers cannot live alone and like to be with their families." In addition to their concerns about proper behavior for single women, teachers often felt insecure in residences located outside the village, especially when there were no boundary walls and security guards.

> Some rural schools are in far-flung areas. There have been unpleasant incidents of threat or harassment....We have 7 or 8 hostels in this area but the social conditions are not conducive (Education official for Islamabad and Federal Area).
>
> There is no chowkidar [guard], no sweeper. Two teachers spent two nights in one such hostel. They were horrified. There are no boundary walls (Senior education official, Islamabad).
>
> ...Residences were constructed at schools located outside of the village, and the teachers did not feel secure outside the village (Senior education official, Sindh).

Teachers' financial allowances also affected their reactions to the residences. A senior official in the

Ministry of Education reported that teachers were uninterested in rural hostels because the allowance made for house rent—45% of their salary—would be deducted once they mo.ed in. Others pointed out that in any event the salary for rural teachers is less than that of urban teachers.

The construction of residences for female teachers was an innovation with a clear task and a manageable technology. In fact, under the first Primary Education Project fifty more residences were constructed than had been proposed in the initial plan. Yet overall the project failed, mainly because it did not pay enough attention to culture and to the concerns of the teachers. The innovation had greater success in Balochistan because those using the hostels were married couples who were less concerned about safety and more able to adapt the facilities to their own needs.

This case shows serious inadequacies in the initial intelligence applied to project design. World Bank officials and their Pakistani counterparts failed to see how cultural understandings about women in Pakistan and the specific response of teachers would affect this innovation. Ongoing intelligence was also weak. Careful evaluation of a pilot project would have shown the cultural and other difficulties of implementation. Under the scheme of implementation actually followed these shortcomings were not evident until over 300 residences had been built.

The process followed in designing the residences left out the group most vital to the program's success, the women teachers. Management was strong at the time of construction, but the low acceptance rate by teachers shows that the innovation was not, except for Balochistan, integrated into the normal provincial organization of schools. The government was committed to implement the residence program, and the question of corruption during implementation was not raised in the BRIDGES interviews.

A marked deficiency of this program is that field implementers—the women teachers—were not willing to accept it. Their reaction was influenced in part by the lack of supporting facilities for the residences, notably boundary walls around the buildings and guards, that teachers saw as essential to their own safety. In the end officials familiar with the program felt that most of the expenditures made were a waste of money and that, outside of Balochistan, the innovation had no impact on enrollment or the availability of teachers. Given its patent lack of success in Pakistan's three largest provinces and no reasonable prospect of improving the main part of this innovation, its institutionalization was poor.

Nai Roshni Schools

The Nai Roshni program was a scheme of drop-in schools for children ten to fourteen who had never attended or had left school. The program was begun in 1986 and abolished in 1989. To save the expense of new buildings the Nai Roshni classes were given in the afternoon or evening at existing government schools. Each school was to offer three hours of instruction per day during the entire year for two years. After completing their studies and taking an examination the students received a primary school learning certificate. The program provided free books to students. It was operated by the federal government as part of the Literacy and Mass Education Commission (LAMEC). By May, 1988 Nai Roshni schools had a reported enrollment of over 390,000 students.

A senior official of LAMEC stated the government's rationale for these schools:

> Our program is for those who have missed the bus. Our concentration is an improvement of the rate of literacy. When you consider that including the dropouts from primary education the total number of those deprived of literacy belonging to the age range of 14 plus is more than 70%, you have to pay attention to their problems. They are too many to be ignored.

He claimed that the program had been successful and that international agencies wanted to use it as a model for replication in India and China.

Most others interviewed did not share his view. Nai Roshni's greatest drawbacks were the suspicions that it gave inadequate education, was used for political patronage, had incompetent teachers, and squandered public funds. Those reactions were brought about by the process used to develop the program, the application of political criteria to staff appointments, the leadership in Islamabad, and the lack of systematic methods to evaluate program success.

The first discussions about this scheme were in 1984 and 1985. The original proposal was a two-year training course to be run as an experiment under the education section of the Planning Commission. The project was to be tried in nine schools in nine districts. But before the experiment started the Prime Minister proposed a policy of full employment for graduates. LAMEC decided to use the Nai Roshni program as one means of promoting employment. The director and staff decided that 30% of the teachers would be appointed by Members of the National Assembly (MNAs) and Senators; 30% by Members of the Provincial Assembly (MPAs); 10% under the

Prime Minister's quota for the disabled; and 30% by LAMEC.

This decision put a taint on the program that lasted through its brief history. Because of doubts about the wisdom of political appointees, the Executive Committee of the National Economic Council approved the project for only one year. Teachers wanting appointments not only had to have recommendations from politicians but faced a very short job tenure. This situation led to the recruitment of staff with doubtful qualifications for teaching and a rapid turnover of personnel.

The program was not helped by the rapid changes in the heads of LAMEC and the sense that appointment as director of that organization was a punishment for poor performance elsewhere, a prelude to retirement, or both.

> Ever since LAMEC was formed there has been a chain of changing heads. First there was Ali Khan, then Inayatullah, then Dr. Rahim, followed by Sultan Daud and now General Majeeb.
>
> Nobody really wants to come here. It is like a punishment imposed on those who have not pleased the government. It is usually their last job before retirement.... While they are here they want to drag on and postpone retirement (Official, LAMEC).

According to the same observer, the directors are not technical or professional specialists who know much about literacy. Hence they promote superficial projects and statistical reports putting LAMEC in a favorable light.

The net result was a program that left confusion about whether its purposes were to provide education or to create employment for school graduates. These objectives would be compatible if those hired as teachers were also those most qualified to promote literacy or teach in primary schools, but that was often not the case. Most officials interviewed thought that Nai Roshni's effects on literacy and primary schooling were meager and its political component substantial. An official in Islamabad gave this example:

> Quite often the school is held in the house of an MNA [Member of the National Assembly]. He receives the rent for the room as well as declaring his daughter or niece a teacher, receiving her salary (Interview 1988).

A federal Minister also complained of a Nai Roshni teacher who was living in Dubai.

A federally-sponsored evaluation of 704 Nai Roshni schools gave a much more favorable picture of this innovation. Data were collected eight or nine months after the program opened in March 1987. The National Evaluation Committee included the Federal Secretary of Education, the Director of the Primary and Non-Formal Education Wing of the federal Ministry of Education, and the head of LAMEC. Liaison officers were appointed for each province and area in the country. Local teams included the District Education Officer and other education officials. The District Project Manager for LAMEC was to help the team but not be a formal member. Information was collected at the Nai Roshni schools as well as from five community representatives and five Nai Roshni students in each area (Academy for Educational Planning and Management 1988). The results were as follows:

> 1. 98.2% of the schools visited physically existed. 87% were housed in government schools and had facilities such as a blackboard and a teacher's chair.
> 2. 93.5% of the appointed teachers were physically present on the school premises at the time of the interview. 60% of the teachers reported that they spent their mornings in data collection activities for the school; 95% said that they had no other job in the morning or after school.
> 3. 88% of the enrolled students were present at the school during the inspection visit. Most had never been to school before and—for the 22% who answered this question—were in the age group of ten to fourteen years.
> 4. The schools had been visited by supervisors, but not as often as required in the rules for the Nai Roshni project.
> 5. Across all provinces and areas community representatives and students gave high ratings to the Nai Roshni schools.

This study might seem a perfect example of ongoing intelligence or formative evaluation. Data were collected from local sites on key aspects of the Nai Roshni schools, such as whether classes were being held, students were attending those classes, and teachers were on the job. Yet this evaluation prompted sharp criticism from education officials. The strongest objections came from a senior official in Islamabad:

> On the ground there is nothing. It was a masquerade. The whole show was put on. People were told to report to schools on certain days and show themselves as teachers. Enrollment was fictitious in many places (Interview 1988).

Another observer said that the evaluation was based on fraudulent records. A third claimed that most of the evaluators never visited schools. Instead they sent questionnaires to those responsible and compiled the data sent back.

The close ties between the evaluation team and LAMEC raised doubts about whether the survey procedures were properly followed. In principle the schools in which data were gathered were to remain secret until just before the interviews. In practice LAMEC administrators had many chances to alert the schools and teachers that the research team was coming. Even the final report raises this possibility:

> These schools were not supposed to know about the arrival of the inspection teams in advance. We cannot say for sure whether the schools were informed about the visit of the team or not (*ibid.*, 41).

To judge from the BRIDGES interviews, few education officials without ties to LAMEC believed the results reported. The speed with which the study was done, the likelihood of LAMEC influence on data collection, and the lack of independent observers to monitor the quality of the research all undercut the credibility of the findings. This exercise was clearly not an effective means of ongoing intelligence.

The Nai Roshni program also had difficulties in management and organization. In Pakistan most schools are run by the provinces and are under the District Education Officers. This pattern of administration clashed with the organization of Nai Roshni schools, whose headquarters were in the federal capital. To obtain classrooms LAMEC had to deal with local schools and handle such matters as payment for maintenance or damages and extra compensation for school guards. Such arrangements were complicated because they involved transactions between the schools and LAMEC's office in Islamabad. There were also tensions between the federal Ministry of Education and LAMEC over the curriculum for Nai Roshni schools and between LAMEC and the provinces over textbooks. A Learning Coordinator in Sindh stated: "Books (for Nai Roshni schools) are prepared in Islamabad and lack local cultural and social reference."

In the BRIDGES interviews some observers saw benefits from the Nai Roshni program, but the dominant reactions were negative.

> Nai Roshni is not a successful program. The buildings they are using are under the provincial departments of education. The teachers of the Nai Roshni program are employees of the federal government. The Headmasters of the schools being used keep complaining (Senior education official, Islamabad).
>
> This was not successful. People have not been honest; they only tried to get the money. Teachers in Nai Roshni schools were not interested in teaching. If teachers show good results, then people may be satisfied; if not they will not (Deputy Division Education Officer, Punjab).
>
> All provinces gave their dissent (to the Nai Roshni program). We were against the scheme because there were many difficulties. We had doubts that people would be given the time to study.... We had doubts about the qualification of the teachers. We opposed the scheme in 1985 and still it was approved by the Prime Minister. We were concerned about materials. The major problem is how to motivate the teachers (Provincial education planning official).
>
> I don't like that scheme. The people don't want to read and they don't know what education is and what it is for. There are no trained teachers in Nai Roshni schools....They have distributed the posts through the MPAs. The scheme should be closed....(District Education Officer, Balochistan).

The interviews brought out four other objections to the Nai Roshni schools. First, the money used on this innovation should have been spent on government schools.

> We should be concentrating on formal education alone. All the funds diverted to schemes like Nai Roshni could help create 37,000 primary schools (Senior education official, Islamabad).
>
> The funds should be channeled to formal primary school expansion. Money spent on accelerated literacy is misspent. For lack of further opportunity they are going to lapse into illiteracy. It is the five year period of organized schooling which can produce permanent literacy (Senior researcher on education, Islamabad).

In short, officials felt that the costs of the Nai Roshni program were not justified by national needs in education.

A second complaint was that the cost of educating a Nai Roshni student was higher than in government primary schools. In the implementation framework this would be an objection to the efficiency of start-up costs and to the funds used for ongoing field activities.

Others criticized the Nai Roshni program for falling far short of its own performance targets. While it was supposed to cover 1.6 million students in two years, it actually reached .39 million, or 20% of the target. The quantity of services provided was thus deficient.

The fourth difficulty was doubt among education officials about the commitment of the program's clients, students and their parents, to the Nai Roshni concept.

> The female students who are 14 or over get married and leave in half session. Others are quite satisfied when they can read and write, so they too drop out (Senior official, LAMEC).
>
> I do have 20 Nai Roshni schools in my area. But these aren't successful. Parents are not sending their children to school, the teachers are not serious, and students are not learning. Parents want daughters to work at home, to join hands with the mother instead of the teacher. In urban areas parents are eager to send their girls, but in rural areas it is not so. There are empty classrooms, with teachers (Assistant Education Officer, Punjab).

Others said that the Nai Roshni program was admitting students who were not eligible under its own rules:

> The children in regular schools in my area thought it was a wonderful opportunity to complete 5 classes in 2 years. They dropped out from regular school to join Nai Roshni schools. Then they dropped out of Nai Roshni as well. Some of them re-enrolled in the old schools. Now all 10 Nai Roshni schools in my area are closed (Education official, Islamabad).
>
> The problem is that morning students come to Nai Roshni; it is a total flaw (Assistant Education Officer, Punjab).

Some critics claimed that teachers used their political connections to avoid working; that many teachers had no qualifications for the type of work they were doing; that the Nai Roshni curriculum was of lower quality than the regular curriculum for primary schools; and that some schools registered in the program were fictitious. Unlike the other four innovations discussed thus far, the interviews on Nai Roshni schools contained many references to corruption, lies, rigging of data, faked attendance, and related kinds of dishonesty. Fairly soon after it started the program had low credibility in the federal Ministry of Education and a poor reputation in the provinces. It was thus not surprising that the federal government abolished it in 1989.

The Nai Roshni program shows the interplay of several elements in the framework of implementation. Applying initial organizational intelligence, the leaders of LAMEC apparently decided that their program would be most successful if it helped the Prime Minister's objective of creating employment. Politics came into the process of policy design when LAMEC decided to base the employment of teachers primarily on the recommendations of politicians rather than on merit. That decision may have won support for the innovation among the politicians but it put a permanent stigma on the program. Of the five innovations considered here, this one was considered the most politically corrupt. The failure to involve provincial officials in the program's design also led to a low sense of ownership of this innovation among those who managed the schools in which Nai Roshni classes were held.

In a country in which schools are operated by the provinces and, within them, the districts, the policy of having Nai Roshni schools run by the federal government caused several difficulties in implementation. The definition of tasks, particularly the curriculum to be covered, and the main technology, textbooks, was different than in the provinces. Local administrators complained that less material was covered than in regular government schools and that the textbooks did not provide enough local examples. They also had difficulty obtaining payments from the central LAMEC office for maintenance, damages, and school guards.

Information about the qualifications of the field implementers, the teachers, is scarce. But the most devastating charge against the Nai Roshni program, and one never answered by LAMEC, was that its teachers were not qualified, were often absent, did not observe LAMEC's standards about who should be enrolled and, at worst, were phantom personnel living far from the schools. From the standpoint of the teachers, an appointment with LAMEC was also no boon. Even among those with genuine motivation to teach the program's one year initial life span was hardly favorable to strong identification with their jobs.

The high cost of educating Nai Roshni students coupled with the widespread perception that the program was politically suspect led to reactions that the money spent on this innovation might better be put into government schools. The program's failure to meet its own enrollment targets and doubts about the quality of teaching reinforced the sense that the Nai Roshni program was a poor investment. Even an

evaluation whose results were overwhelmingly positive did not quell the doubts about this innovation. The government's decision to end the Nai Roshni program was an infallible sign that it had not been institutionalized.

Summary Ratings and Some Lessons

The five cases offer a chance to develop a better understanding of the implementation of innovations in education. Table 1 shows a rating for each reform on the twelve categories of implementation presented earlier. Programs are rated High, Medium, and Low according to how well they meet the criteria indicated in the left column. A (?) indicates that there was not enough information to complete the rating. A (-) means that the category does not apply to that innovation.

The implementation framework itself suggests that the issues covered by the ratings might be raised in planning, designing, approving, managing, and evaluating a project. At any stage, from the first thoughts about whether there should be a project to adjustments made after ten or twenty years of implementation, it is helpful to raise questions such as these. Should there be a project at all? How large should it be? Who will be its clients? Will it be possible to organize and manage the elements necessary for success? Will field implementers, such as teachers and school heads, understand it and want to carry it out? Is culture an issue and, if so, how well will the program fit the culture or cultures involved? Will there be adequate political support, at the beginning and later? How will the effort be viewed by the public, by other education officials, by the topmost levels of government? Such questions can rarely be answered once and for all. The course of implementation does not stay the same over time. It usually requires changes to take account of unique regional, personal, political, or financial circumstances.

One set of lessons can be drawn by a vertical comparison of the ratings for each of the five programs. No assumption is made that these characteristics have equal influence on implementation or that the ratings themselves have high mathematical precision. They are intended to be illustrative rather than definitive.

One way to use the vertical totals is to answer three questions: which innovation has the most low ratings? which the most high ratings? and which the most question marks? Any innovation with more than, say, ten low ratings of the twenty-seven possibilities would suggest the need for caution in design or implementation. Provided that it is not offset by many negative ratings or question marks, a comparable number of high ratings would suggest that some key conditions are in place for implementation. An innovation that has many ratings of (?) points to the need for more information. Above all, the ratings show areas of strength, weakness, and uncertainty. That information itself can be helpful in policy design and implementation.

With the innovations in Pakistan the largest number of low ratings is seen with the teaching kits (16), female residences (16), and the Nai Roshni Schools (14). Provided that a project is still alive, those ratings at any stage in its history would argue for caution in implementation and consideration of redesign. The only innovation with many high ratings (15) is the mosque schools program. It has a low rating in ongoing intelligence and, importantly, a question mark about the quality of education. The female residences have five high ratings, the Learning Coordinators four, the Nai Roshni schools two, and the teaching kits one. Also noteworthy are the six question marks in the ratings of the Nai Roshni program. Those ratings reflect the suspicions of other education officials about the program's politics and the scheme's own failure to gather and publish trustworthy data on its performance.

Is any of the categories more crucial than others in explaining implementation? The degree to which change is institutionalized is significant in every innovation. In fact, institutionalization may be a shorthand expression of other influences. The medium rating on institutionalization for the Learning Coordinator program reflects this innovation's strengths and weaknesses in management and organization; the sense of ownership by key figures; the understanding, motivation, and performance of field implementers; the quantity and quality of its services; and public perceptions that the innovation is clean and its expenses are worthwhile. The low ratings on institutionalization for the Nai Roshni Schools are a summary indication of that program's failure to be seen by the government as honest and politically acceptable, to be integrated into local management and organization and to create a sense of ownership among local figures in education.

The importance of the other categories varies with the innovation. The mosque schools benefitted from their compatibility with culture while the female residence program was crippled because it lacked that compatibility. But the cultural context had little bearing on Learning Coordinators, Teaching Kits, and the Nai Roshni Schools. Similarly, the politics of design and implementation had a devastating effect on the Nai Roshni program, but was not a major issue with Learning Coordinators, teaching kits, and residences for female teachers.

Some of the difficulties in carrying out the five innovations might have been predicted by raising the questions in the implementation framework while

Table 1.

IMPLEMENTATION OF EDUCATIONAL INNOVATIONS IN PAKISTAN

	Learning Coordinator	Teaching Kits	Mosque Schools	Female Residences	Nai Roshni
1. ORGANIZATIONAL INTELLIGENCE					
Initial Intelligence	Medium	Low	High	Low	Low
Ongoing Intelligence	Medium	Low	Low	Low	Low
2. PROCESS					
Participation, sense of ownership by key figures	Medium	Low	High	Low	Low
Innovation adapted to local settings	Medium	Low	High	Low	Low
3. TASKS AND TECHNOLOGIES					
Clear definition of tasks	Medium	Low	Medium	High	Medium
Technologies available	High	Medium	High	High	?
Technologies reach implementors	High	Medium	High	Low	?
4. MANAGEMENT AND ORGANIZATION					
Innovation integrated into normal organization	Medium	Medium	Medium	Low	Low
Adequate supervision	Medium	Low	Medium	Low	Low
Compatible relations among organizations involved	Medium	Low	Medium	?	Low
5. CULTURAL CONTEXT					
Innovation compatible with religion, culture	-	-	High	Low	Low

Table 1 (continued...)

IMPLEMENTATION OF EDUCATIONAL INNOVATIONS IN PAKISTAN

	Learning Coordinator	Teaching Kits	Mosque Schools	Female Residences	Nai Roshni
6. POLITICAL CONTEXT					
Initial government commitment to implement	Medium	Medium	High	High	Medium
Innovation seen as politically clean, acceptable	High	High	High	High	Low
7. FIELD IMPLEMENTERS					
Understand innovation	Medium	Low	High	High	Medium
Capable of carrying out innovation	Medium	Low	Medium	-	?
Motivation to use innovation	Medium	Low	Medium	Low	Low
Performance of required tasks	Medium	Low	Medium	Low	Low
8. CLIENTS					
Cooperation from parents	?	-	High	-	?
Cooperation from students	?	-	High	-	?
9. SUPPORTING FACILITIES					
Presence of adequate buildings	-	Low	Medium	-	High
Other supporting conditions	Medium	Low	Medium	Low	Medium

Table 1 (continued...)

IMPLEMENTATION OF EDUCATIONAL INNOVATIONS IN PAKISTAN

	Learning Coordinator	Teaching Kits	Mosque Schools	Female Residences	Nai Roshni
10. COSTS					
Efficiency in start-up costs	?	?	High	Low	Medium
Funds to support on-going field activities	High	Low	High	-	High
Perception that expenditures are worthwhile, justified	Medium	Low	High	Low	Low
11. QUANTITY AND QUALITY OF SERVICES					
Increased enrollment	?	-	High	Low	?
Quality of services	Medium	Low	?	Low	Low
12. INSTITUTIONALIZATION OF CHANGE	Medium	Medium	Medium	Low	Low

SUMMARY

	Learning Coordinator	Teaching Kits	Mosque Schools	Female Residences	Nai Roshni
TOTAL LOW RATINGS	**0**	**16**	**1**	**15**	**13**
TOTAL HIGH RATINGS	**4**	**1**	**15**	**5**	**2**
TOTAL ?	**4**	**1**	**1**	**1**	**6**

programs were being designed. The most obvious example is the female residence program. A social scientist familiar with the expectations for women in Pakistan would have asked about the fit between the rural residence program and the country's culture. Students of Pakistani politics might have predicted the pitfalls of politically based teacher appointments in the Nai Roshni program. And specialists on education may have asked why one would expect District Education Officers to deliver and teachers to use teaching kits which they did not design and whose purposes they did not understand.

Conclusions

Pakistan's experience with innovations has implications for theories of implementation and for efforts by other countries to change their systems of education. Three points stand out in these cases.

Most evident is the need for explicit attention to culture. The main frameworks of implementation developed in the United States, such as those of Pressman and Wildavsky (1973), Chase (1979), and Berman and McLaughlin (1981) are silent about culture. Yet studies on population, education, and other social programs make clear that culture can be essential to program success (Streatfield 1986, Warwick 1988). In Pakistan the mosque schools program shows how the tradition of educating boys and girls together in Koranic schools helped promote access to primary education for girls. While Islamic culture is often seen as a barrier to the education of girls, in this case it proved to be the foundation on which new government schools could be built. There were tensions between the demands of the government curriculum and the imam's notions of what education should be, but on balance this combination of tradition and modernity helped expand access to schooling. Given their trust in the imam and their personal knowledge of the mosque, parents felt confident that their daughters would be safe in the mosque itself or in a school it sponsored.

The program for constructing female residences shows the disastrous results of ignoring culture. By failing to recognize the cultural reasons that would stop women teachers from living in the residences, such as violation of the norm that women should not travel and live alone, the program set itself up for rejection by the very clients it hoped to serve.

A second conclusion is that there is a complex interplay between central direction and local adaptation. Classical theories of public administration hold that the essential requirements for implementation are legal authority, tightly defined policies, a hierarchy of officials, trained staff, clear rules, and close supervision. The main transactions are the delivery of orders from above and compliance by subordinates below. In educational innovations questions such as parent interest in schooling, the interest and commitment of teachers, the feeling of ownership created by the way policy is developed, and the need to take into account the views of opinion leaders would be irrelevant.

The orthodox view of implementation has no advocates among leading writers on implementation. Nevertheless some view educational change mainly from the standpoint of those in charge. In his account of three programs in New York, Chase (1979) takes the implicit position that the ultimate criterion of success is whether the results meet the expectations of the program manager. Obstacles do arise, such as finding the right personnel to carry out a program, difficulties in reaching clients, blocks created by other line agencies, weak support from elected officials, and criticism in the press. But Chase makes clear that his purpose in writing is to help program managers get their own way. They can do so by designing programs to reduce the involvement of other agencies that can block implementation, by building strong relationships with the chief political executive, or by developing careful strategies for dealing with other "players" in that field. While Chase moves away from the orthodox model by focusing explicitly on interagency relations, politics, the attractiveness of the program to personnel, and transactions with clients, his guiding assumption is that the authority to decide what happens during implementation belongs with the manager. Dealings with other "players" are a means to enhance that authority.

Those advocating an adaptive model of implementation hold a different view. In a study of eighty-five projects dealing with changes in classroom organization McLaughlin (1986, 169) reported that "implementation was a dynamic organizational process that was shaped over time by interactions between project goals and methods and the institutional setting." The attitudes and interests of central administrators were critical, but more was necessary if change was to take place. Particularly important was a process in which managers tried to adapt innovations to the needs of teachers and to change their own behaviors as a result.

> ...where implementation was successful, and where significant change in participant attitudes, skills, and behavior occurred, implementation was characterized by a process of mutual adaptation in which project goals and methods were modified to suit the needs and interests of the local staff and in which that staff changed to meet the requirements

> of the project. This finding was true even for highly technological and initially well-specified projects; unless adaptations were made in the original plans or technologies, implementation tended to be superficial or symbolic, and significant change in participants did not occur (169).

A key question is how much change should be guided by central direction from program managers or by mutual adaptation. Clever managers may, of course, find that adaptation is the most expedient means to achieve what they want. But in other cases assumptions about central direction or adaptation can lead programs in quite different directions.

Consider the possibility of a new primary school curriculum in Pakistan. Proponents of adaptation might say that, given the different histories, ethnic groups, and languages across regions, each province should have a different curriculum or even several curricula. Moreover, any curriculum should be adapted to a region through a set of iterations in which the material to be included, the teachers involved in its development, and those responsible for the final results all change through mutual adaptation. But those prescriptions leave out an essential element of educational policy in Pakistan: strong control over the curriculum by the central government. Provinces have agencies to develop curricula and to print textbooks, but the central government has final approval over the material used in the country's schools. That approval would be a powerful barrier to some forms of mutual adaptation, such as a curriculum that emphasized a province's own history but paid little attention to the history of Pakistan. The federal government today would also not look kindly on a provincial decision to replace mathematics and science in girls' schools with home economics.

Hence there are limits to both central authority and mutual adaptation. Central authority cannot bring about change in education when parents, teachers, students, local school administrators and opinion leaders do not accept the legitimacy of that change. Similarly, in a system of government-sponsored schools mutual adaptation always takes place in a framework of rules and structures. One clear limit on mutual adaptation in Pakistan is the division of authority in education between the federal government and the provinces. A form of adaptation that tried to change that structure without the agreement of the provinces and the federal government would almost surely fail. The challenge for models of implementation is to recognize where mutual adaptation can and cannot take place. Tsige (1989) considered this question in the implementation of federal policies in three U.S. colleges and universities. She found that federal law—a form of central direction—established the structure and reporting procedures of the university programs. But, working within that framework, the colleges and universities did adapt the way they carried out the programs to their own needs and those of their student clientele. The approach taken in her research might be extended to other countries.

A third conclusion is that there are no teacher-proof innovations. Attempts to modify teachers' behavior through items such as teaching kits or computers will succeed only when the teachers understand their purpose, believe they are helpful, and want to use them. As the history of the teaching kit in Pakistan makes clear, innovations dropped into schools without those conditions will make little difference for education. For effective implementation technologies must be introduced with the cooperation and understanding of teachers rather than be imposed on them as a shortcut to change.

The most basic lesson from this analysis is the need to use knowledge about implementation to improve program design and to change course as the field intervention moves along. This lesson is summarized by the terms initial and ongoing organizational intelligence. It is clear from the five innovations and studies of many others that good questions about implementation can be raised before a program begins and that the very process of asking those questions can stimulate changes in design. In environments marked by a high degree of uncertainty about what will happen in the field, one implication might be a more tentative, experimental approach to implementation. Instead of moving ahead with a complete project, policy-makers may want to try one program model in a few areas or several different models to compare their results.

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