Educational Innovation in the Philippines:

A Case Study of Project Impact

Pedro V. Flores

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A Project Impact learning centre at Lutac Elementary School.

Contents

Acknowledgments

Foreword

This monograph on Project Impact has been written not only because the project is interesting in its own right, but also because it illustrates a set of issues likely to arise in the implementation of any wide-ranging educational innovation. This book is not an agency evaluation of Impact, but rather an historical account of the day-to-day politics of innovation, implementation, and dissemination. It is written, moreover, by an "insider." Dr Pedro V. Flores is from the Philippines; more importantly, he has been the IDRC officer responsible for Impact in the field for more than five years. Although his name does not appear often in the pages that follow, there is little doubt that the continuity of encouragement he provided as middleman between the source of funding and the field has been of vital importance.

One of the first stages in the development of any innovation is perhaps the most critical of all: Whose innovation is it? Who thought it up? In too many cases, particularly in the Third World, countries or institutions find themselves adopting an innovation not because it is a local priority but because there is external money available for that line of development or of research. The Third World has frequently been used as an experimental station for other people's priorities, hunches, and innovations. In such cases, dependent on the outside for the entire fabric of the experiment, a project may never put down local roots, but bloom only as long as foreign funding is available.

In Project Impact, by contrast, there was a remarkably frank exchange of views about what Southeast Asian countries might do to improve their primary schools. At the very time the discussions were held, the doctrines of de-schooling, community schooling and nonformal education were becoming very popular. Yet it is interesting to see how Impact developed as a compromise between Western ideas of "no-more-schools" and Western modular technologies, and local perceptions of what was feasible.

One of the next stages critical to the life cycle of an innovation occurs when it moves from one or two pilot sites to a wider field testing, and so to a position in which national replication is conceivable. The original sites have to be maintained, but at the same time the new system must be shown to be workable in other settings. Concentration on making the first sites really "successful" can be counter-productive if it is done in a way that isolates the innovation from the educational mainstream. Even in the beginning, therefore, linkages to local policymakers, supervisors, and teaching organizations have to be handled in a way that suggests that the innovation, though new, is not remote, not unrealizable. Once a barrier of "specialness" is thrown round a project, the danger is that of encapsulation. It may remain successful, but there are no working links between it and the ordinary educational mainstream. Wider replication, therefore, becomes much more difficult.

Research and evaluation on the project is clearly another stage in the process of replication or dissemination; management of the evaluation of a project, however,

needs careful timing. There is a tendency these days for agencies to require systematic evaluation almost before the system or development project has got under way. The desire to know whether an innovation "works" in basic terms of cost or efficiency is natural enough, but it could be argued that evaluation too early can produce pressures that distort project development and undermine the confidence of those involved. Whether it is a question of education for self-reliance in Tanzania or of Project Impact, it will always be possible in the very early stages to find parents, teachers, and students anxious to return to the older system. Innovation, therefore, requires a certain protection from inspection and evaluation if it is to get established. But there also needs to be some systematic attempt to tap the concerns of parents and teachers and get them involved in the adaptation and improvement of the experiment as it proceeds. There is plenty of evidence in Project Impact that this very local self-evaluation went on and that the executing agency, Innotech, allowed this to happen.

As to the process of formally assessing the project's outcomes — comparative costs and comparative student achievement — this was completed. It was a relatively unobtrusive aspect of the project and certainly does not seem to have been the main source of information about the project for local policymakers and educational researchers. Much more important in influencing opinion about Impact have been other techniques of dissemination.

Relatively early on, IDRC had one of its editors write a short illustrated account of the Impact system.[1] It was not a research report, but in terms of alerting people in and outside Southeast Asia to the experiment, it was a crucial piece of work. Again, before any really widespread research report had been considered, plans to make two educational films on the project had been accepted.[2] These have been used widely in Europe and in developing countries, and are presumably a source of some pride to Innotech and to the local Project teams.

These two kinds of publicity about the system as a whole played an important role in dissemination. But possibly more influential than either of these in the process of replication were site visits. Teams came from other countries — Jamaica, Liberia, Malaysia, and Bangladesh, to mention only a few — and within the Philippines, policymakers and regional supervisors and superintendents both visited and were involved in seminars and workshops on the Impact system.

All these various dissemination strategies cost money, and some of the more powerful mechanisms cost a good deal more than the publishing of research findings in the traditional way. There is, of course, a real danger in this or any other externally-funded innovation that the level of dissemination, being partly dependent on money, is much higher with foreign aid projects than with local innovations locally supported. Such projects start with an enormous advantage in the matter of dissemination and replication. They are much more visible, their teams often have some financial incentives over locally-funded innovations, and the scale of financing in general is sufficient to allow for international publicity, visitations, etc. None of this means that dissemination or replication is merely a function of finance. Indeed,

[1]Sanger, C. 1977. Project Impact: a progress report on Innotech Project Impact in the Philippines and Proyek Pamong in Indonesia. Ottawa, International Development Research Centre, IDRC-088e, 56 p.

[2]Two 16-mm films, "Project Impact: The Overview" and "Project Impact: The System," coproduced by IDRC and Innotech are available on request from the IDRC Communications Division, Box 8500, Ottawa, Canada.

enough has been said above to indicate that foreign aid projects, if extraneous in conceptualization and design and if implemented more through overseas technical assistance than local capacity, are peculiarly prone to wither on the bough as soon as the foreign funding ends.

There clearly remains, however, a tension in any research funding agency between the use of funds for publicity on the project as a whole and the desire to produce the research findings needed to justify that measure of publicity. Given the complexity of estimating costs and assessing achievement in pilot school situations such as Impact, it was probably wise not to have relied on that kind of research to carry the burden of dissemination. Arguably also, other kinds of research were on display when visitors came to the project sites — research that had adapted and developed an entire curriculum to a system of modular instruction; research and experimentation with the organization of school structure, and with parental and community involvement. In other words, curricular and policy research was on display, even if evaluation research was more muted.

There is, then, with an action experiment like Impact, little virtue in waiting five or six years before presenting policymakers in the ministry with conclusive evidence about the project. If they are to pick it up and support it at the appropriate moment, they have to become part of its progress much earlier. The brokerage role between the Ministry of Education and the field sites of Impact was, therefore, regarded from early on as a high priority. Dr Flores, and Innotech's director, Dr Soriano, with the assistance of the site-directors, handled this aspect of dissemination continuously over a five to six year period. As ministers came and went and curricula were initiated and withdrawn, the continuity of these two brokers and of the research teams became a vital part of the dissemination process. A little of this will emerge in the chapters that follow — enough, probably, to show that bridging the research-policy gap is not a simple business of choosing the right format for the final report or making an executive summary of the research results. Rather, it is an exceedingly labour-intensive set of a thousand little interactions with frequently changing policymakers and politicians in the relevant ministry, both at national and local levels.

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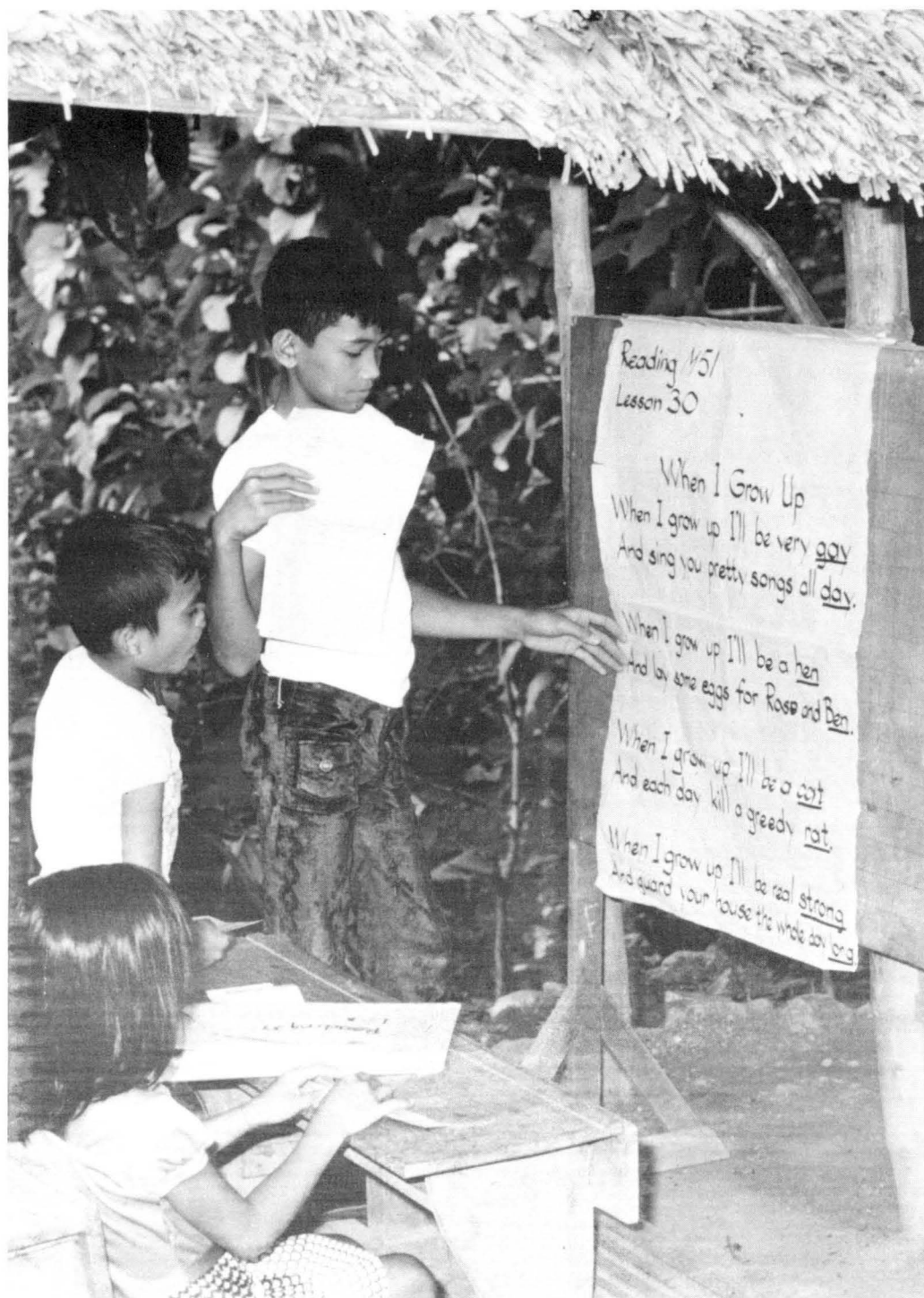
Programed teaching at an Impact school.

Chapter 1

Project Impact in the Philippines

Project Impact in the Philippines has developed beyond an experiment: it is a viable delivery system for mass primary education. Innovating on the basic technology of programed instruction, the Impact system takes advantage of the close family ties among Filipinos by organizing the school population into multigrade "families." This scheme enables older pupils to teach younger ones by programed teaching techniques. Using the same technology, upper level pupils learn through peer-group sessions or by individual self-instruction using self-instructional modules. The system allows one professionally-trained teacher to be responsible for 100 or more pupils with the assistance of one nonprofessional teaching aide and occasional help from community members who tutor or demonstrate specialized skills.

The demonstrated viability of the Impact system is one reason for doing this case study. Also, the course of the project's development is interesting. It helps to show, for example, how educational ideas get to developing countries; how these are converted into indigenous innovations; and how educational innovations can be successfully institutionalized. These issues are summarized in this chapter and dealt with at length in the rest of the book.

The System

Impact is an acronym for Instructional Management by Parents, Community, and Teachers. After 3 years of planning followed by another 5 years of experimentation, this project in the Philippines has produced a complete delivery system in primary education. The system is characterized by active interaction between teachers and pupils, among pupils, and between the school and people in the community.

The entire pupil population at an Impact school is divided into "families" of between 40 to 50 children. Each family contains pupils from all grade levels, in the Philippines from one through six. The term "families" is used for reasons having to do with close family ties among Filipinos.

One professionally trained teacher, now called an "Instructional Supervisor" (IS), takes responsibility for two to three families. A family might be made up of six level 6 pupils; six level 5; six level 4; 10 level 3; 10 level 2; and 10 level 1, or a total of 48. Two families means 96 pupils under direct responsibility of one IS; three families means 144 pupils. Thus the pupil-teacher ratio is increased.

Obviously the IS needs assistance, and this is provided by level 4, 5, and 6 pupils known as "programed teachers," by carefully arranged peer-group learning among the older pupils, and by nonprofessional teaching aides known as "IS aides."

Using programed teaching materials, trained level 6 pupils take turns teaching a group of four to eight level 1 pupils for an hour each day. Level 5 pupils do the same

for level 3 "family" members; level 4 for level 2. This organization arises not only because presumably the youngest children need the most mature care but also because it was thought inappropriate for lower level pupils to receive drill from pupils only one level more advanced. Programed teaching follows a prearranged program that presents what is to be taught and how it is to be taught. The programed teacher follows a set sequence in presenting the lesson. He or she spends half the one-hour period teaching and half tutoring slow learners.

Depending on the enrollment at the school, one or several professionally-trained teachers may be assigned as "itinerant teachers" to take charge of such specialized (nonmodularized) subjects as physical education, practical arts and music, and such extra-curricular activities as scouting, school beautification, and green revolution (agricultural skills). In small schools like those in the original Naga site, the itinerant teacher moves from school to school; in a large school like the Sapang Palay extension site, he or she works full time in the school.

In addition, some community members may be asked to volunteer for general tutoring or instruction in specialized skills such as sewing or carpentry when certain modules require learning such skills.

In each family three "peer groups" are created, one each for the levels 4 − 6. These pupils, organized in groups of five to six members and studying the same modules, take turns in leading a group. The groups are heterogeneous in that they contain children of different ability levels. To reinforce the "learning from each other" or "helping each other" objective of heterogeneous grouping, contracting is made an integral part of peer-group learning. The group promises, in writing, to complete a number of modules each week. The contract drawn by the group is worked out with the IS who discusses the target with the group to make sure the contract is realistic. Completion of a contract is recorded on the progress chart hung conspicuously in the learning resource centre part of the room. In addition, group members have scheduled individual learning activity. Their main tools for both activities are the programed learning modules.

The learning modules, in programed instruction booklets, form the bulk of nationally determined curriculum content for all six levels of the primary grades. Each module covers an amount of materials that normally takes one and a half days to complete. A module is divided into "chunks" or lessons, calculated to give a child what he or she can digest at a time and to ensure against boredom. Pupils using the modules, both in peer groups and individual self-instruction, are able to move at their own pace. For fast learners and those who plan to proceed to secondary school, advanced modules are available. A system of pre- and post-testing determines whether a pupil has mastered a module.

The IS is assisted in many routine administrative tasks by a nonprofessional aide. These community members must at least have completed the sixth grade. They are paid a minimal wage.

The chart in Table 1 gives a sample schedule (ref. 1, p. 30) for children in levels 4−6 in a school with an enrollment of about 200 organized into five families.

In management terms, a school principal becomes an "instructional coordinator," while the district supervisor is responsible for liaison between school and community in his or her role as "field coordinator." Finally, and often removed from the school building as such, nearby high school students, parents, or older siblings may do some tutoring and monitoring of the children's progress.

10

Table 1. A sample schedule for children in levels 4—6.[a]

Family	07:55— 08:55 a.m.	09:20— 10:20 a.m.	10:35— 11:35 a.m.	01:30— 02:30 p.m.	02:45— 03:45 p.m.	03:45— 04:40 p.m.
Camia	PT	PG	PG	PG	IP	GR
Rosal	PG	PT	IP	PG	PG	GR
Adelfa	PG	PG	PT	PG	IP	GR
Ahito	PG	PG	IP	PT	PG	GR
Rose	PG	PG	PG	IP	PT	GR

[a]PT = programed teaching, PG = peer-group learning, IP = individualized pursuits, and GR = green revolution (agricultural skills).

How does an IS spend his or her typical day as manager of learning? Take the case of the IS handling the Camia and Rosal families. If each of the two families has a distribution of 10 level 1, 10 level 2, 9 level 3, 7 level 4, 6 level 5, and 6 level 6, the IS will have a total of 96 children. One way the IS may arrange the first class session of the Camia family is to have all 19 fourth, fifth, and sixth grade pupils do programed teaching with levels 1, 2, and 3 children of five other families (a total of 145 pupils). Thus, each programed teacher has between seven and eight lower level children. The rest of the upper level children in the other families may be scheduled for peer-group learning during that first hour of class.

The same grouping pattern may be retained in the succeeding periods, the upper level pupils of the other families doing programed teaching of lower level children of all five families. Thus, the upper level pupils would have three periods of peer-group learning and two of individual pursuits (including GR) per day. The lower level pupils will have five periods of programed teaching.

As the IS goes around to monitor the various groups, he or she may alter the composition of the groups based on the pupils' level of achievement. For each period, the IS spends approximately 45 minutes monitoring and guiding the groups. The rest of the 15 minutes of the one-hour period may be spent dealing with special cases or problems such as coaching a slow learner in a peer group or attending to a question raised by a pupil doing his or her individual self-instruction.

It is much too early, of course, to trace all the effects of the first Impact experience on its many actors. But it is now possible to trace the history and development of Project Impact to, and through, its present state of implementation in the Philippines. Impact was originally implemented in the Philippines and Indonesia. This case study is based exclusively on the Philippines, because there the experiment has been refined and Impact is being expanded. (A separate case study may be written about the Indonesian Pamong, an acronym meaning the same as the English Impact.)

It originally began in 1974 in five barrio schools of Naga, Cebu, Central Philippines, and was expanded in 1977 to three semiurban schools in Lapu-lapu City in Mactan Island near Cebu and one big school for children of resettled urban squatters in Sapang Palay, Bulacan, about 45 km north of Manila. The Philippine project has developed to a point where clear demonstration of the system is possible and sufficient documentation of the various stages exists to make external assessment feasible.

Why a Case Study of Project Impact in the Philippines?

A case study of Project Impact cannot ignore its accomplishments. But what makes the Philippine project a worthwhile case study in educational innovation is its history.

The Philippines is a country where there has been much innovation in the field of education. In 1975, the Ministry of Education and UNESCO's Asian Programme of Educational Innovation for Development (APEID) surveyed 530 heads of educational institutions and other educational leaders to compile an inventory of innovations. Using a UNESCO-developed categorization of educational innovations, 90% of the 435 listed projects came under four categories: curriculum development (263); new orientations and structures in education (91); educational management (30); and educational technology (9) (ref. 2, pp. 5–6). Impact as one of the innovations in the list may be unique in the sense that it has characteristics of all four categories.

The list of innovative educational projects confirms the propensity of Filipino educators to innovate, but it says nothing about what happened to the projects beyond the pilot stage. It is in this context that Project Impact deserves attention. There is evidence that it may not fall victim to the "ningas cogon" tendency (this is a native Filipino expression of a tendency for great enthusiasm to start new projects that are not seen through, and it is likened to a "cogon" grass, which grows quickly but burns very fast too). Indications of interest and an effort to adopt or adapt the technology are apparent within the Philippines and in other developing countries.

The innovative spirit of the local research team was undeniable; they saw the project through against great odds. However, national and international forces also fueled and encouraged its development and dissemination.

There is, for example, the issue of regional cooperation in education among Southeast Asian states. SEAMEO (Southeast Asian Ministers of Education Organization) is more than an association of eight neighbouring countries. (These are Kampuchea, Indonesia, Laos, Malaysia, Philippines, Singapore, Vietnam, and Thailand.) Donor countries and agencies are also involved. In Project Impact, the cooperation of at least two donors — the United States Agency for International Development (USAID) and the International Development Research Centre (IDRC) — through funds and expertise was significant throughout the experimental phase and even beyond. For instance, representatives of these agencies introduced the "de-schooling" and "efficiency of schools" issues of the 70's into the debate about the project. They remained actively involved throughout the project implementation period, though their representatives did not remain on a long-term basis.

Representatives of the region's eight countries have, in the case of Project Impact, shown a serious desire to cooperate by spending much time and money trying to find a regionally acceptable solution to the internationally evident problem of providing mass primary education in an efficient manner. Their nonpolitical union, however, had to bow to a more powerful force: political ideology. Thus, three of the members (Kampuchea, Vietnam, and Laos) have chosen to remain silent and inactive in the organization since 1976. For SEAMEO's centre, Innotech (Regional Centre for Educational Innovation and Technology) and its project Impact, the consequence of this ideological split was significant. Innotech's hurried evacuation from Saigon to Bangkok in 1975 and its one year uncertain status in the Thai capital before rehabilitating itself in its semipermanent home in Manila deprived an important

12

project at its formative stage of the centre's time and resources. The net result was both disadvantageous and advantageous, as can be gleaned from some chapters of this book.

The success of an action research project requires sustained determination and hard work. Backed strongly by national and local leaders, members of the Philippine research team displayed these qualities. Due partly to Innotech's circumstances and partly as a deliberate strategy members of the team were left largely to themselves to devise, try-out, and refine mechanisms and materials. In the process, many problems came up that could have wrecked the whole project had it not had the firm support and cooperation of leaders in the Ministry of Education and Culture and in the community.

Persisting through their early difficulties, the research team sharpened their skills. With assistance from short-term technical consultants at Innotech, the results of the project are a good example of what untrained teachers and their leaders can achieve. However, agreement on the quality of the educational research will be difficult to obtain. By what and whose standards should research quality be judged? More specifically, how is education efficiency to be judged?

Research quality is often judged on the methodological process used rather than its results. Given the capacity for social science research in most developing countries and the urgency of their educational problems, there are two alternatives: export to these countries sophisticated methodology and expertise, or encourage ideas and initiatives of natives who wish to focus on products and results that work, though the methodology may be less scientifically rigorous.

The former approach has fallen into disfavour with the growing nationalistic feelings among developing countries. An acceptable middle-of-the-road alternative seems to be for outside technical experts to share their skills with the locals on an "as needed and requested" basis. As will be seen in this account, this style of donor-recipient relationship works satisfactorily. In the Naga Impact project, for example, foreign consultants' actual input in the field totalled about 11 person-months during the five-and-one-half year period (1 January 1974 to 30 June 1979).

Experiments such as Impact are often justified during the proposal stage by their applied value. Despite this, many such social science research projects end up on the shelf to gather dust. Local and foreign funds and other resources originally slated for their application are diverted to other areas. What does it take to bring the results of a project such as Impact to the attention of key policymakers? A chapter in this study describes the efforts that are being made to disseminate the system and its results in other developing countries as well as in other areas of the Philippines. The latter is especially significant because the Philippines is the experiment's host country. But, just as the Impact project had to be sold to the original community, its results have to be persuasive to top officials in the nation's education hierarchy. Not only this, in a country where there are many educational programs and innovations under influential godparents, it is crucial that Impact demonstrate it can interlock with other components of the broader national plan for educational development.

This book does not purport to be the full-scale evaluation that such an innovation needs before it can be judged by persons other than those directly involved. More empirical evidence of Impact's achievements and shortcomings is needed before its viability for large-scale implementation can be assured.

The report is intended primarily to be of interest to students of the process of innovation in education and, more importantly, to those planners and practitioners in many countries who may be involved in further replication of the Impact method. It is written also for the children in the Impact schools, from whose ranks future planners and practitioners may well emerge, to tell them how it was they received the kind and method of education they did. What is significant about this education, even to its current stage of development, is its rich and varied components: programed teaching, programed self-learning, peer-group learning, tutoring, and the use of community resources. These pieces of educational technology may be put together in new patterns or used singly as the situation may demand. As Robert Jacobs has said, "Impact does not have to be bought as a package."

Chapter 2

A Response to Southeast Asian Priorities in Education

Rapid population growth after World War II created pressure for educational expansion. By the beginning of the 1970s it became clear that developing countries could not cope financially with demands to expand basic education. In Southeast Asia, SEAMEO held a series of meetings to come up with ideas and develop concrete proposals.

One of the main projects proposed was to develop an effective and economical delivery system of mass primary education. Featuring prominently in the project development discussions was the well-publicized educational reform concept of the period — de-schooling. Espoused by American advisers at Innotech under an eye-catching "no-more-school" heading, the concept came under sharp criticism from a Canadian educator, Donald Simpson, who at the time was an IDRC program officer. Although the resulting design of the Impact project had some features of de-schooling, what was finally placed in the hands of local researchers and teachers to try out was mainly an embodiment of the "efficiency-of-school" concept advocated by Simpson.

Project Impact exemplifies SEAMEO's ability to respond to Southeast Asian educational needs and priorities. Organized in 1965, SEAMEO exists to promote cooperation in Southeast Asia and the exchange of information in the fields of education, science, and culture. The organization's highest policy and decision-making body is a council called SEAMEC, which is a standing conference of ministers of education of member countries. Policies and decisions of the council are implemented by a secretariat called SEAMES, while programs and projects are carried out by the various regional centres spread out among member countries. In the field of educational innovation and technology, Innotech is SEAMEO's major arm. Thus Project Impact, once it was defined by SEAMEO, was assigned to Innotech for development and experimentation.

Innotech's original location was in Saigon, South Vietnam, and the precipitous move from that city after Saigon's fall in 1975 was not without administrative confusion that for a time was reflected in Impact's progress. The Innotech office moved first to Bangkok. Since mid-1976, however, it has been operating from the third floor of the College of Education building at the University of the Philippines in Diliman, Quezon City, the Philippines. In January 1980, SEAMEC, with the consent of the Philippines, approved the Philippines as Innotech's permanent home.

Foreign donor influence on Project Impact in its early years was limited to two agencies; one supplied ideas through its consultants and the other gave more practical help. Consultants supported by the former, USAID, were involved in some of the early thinking that went into development of Impact, such as arguing against linear expansion of existing school systems and urging ideas characteristic of "de-schooling."

15

At a time when plans were still fluid the other agency, Canada's IDRC, known chiefly for its support to research and researchers in developing countries, became directly involved as a funder. It contributed some $700 000 to Project Impact in the Philippines and Indonesia from January 1974 to March 1980. With IDRC involvement also came some influence on planning and development, but, in keeping with IDRC's usual mode of operation, much less than might be expected. Most of the material support went into the development and production of instructional materials and salary supplements to project team members. Some light printing equipment such as mimeographing machines, typewriters, paper-cutters, and binders were also purchased with IDRC funds. The host government's contribution was in the form of basic salaries of teachers in the experimental schools and office facilities for the research team.

Why Innovation in Primary Education?

To understand why innovation in primary education was a major concern of SEAMEO in the 1970s, we must look at some of the dominant international issues in education at the start of the decade. Two reports on educational issues were especially important. The World Bank sector working paper based on figures up to 1971 highlighted the problem of world-wide educational expansion, which started in the 1950s and was expected to continue until the mid-1980s. The bank attributed this expansion phenomenon to three factors: "movement for political independence, the quickening pace of economic development, and the population explosion" (ref. 3, p. 10).

By 1971, however, it was clear that the financial capacity to expand basic education could not catch up with population growth in developing countries despite the desire of governments to achieve universal primary education. An annual growth of population aged five to nine for 1970—75 in these countries was estimated at 3.3%, but enrollment growth rate in 1971 was only 2.8% (ref. 4, p. 28). Even such a moderate growth in enrollment imposed a heavy financial burden on these countries. In addition, many of these developing countries were questioning the relevance and quality of education provided by educational systems inherited from their former colonial masters. They were also worrying about how to educate their rural population and how to solve the imbalance between skills produced through the schools and the actual needs (ref. 3, p. 10).

Another important report (ref. 5) was that of the International Commission on Development of Education set up by UNESCO and headed by Edgar Faure. The report, published in 1972 in a book entitled *Learning to Be: The World of Education Today and Tomorrow*, recommended that universal basic education should be the top priority of educational policies in the 1970s. Furthermore, the commission stressed the need for educational change, a theme that UNESCO Director General Rene Maheu himself addressed in 1971 when he spoke before the Third Regional Conference of Ministers of Education and Those Responsible for Economic Planning in Asia (ref. 4, p. 102).

The Asian Ministers concluded at the end of their meeting that there was a "need for a thorough transformation of the educational systems as a prerequisite for their further expansion and that short of a thrust in favour of innovations leading to a regeneration of education in the region, solutions to the quantitative demand will be increasingly difficult to find" (ref. 4, p. 102).

Reinforcing the issues and conclusions highlighted by these international reports were specific educational reform ideas that were being preached around the world. One that had attracted much attention was de-schooling, a concept put forth most forcefully by Ivan Illich in his 1971 book *De-Schooling Society*. Disappointed at the results of primary education, including the compensatory education programs for minority groups in North America, Illich believed that "the contemporary crisis of education demands that we review the very idea of publicly prescribed learning, rather than the methods used in its enforcement" (ref. 6, p. 65).

Illich's call for radical change in education was to feature prominently in the subsequent series of SEAMEO and Innotech meetings on primary education, including project development discussions that led to the Impact experiment.

SEAMEO's Educational Development Program for the 1970s

Fifth SEAMEC Conference — January 1971

The seed that eventually grew into Project Impact originated at the fifth SEAMEC Conference in Kuala Lumpur in January 1971. At that conference, the Council directed its Secretariat, SEAMES, to hold a series of meetings of top-level educators in Southeast Asia to identify major areas of concern in education.

A planning seminar of key educators met in Bangkok from 26—30 April 1971 and came up with a list of proposals, which eventually became SEAMEO's Educational Development Program for the 1970s. One of the proposals was to develop an alternative, economical, and effective system of mass primary education.

Technical Working Group — July 1972

It was not until 15 months later (19 July—2 August 1972) that a Technical Working Group (TWG) assembled in Bangkok to develop and discuss a design for the "Development of an Effective and Economical Delivery System for Mass Primary Education."

The TWG was confronted with a dilemma. Should the development of a delivery system wait for the completion of the other priority project — the formulation of relevant, feasible and economical instructional objectives of primary education in member countries — or should it go ahead? A subgroup, which presented a proposal for an effective and economical delivery system, clearly stated that the urgency of the problem did not allow postponement of work on the design of a delivery system. The subgroup, however, recognized that it would have been ideal "to determine *what* to present before developing the *means* to present it . . ." (ref. 7).

The dilemma seems to reflect the participants' apprehension that if a delivery system or systems were developed without first identifying national instructional objectives in member countries, the delivery system(s) might not be utilized regionally. What was hoped was that from the study of national instructional objectives, some common ones could be made the bases of developing a SEAMEO delivery system for mass primary education. Unfortunately, in education, differing national conditions and interests often overpower desire for international cooperation.

The design adopted by the TWG was far from refined. Essentially, it was a list of activities that Innotech was asked to carry out. The list included a planning and preparation stage to identify potential constraints, collecting information on existing

17

and proposed alternative delivery systems, a workshop to propose and analyze alternative systems, a seminar of high level educators and administrators to decide which schemes would be subject to experimentation, construction of detailed prototypes for experiment and evaluation, and dissemination of findings. The design ended with an expression of hope that should the experiment evaluation show success, the member countries would conduct further refinements and adaptation until the system was adopted or implemented (ref. 7, p. 19).

Innotech Seminar in Singapore — February 1973

Innotech took over from the TWG. The first four activities outlined by the TWG were dealt with at a seminar Innotech sponsored in Singapore on 19—23 February 1973. This seminar was significant in that the ideas and suggestions expressed by participants established the foundation of the Impact system, especially its key objectives and principles.

Notable among the ideas and suggestions were those of Dr Kaw Swasdi Panich, then Director General, Department of General Education, Ministry of Education, Thailand. Dr Kaw expressed the need to develop a delivery system that would achieve the following objectives:

(1) "Find more effective and economical methods of using the budget allocated to primary schooling so that we can accommodate more students and at the same time retain respectable educational standards."

(2) Minimize "wastages such as repetition, drop-out, absenteeism, irregular attendance, lack of motivation" caused by "the conditions of poverty, remoteness, language differences, varying traditions."

(3) Answer "such instructional and management problems as insufficient quality and quantity of teaching staff, uninnovative teaching methods, irrelevant curriculum, shortage of instructional materials . . . ."

(4) Make the school "a part of the community in which it is located. The community must be encouraged and recruited to contribute to the school in terms of human, financial, and material resources."

(5) Teach that learning takes place "both in and out of school, that learning is the result of the interaction between a student and his teacher; between a student and his peers, and with his environment."

(6) "Enable teachers to effectively teach more students . . . ." through (a) multiclass teaching, (b) monitor system, (c) teaching assistantship, (d) local resource persons, (e) increased class size, and (f) use of teaching aides and mass media (ref. 8, pp. 27—31).

In response, Dr Douglas Ellson, Innotech's director of research and training and an expert in programed teaching, described Innotech's ongoing experiment in the rural areas of Pontian, Johore, Malaysia. Ellson said the Pontian experiment using programed teaching was one potential answer to the problems described by Dr Kaw. Programed teaching was later to become a major technological component in Project Impact. Because of the direct transfer of experience gained in Pontian to the Impact experiment, a brief discussion of that project is relevant.

The Pontian project involved training poorly educated Malaysian teachers in programed teaching methods. The technology developed by Ellson and his associates functioned both as a form of teacher training and as a method of teaching children.

The final report of the Pontian project was proclaimed by then Innotech Director, Ly Chanh Duc, as "one of Innotech's success stories" (ref. 9, p. 30). The efficacy of the project's programed teaching technique was summarized as follows:

> Elementary school graduates in a rural Asian community, given a few days of training in the technique, had no serious difficulties in learning and applying the program with the required precision. Their ability to do so was indistinguishable from that of similar nonprofessionals elsewhere who had had the benefit of considerably more education before they were trained as programed teachers. More important, the pupils they taught learned significantly more than a matched group of children taught by their regular classroom teachers. (ref. 9, p. 30)

If this is true, why did the Pontian system fail to spread in Malaysia? It was not known what interest or follow-up existed after Ellson and his five Asian colleagues (interns at Innotech) completed their report and left Pontian. In its April 1973 *Research Planning Document*, Innotech promised that programed teaching "will be disseminated to member countries this year as a prototype technique for using local community members without previous formal training to assist in the teaching of primary children" (ref. 10, p. 32). There is no evidence to show this had happened before Impact came into being. Perhaps part of the reason the idea failed to spread was the natural anxiety of professional teachers that such innovation would undermine the need for them. In addition, the Pontian project was a "small-scale experiment" involving 10 elementary schools and a total sample of 100 first grade children. Without a strong follow-up either from the innovators or the Ministry of Education, the promising results of such an experiment are bound to be forgotten.

The failure of the Pontian experiment to thrive in Malaysia, however, was not too disappointing. The idea was exported to Indonesia and the Philippines with Ellson as the expert trainer. In Project Impact, Ellson taught the principles of programed teaching to the research team.

Research Planning Document — April 1973

Following the February meeting in Singapore, several technical meetings were held. The desire to achieve a research program accepted throughout Southeast Asia continued to be strong. This was especially evident in the discussions and recommendations of the Select Committee appointed immediately after the Singapore seminar to recommend Innotech's future directions in the development of economical and effective delivery systems. The members considered two working papers: "Development of an Effective and Economical Delivery System for Mass Primary Education" produced earlier by the TWG; and a paper prepared by Daryl Nichols, research advisor at Innotech, entitled "Brainstorming for an Innotech Research Program on Effective and Economical Delivery of Mass Primary Education."

Like the TWG paper, Nichols' working document suggested that the committee focus on delivery systems that would provide "fast payoff product that can have immediate utility for SEAMEO . . . ." (ref. 8, p. 243). Significantly, he mentioned as an example of "fast payoff product" the Pontian programed teaching project in Malaysia.

The committee recommended that Innotech's professional staff should postulate a wide range of delivery systems and approaches that appeared to have the potential for providing quality mass primary education within present resources and constraints. The various delivery systems would then be analyzed and transmitted to

each member country to elicit interest in cooperative research efforts. The response of the member countries would enable SEAMEO to develop a model for delivery of mass primary education that would then become a cooperative research project in each member country.

After weeks of study, Innotech staff concluded that the recommendation of the Select Committee to postulate a wide range of delivery systems could not be carried out. The assumed variety of delivery systems simply did not exist because cost constraints did not allow variability. The staff decided instead to work on a single but flexible delivery concept. The final Research Planning Document made a distinction between a ''delivery concept'' and a ''delivery system.'' The former was described as a framework and general approach, which emphasized experimentation in the areas of methods and materials. The latter, on the other hand, was defined as ''a complete process of instruction and management, including all component materials and methods.''

The ambiguity of the planners' decision remained, despite the distinction between the terms ''system'' and ''concept.'' Ever since the acronym Impact was coined, it had always been referred to as a ''system'' for delivery of mass primary education. Furthermore, what was being gradually developed in the field sites fitted Innotech's definition of a ''system'' rather than a ''concept.'' The planners' motive for favouring the term ''concept'' was to emphasize components development. It reflected an earlier problem of how ''to provide member countries with relatively fast payoff products for their adaptation and use'' (ref. 10, pp. 14–15). As it actually happened, the components developed and refined gradually were interacting parts of a system.

The Research Planning Document gave another explanation for Innotech's decision to work on the narrower ''delivery concept'' instead of a complete ''delivery system.'' Two interrelated ideas were predominant in the decision: drastic reduction of per pupil cost and the community learning centre (CLC) concept. Concluding that the education budget picture in the coming years in SEAMEO countries was a gloomy one, the planners laid strong emphasis on radical reduction of per pupil cost ''the one criterion which has most influenced the design . . .'' (ref. 10, p. 16). As a result, a 200:1 pupil–teacher ratio was set as the goal of the delivery concept. Documents cite no precedence or evidence to back the 200:1 ratio decision. It was probably picked from the air because it was ''radical'' enough in comparison to existing Asian ratios ranging between 35 and 45:1. It was hoped that the CLC concept would deliver the 200:1 ratio.

During the discussion of how to reduce costs, several alternatives were explored. Doubling the teacher–pupil ratio through double sessions, doubling class size, and shortening pupil school attendance (e.g., alternate days, reduction of primary school from 6 to 3 years) under the traditional system of instruction were all given up as inadequate or prejudicial to pupil learning. Mass media such as the educational television or video cassettes were talked about but were eventually dropped as expensive. But radio was accepted as a potentially useful ''special-purpose medium,'' although not as the core of a delivery system. In effect, Innotech concluded that changing some practices in the traditional system would not be sufficient to solve satisfactorily the educational problem facing SEAMEO countries. A radical departure was necessary and a 200:1 pupil–teacher ratio was the key to this change.

The concept, which the staff decided would achieve the 200:1 ratio, was the CLC (ref. 10, pp. 18—19). The origin of the CLC concept is of more than passing historical interest and took the form of a fictional ''newspaper report'' entitled ''No More Schools,'' written by Daryl Nichols in 1973 and dated January 1980, purported to be a reporter's interview of a 10-year-old Lao pupil, his father, and the district school inspector. The setting of this interview was a fictitious village named Bouamlong in Vietianne, Laos. The system of education, described in the story as widely implemented in Southeast Asia in 1980, was admitted to be ''fanciful.'' Nevertheless, it provided the Innotech staff with ideas and principles. Here follow some quotations (ref. 10, pp. 2—13) from this ''newspaper report'':

(1)   On visits to three isolated villages during the past week the reporter did not see one class in session and asked why. ''Our concern is not with schools, it is with the education of our children,'' explained the father.

(2)   ''We don't have grades anymore. Moa Lia (son), tell him what modules you have completed,'' urged the father. ''In language I have completed module 23, in science module 17, in math 15 . . . .'' said Moa Lia.

(3)   ''Isn't a module difficult for you to do?'' asked the reporter. ''I have to work hard, but I know what to do and I can ask for help. I have to 'learn how to learn','' replied Moa Lia.

(4)   ''What do you mean by 'learn how to learn'?'' inquired the reporter. ''Every time I pick up a new module, I listen to a cassette tape . . . until I am sure of what to do,'' explained Moa Lia.

(5)   The father added, ''I never went to school, but I know what Moa Lia should be doing at any time. All the parents in this village can help their children on how to learn. We also keep track of what they are doing; we are responsible for their progress.''

(6)   To the reporter's question: ''Did you have a teacher?'' Moa Lia answered, ''Not really. Some parents helped out; some of the older kids also helped us. The Instructional Supervisor was here one day and gave the test. Sometimes parents or older kids gave it. The IS in this village is responsible for two other villages in the district and makes regular rounds.''

(7)   Another question: ''How did you learn to read?'' ''By programed teaching. The teacher who taught us wasn't really a teacher; it was a parent who had graduated from primary school and could read,'' came Moa Lia's explanation.

(8)   ''I have seen some fairly sophisticated instructional materials — learning modules, transistor radios, and cassette recorders. How can you afford these things?'' asked the reporter. The school inspector replied, ''The most revolutionary change made by Project Impact was to eliminate the use of professional teachers who are tied to the classroom and to retrain them to become ISs. The usual student—teacher ratio in the past was 35:1. Our present IS—pupil ratio is 1:200. The IS makes a much better salary but we still have realized at least a four-fold savings in teacher costs. The money we have saved is used for instructional materials and to pay modest stipend to local aides.''

(9)   ''What about adults, can they take the post-tests?'' ''Of course,'' replied the inspector, ''Primary education is no respecter of age. We used to worry about drop-out and wastage problems a lot. A person can progress at his own pace. Many pupils work during certain periods of the year. They don't drop out as they used to when they were forced to repeat a grade on returning to school. Now they can come

back and pick up where they left off, perhaps starting out with a review module to cover previous work.''

(10) The reporter's last comment: "It seems that everybody in the village is somehow involved with the new system." "That's about right," replied the father. "Pupils are helping pupils, parents helping their children, and specialists in the community act as part-time aides. We couldn't do this on our own. We need the structure that is provided by the learning modules, and we need the organization, management, and counsel of the Instructional Supervisor."

The choice of Laos as the locale for the story written in April 1973 seems to anticipate the plan to operate a delivery system there. Just before the end of the first year of Project Impact in the Philippines (February 1975), Daryl Nichols, American Institute of Research (AIR) advisor at Innotech in Saigon, prepared a prospectus for the extension of Impact in Laos. The plan was opposed by some Innotech staff members as premature and impractical, but it would have probably gone through if not for the political changes in South Vietnam and Laos toward the end of the first quarter of 1975. In fact, the proposal was submitted to the IDRC for informal reaction by the Innotech director Mr Phan Van Cung (ref. 11). When "No More Schools" appeared in the Innotech Newsletter in May 1973, the name of the Laotian village was changed to "Sealand." The change perhaps reflects the differences among the staff within Innotech at that time.

From the above "newspaper report" Innotech planners culled basic principles and made them characteristics of the CLC concept. Thirteen of these characteristics became components of an Impact system:

(1)   The professional teacher's role would be changed to a manager of instruction. One IS should be able to manage 200 primary pupils.

(2)   Community members with particular skills (carpentry, homemaking, agriculture, health, and religion) would be enlisted as unpaid volunteers to provide specialized instruction.

(3)   Other community members who are primary school graduates would be trained by the instructional supervisor as programed teachers, record keepers, and evaluators of pupil progress. They could be paid a small salary.

(4)   Older pupils or high school students would be expected to assist on a voluntary basis with tutoring and remedial instruction.

(5)   Parents would be trained to monitor instructional activities of their own children and to take responsibility for their children's progress.

(6)   There would be no age limit to school entry — pupils would not be encouraged to begin schooling at an early age.

(7)   Education would be modular — each module covering 2 weeks of instruction would have specific educational objectives and readiness test and post-test.

(8)   Many modules would be in the form of individualized instructional packages. Pupil difficulty would be remedied through tutorial help.

(9)   Some modules would be in the form of small group instruction directed by a teacher aide from the community. Others would be tied to instructional radio programs.

(10) Printed modules would be reusable by other students.

(11) There would be very few set class periods. Students would be able to drop out and reenter at any time.

(12) Primary education would be upgraded; progress would be indicated by quantity of modules satisfactorily completed.

(13) Materials and records would be maintained in the community learning centre.

The April 1973 Research Planning Document outlined some procedures to guide Innotech staff and the project staff in working out more detailed plans. The document listed for discussion the following research and development questions: (1) What methods are best to teach language skills to rural children when the medium of instruction is different from the language spoken at home? Radio? Programed teaching? (2) Can programed teaching be used for science, math, and social studies? For all grade levels? (3) What forms of self-instruction are most cost-effective? For what subjects? Grade levels? Can teachers produce programed self-instructional materials? (4) Can parents and children in rural villages be self-directed in managing education? What means are needed? (5) What "learning how to learn" techniques would best enable pupils to benefit from self-instructional modules? (6) Will community members with specialized skills volunteer their time? (7) Can a method be developed for older pupils to do tutorial/remedial activities? What training is needed? (8) What minimum components will have to be developed before trying out the total delivery system? (9) How would management of learning by the IS differ for villages of different sizes? (10) What should be the content of a CLC? Should the centre be permanent or mobile? What quantities and kinds of instructional materials are needed? (11) How best can a self-paced system be managed? Will allowing a pupil to stop and restart at any time reduce the number of dropouts? (12) Can efficiency be increased to achieve primary school education in three years? (13) Would rural people accept radical changes such as nonqualified teachers? What steps are needed for village acceptance and support?

Technical Proposal — September 1973

A Technical Proposal was finally produced on 10 September 1973 for submittal (in the name of SEAMEO) to outside donors for possible funding. There was hardly anything in the proposal that was not already in the earlier Research Planning Document. As the proponent admitted, the Technical Proposal was "sketchy," not only on logistical plans but also in research design and methodology. It pleaded with the prospective donor to "respond . . . with the understanding that definitive research planning and scheduling is a part of the project itself." The plea was made more acceptable with a promise that the budget "will not be changed by more than 10 per cent" (ref. 12, p. 8). Despite the promise, the sketchy research plan was never expanded into a clear and detailed experimental design as might be expected for such an important and long-term project. The planning document developed by the project leaders 3 months after the Technical Proposal was just as deficient in research plans. The leaders' document was preoccupied with the schedule of developmental activities. Research was superficial such as testing to determine level of language competence of fourth graders and formative evaluation of instructional modules (ref. 13, pp. 21−22; 31−32).

The months following the production of the 10 September Technical Proposal were a period of debate between the proponents of radical de-schooling and the more

moderate group who favoured drastic efficiency reforms within the school system. Convinced that formal schooling would never be able to achieve universal primary education, the former strongly advanced the no-more-schools concept operating through CLCs. On the other hand, the "efficiency-of-schools" group felt that Asian tradition and culture were not ready for such a radical departure and therefore any attempt to implement the no-more-schools concept was unrealistic and doomed to fail.

What was implemented and developed in the Philippines and Indonesia followed the efficiency-of-schools model. Yet, even this less radical approach met with many problems, among them opposition from some parents, community members, and teachers. An account of this debate is relevant not only to Project Impact but also to the broader issue of educational development in less developed countries.

The 10 September Technical Proposal, authored by Innotech's Daryl Nichols, was reviewed and revised before it was put forward as an official Innotech document. This document, focused on the delivery of mass primary education in rural Southeast Asian communities, was based on the no-more-schools concept. Among the donor agencies to which the proposal was submitted were USAID, the IDRC, and the Konrad Adenauer Foundation (Germany).

In his formal review of the document, Dr Robert Jacobs (former Regional Education Adviser, USAID, Bangkok) found "exciting" an action-oriented research project involving a no-more-schools approach at the primary level. Jacobs, however, felt that the plan to use "objectives and content . . . more or less taken off the shelf as they are" could lead to failure, especially if defects were in the objectives and content rather than the delivery system. He then suggested for consideration objectives more consistent with the no-more-schools approach. He cited as an example the life-skills objectives of nonformal education and even recommended that the willingness to establish these objectives be made a condition for site selection (ref. 14).

Innotech, through Nichols, agreed with Jacobs that life-skills objectives might be used in the Indonesian site (Anwar Jasin of Indonesia developed life-skills objectives while serving as Innotech staff). In the Philippine site, Nichols promised to use objectives on "off the shelves" materials and to make sure that these were what the country really wanted to be learned (ref. 15).

Seminar at Saigon — November 1973

The more intense and final part of the debate, however, came in the November 1973 seminar at Saigon. Called precisely to generate ideas and insights on what role community resources might have in the delivery system, the seminar provided an opportunity for the proponents of the two camps to come face to face. The arguments of both sides also reflected the climate of innovation in the early 1970s. In fact, both camps quote Western sources and programs in their speeches arguing the pros and cons of such concepts as nonformal education, ruralization or community-based education, and educational technology.

Robert Jacobs, keynote speaker at the seminar, used economic reality as one of his arguments in putting forth the case for de-schooling (or "no-more-schools" as Jacobs preferred this concept to be called).

> And when the essential information is brought together (population projects, rising costs, available resources for investment in education) it takes little

numeracy skill to determine it is no longer possible — repeat and underline no longer possible — to close the educational gap between the educational haves and have nots by following the traditional path of the formal education system (ref. 16, p. 2).

Jacobs then moved on to describe a variety of programs and recommendations that exemplified the no-more-schools approach. One of these was Nichols' fictional report, which was an attachment to the seminar papers distributed to participants. He pointed out that the description contained the "basic ingredient" of the "delivery system project to be undertaken by Innotech and the use of community resources." At the suggestion of Innotech director, Ly Chanh Duc, he urged everyone to read this description "to prepare yourself for effective participation in this seminar" (ref. 16, p. 3).

Turning to a "no-schools/community resources utilization" approach by radio, Jacobs described the Colombian radio-phonic schools that he and two others visited and observed in 1961.

> Early each February, instruction by radio begins in some 30 000 radio-phonic schools reaching some 225 000 pupils in 900 different rural areas of the nation. Schooling in reading, writing, arithmetic, social science, health, and religion is carried on for 10 months. A radio-phonic school is either a village group or a family unit. There is no school building or classroom, merely a common gathering place. Except at the broadcasting end, no teachers are involved (ref. 16, p. 4).

At the time of their survey, Jacobs and his companions found that "professional educators were rejecting this experiment because it was not coming up to the 'standards' of the formal school system, but the fact is that 225 000 youngsters at that time were getting some education to replace no education, and were getting it without schools and with the help of the resources at hand" (ref. 16, p. 4).

Jacobs preferred the learning goals in the UNICEF-commissioned International Council for Educational Development (ICED) study directed by Philip Coombs, on nonformal education for development over traditional objectives. Jacobs praised this "set of meaningful, life-skill oriented objectives which do take into account the minimum essential learning needs of children and youth in the world of today." However, he was also aware of the "possible upheaval of trying to modify published and accepted primary school objectives . . . ."

The papers of Asian educators dealt mainly with the ongoing innovative projects in their respective countries utilizing community resources. None of them subscribed fully to the bold no-more-schools approach. A few were for the optimum use of community resources to effectively supplement the formal school system. Others who had prior information about the seminar's de-schooling thrust expressed caution. For example, in his prepared welcome address, the SEAMES Director, Sudjono D. Pusponegoro, specifically noted:

> . . . that you will be tackling also the no-more-school approach which I hope is more than just Illich-inspired. While I am aware of the necessity to postulate an extreme case as a frame of reference, I must add a word of caution that we must make sure that innovation in this respect can be linked with effectiveness. Schooling or de-schooling are concepts, which, let us face it, we have borrowed from the West. In the traditional outline of Southeast Asia, you may find something which is more practicable for Southeast Asian conditions and which may not lend itself to simplified categorization like schooling or de-schooling.

> Whatever we do, we must not lose sight of the conditions and the needs of our people in the region (ref. 16, Appendices p. 4a).

Khmer Republic's Director of Primary Education, Nhoeng Nhan, politely labelled the no-more-schools concept as ''idealistic'' and commented that the approach ''could probably be applied to certain levels of education in the developed countries. However, it seems to encounter many constraints in the developing countries, especially those of Southeast Asia.'' He suggested not to replace formal schools but to use fully the resources of the local community to supplement the formal education system (ref. 16, p. 29).

On the third day of the seminar IDRC's Donald Simpson spoke in favour of the efficiency-of-schools approach in his paper ''A Tide in the Affairs of Men.'' Directly criticizing the ideas and approaches suggested in the keynote address, Simpson declared:

> I would like rather at this time to raise some of my concerns about the way in which educators from the West backed by some of the funding agencies may sometimes allow their enthusiasm for innovations in their own society and their global interests in education to cloud both their awareness of the cultural uniqueness of much of the education process and the fact that people's demands for education usually reflect the social realities of their society rather than the theoretical models of the international educational planner (ref. 16, p. 86).

He went on to specify some current educational ideas in the West that were being introduced in Third World countries. These ideas included Illich's de-schooling concept and other nonformal education schemes. He added to these the trend toward ''ruralization of schools.'' What was wrong with massive radical change? Simpson felt that it rested on assumptions that might not be valid. For instance, he asked to what extent the existing system had been given a chance to work, adding that in most less-developed countries, the present system had been in operation for less than 20 years. He also branded ''questionable'' the tendency of planners to regard educational systems as passive instruments of social policy that can be altered or replaced easily without opposition from the local community. ''Regardless of the problems associated with schools, the parents are not going to allow them to quickly disappear or to follow the dictates of educational planners or international agencies,'' Simpson concluded.

Coming to his evidence against the specific educational changes that were being proposed, Simpson asked his audience to consider the following:

(1) On the ''ruralization'' trend, Simpson recalled the Phelps-Stokes report in the 1920s recommending this scheme for Africa but which had not taken root because it did not give the people what they wanted. He concluded: ''As long as the social reward systems remain as they are I expect that rural people will fight for the opportunity for their children to obtain the social and economic benefits of an education no matter how great the odds against them are. Anything that appears to indicate that the educational opportunities for their children should be restricted to a rural environment will no doubt be seen by them as second class education and will be rejected'' (ref. 16, p. 89).

(2) On extensive and elaborate use of educational technology, Simpson quoted James Koerner who cautioned against education expecting too much from technologies of communication, and that ''initial enthusiasm in North America of leaders and futurists from the knowledge industry, from the government, and from

education has given way to embarrassment as their rosy prophecies have not been realized.'' He warned proponents of massive technology for developing countries of leaving themselves open to the criticism of either ''trying to use developing countries as testing ground for experiments which we have not been prepared to try ourselves or trying to provide a wider market for our technology hardware'' (ref. 16, p. 90).

(3)   Simpson moved on to Illich's de-schooling. He shared Ronald Dore's criticism that labelled de-schooling as " 'evidence of insensitivity to the real sufferings of a large part of mankind, or else of the same capacity for self-deception which enables the questioning, protesting youth of North America to mistake their own self-regarding concerns for social concerns, and to conflate their own identity crisis with the crisis of their society.' '' Dore, Simpson continued, charged that de-schooling is for an ''individualistic, selfish, play-oriented educational system'' and '' . . . to prescribe such an educational system as suitable also for poor societies which must struggle to keep their population barely alive, shows culpable insensitivity'' (ref. 16, p. 91).

Coming more directly to the seminar concern, Simpson raised questions about the no-more-schools approach and the use of community resources to develop a delivery system for mass primary education. These questions were as follow: (1) Does the title ''No More Schools'' really imply the main thrust of the project? Will it be a liability in gaining local support? (2) How will the local people identify with the project? Will they have an opportunity to state their needs? Will the researchers be in the villages enough to be accepted by the people? (3) Is there a possible problem that resource material will be produced by outsiders without involving local people? (4) What arrangements are being made to include the teachers of the local schools in the project area in the planning and operation of the project? Can some of them become members of the research team?

To conclude his paper, Simpson returned to his Shakespearean-borrowed title ''the tide in the affairs of men'':

> If there is an inevitable tide which I wish to highlight, it is not the tide of nonformal education, ruralization of schools and educational technology but rather the tide of the growing realization that changes towards direction of a different life style for greater well being and dignity cannot in the long run be imposed on people. No matter how polite and sincere the outsider may be, educational policies and styles of organization should not be imposed from the outside — introduced, yes! imposed, no! I am convinced that the real dynamic for change has to come from within a society and ideas from outside when they are recommended incessantly against local wishes will usually acquire a bad image and become unpopular, no matter how constructive and positive ideas are (ref. 16, pp. 98–101).

The representative of a promising financial donor having made his stand clear and strong, Innotech staff decided to accommodate the efficiency-of-schools approach. Overnight, an ''Amendment to Technical Proposal'' was produced. The document was specifically addressed to IDRC and emphasized that the Philippine and Indonesian approach was ''intended to be extremely flexible.'' For example, although the project was starting with a no-more-schools approach, ''any needed modifications . . . will be made as we learn more about what will and what will not work.'' The amendment also admitted that a mix of the two approaches is possible. For instance ''the solution to rural primary education may, in fact, lie somewhere between the two approaches — maximum 'efficiency of schools' instruction coupled

with 'no-school' learning via self-instruction, peer tutoring, and other uses of community resources.'' To show that Innotech was not exclusively hung up on the no-more-schools approach, the amending document spoke of the regional centre's plan to research in a third country the efficiency-of-schools concept.

On the last day of the seminar, Innotech's deputy director Winarno Surakhmad presented a summary entitled ''What We Have Learned.'' His opening paragraph ''Goodbye to 'No More Schools' Hello to ?'' diplomatically interpreted the general skepticism to the no-more-schools concept:

> It seems that a sore toe will inevitably be stepped on time and again. Innotech's sore toe throughout this Seminar has been in a name ''No More Schools.'' . . . What was radical, and perhaps threatening, was the ''No More Schools'' label. It sounded a bit like ''de-schooling,'' and it seemed to imply ''low quality,'' neither of which are attributes of the concept itself (ref. 16, p. 135).

To answer the question ''Goodbye to 'No More Schools' and Hello to?,'' seminar participants were asked to suggest alternative titles. A total of 41 titles were suggested and from these Innotech staff decided on one: Impact (Instructional Management by Parents, Community, and Teachers) (ref. 17).

Chapter 3
Preparatory Strategies

An educational innovation that aims to make drastic changes in the established system must be explained and sold to all those who control, operate, and use that system. This sensitive informational and promotional process involves identifying and winning to the project's objectives leaders with administrative power as well as political and social influence among the local people.

In the Philippines, the members of the national steering committee were key officials of the educational hierarchy. They were expected not only to give their stamp of approval to the project but also to influence the lower echelon of the Ministry of Education. Although the Cebu experimental site met the predetermined education criteria, the decision-makers also made sure of the support of the high national and regional officials of the education ministry. The same political and social factors were considered in forming the local steering committee. The barrio captain, the PTA president, and the school principal composed this local committee, which did a lot to campaign for acceptance and to gain the cooperation of the teachers and the barrio people.

Resistance to educational innovation is a well documented phenomenon. Innotech planners and implementors were not only aware of this problem, their planning document forewarned them about resistance. The document stated that "radical changes in the delivery of primary education undoubtedly will meet resistance of various kinds from policymakers, educators in the establishment, teachers, parents, etc." The planners and implementors were advised that innovation should "be sold to those who control, to those who operate and to those who use primary education." Showing a determined attitude to move ahead and make drastic changes in the established system, the planning document admonished that the research "cannot be inhibited by possible reactions such as 'parents are not used to this — they probably will think that the quality of education will suffer' or 'qualified teachers are going to be out of work' or 'the Ministry is planning a large-scale building program contrary to what Innotech is developing' or 'what are we going to do with the present text-books,' etc." (ref. 10, p. 32).

This chapter describes the kinds of preparations made toward acceptance, the activities conducted, and the personalities involved. The role of persons with political and social influence and power will be highlighted as these persons appear in many instances to have made a significant difference in the extent of acceptance and resistance. The experience also points to the importance of a sustained promotion and information campaign in the school and community in order to gain their continuing support.

Preliminary Preparations

The preparation and implementation plan of Impact was worked out by the

project leaders who met in Saigon for 5 weeks. The result was a paper entitled "Project Impact: Initial Planning Document," dated 14 December 1973. In general, the preparation pattern for launching the experiment was as follows: obtain approval of authorities, choose field site, recruit and train project personnel, organize local steering committee, and conduct acceptance campaigns.

Approval and Choice of Experimental Site

Innotech decided to propose that the original experimental sites be in the Philippines and Indonesia for reasons, among others, of relative political stability. Initial exploration with key officials in these two countries was done by nationals (Aurelio Tiro, Philippines; Anwar Jasin, Indonesia) of the two countries who were members of Innotech staff at the time. Eventually, the agreement of each country was secured and national steering committees were set up to start the planning machinery.

The appointment of a national steering committee for the Philippine site was intended to get key education officials not only to give their stamp of approval but also to use their authority and influence over the lower echelons in the educational hierarchy. Membership in this committee was characterized by importance of position and authority: undersecretary of education and culture (who happened to be from Cebu), chairman; national director of public schools; president of the Philippine Normal College (the premier state teacher training institution); and regional director of education in Central Visayas (where Naga, Cebu belongs). Records do not indicate how active the committee as a group had been in the performance of their defined functions. But the stamp of approval or endorsement of these important officials, however token that might be, was crucial to the life of the project.

One of the first tasks of the Philippine committee was to choose the site of the experiment. The most important selection criterion was that it be a rural, agricultural area. The site selected was a cluster of five barrio schools (Naalad, Pangdan, Lutac, Balirong, and Uling). These schools are in the rugged mountainous interior barrios of the town of Naga (population of 90 000), Cebu Province in Central Philippines. The five barrios have a total population of about 10 000. The first barrio, Naalad, is about 22 km from the big city of Cebu (population about half a million). From Naalad, the other four barrios are just 2−3 km apart by dirt road. There is no doubt that the five barrio schools of Naga qualified as a project site on the basis of the established criteria. The choice may also have been influenced by Dr Aurelio Tiro, school superintendent and later regional director of education in the area, who was on the Innotech staff at the time of project development and during the search for an appropriate site; and Dr Narciso Albarracin, the undersecretary of education and culture, chairman of Innotech's governing board and of the national steering committee, and a Cebuano.

Recruitment of Project Staff and Administrative Set-up

The long-term nature of the experiment and its regional nature made it more convenient to assign leadership in the original Naga project to educators from the private rather than the public (government) school system. Both Concesa Baduel (project director) and Rosetta Mante (associate director) were recruited from local private universities. Unlike career public school officials whose tenure and promotion in the ministry hierarchy might be affected by long-term secondment to a quasi-government project, private school personnel could easily resign from their posts without much loss in seniority and financial security. Baduel and Mante were

appointed as Innotech personnel and not as government employees. Their linkage with the school was through the regional director.

Baduel and Mante supervised the module writers and instructional supervisors, teachers from the regular public school system. Given the clearly defined public – private dichotomy of the Philippine educational system, the efficacy of such an administrative arrangement was greatly dependent on the degree of support given to the project leaders by Regional Director Aurelio Tiro. It meant that for problems in the field or in the Impact office, the project director or her associate would have to go to Tiro for advice or intervention. Baduel or Mante, as "outsiders," did not have direct authority over supervisors, principals, or teachers in the experimental schools in Naga. They had to appeal to Tiro to recruit or change project personnel, or deal with resistance from field or office staff who were civil service employees. Minimizing the negative effects on the project of this administrative constraint fell especially on Mante who took over as project director in early 1975.

Local Steering Committee

In an effort to obtain approval and active support at the village level, a local steering committee was formed. The composition of the committee was based on political and social position in the community. Thus the Impact Naga schools had a school principal, a barrio captain, and a PTA president.

Beyond their initial participation in the committee, the members' continuing active support of Impact depended mainly on the project leader's initiative. There were significant results derived from such initiative even if the committee members' involvement was mainly in the area of public relations. For example, the standard involvement of members in the Naga project was to be consulted and to give approval of new experimental components; to appear with the Impact staff in a general assembly of parents and to speak in favour of the new components, leaving the questions to the Impact staff to answer; to contribute funds; and to inaugurate a kiosk or school activity. Even the feeling of importance they received when outside visitors were introduced to them was a seemingly peripheral yet important type of participation, which gained their sustained support and acceptance as well as that of the teachers and village people they represented.

Acceptance Campaigns

"The words of the strong carry more weight than the words of the weak" (ref. 18, p. 7). To give a boost to the acceptance campaign in Naga, then undersecretary of education and culture and a Cebuano, Dr Narcisco Albarracin, flew to Cebu to be the main speaker in a meeting attended by the provincial governor, municipal and barrio officials, and top school officials of the province. The response of the participants was one of approval and encouragement. The campaign was carried down to the barrio level. It took the form of launching ceremonies where the Impact concepts were explained and questions or comments were invited from the people of each barrio. Although the formation of local steering committees was a manifestation of acceptance, parents expressed concern about their role in the project. Specifically, this pertained to the plan *to require* parents or elder siblings to tutor and submit pupil's progress reports to the IS. A combination of reasons was given by parents for their anxiety: lack of time and illiteracy or low educational attainment (ref. 19, pp. 50–53). These objections were reinforced by the traditional attitude that the responsibility of educating children rests exclusively with the school. The

31

requirement for direct parental involvement was seen as an imposition and even as a reflection of inadequacy or incompetence on the part of the salaried and professionally trained teachers.

Plans and Activities Prior to Field Experimentation

Concepts intended for implementation in Naga were defined in the earlier planning documents to guide the research and development team. The project leaders, together with Innotech professional staff, translated these concepts into a management plan.

Preparatory Decision and Action

The project leaders and Innotech research staff studied the planning document and decided to concentrate initially on one of the three suggested field approaches. The approach was to start with the fourth grade on the assumption that pupils at this level possessed necessary reading and communication skills in the official medium (English) to handle self-instructional modules. An earlier plan to conduct the research and development in the fourth grade using the native language (Cebuano) as medium was abandoned.

The project staff proceeded to determine the proficiency in English of the prospective pupils. The proficiency test found that 20% were nonreaders and 75% had handicaps in comprehension. This was because the pupils lacked exposure to English instruction and because materials used in grades 1 and 2 were in the Cebuano native dialect. A crash remedial reading program in English was conducted during the April and May school break prior to the opening of the new school year in June. For 2 months, the pupils were offered 40 minimodules based on grades 2 and 3 English reading materials. The result was dramatic: the nonreaders dropped to 3% (ref. 20, pp. 21−22).

Two other major activities in the management plan had to be implemented before the June field intervention: IS recruitment and orientation; and module writing and production. ISs for the fourth grade Impact schools, paid an incentive for their participation, were picked from those who volunteered and who were recommended by the school principal, district supervisor, and superintendent based on experience and efficiency rating criteria. These ISs spent the two months' summer break learning the new system and their new role. This was followed by some classroom demonstrations during the first 2 weeks of the school year in June and a continuing in-service improvement program conducted by the Impact research staff.

Module writers who were called subject specialists began work in January 1974. Using government-approved curriculum guides, they divided instructional objectives and contents into chunks and attempted to write self-instructional modules. The products of this first attempt, while representing a valuable experience, had to be revised after Michael Nathenson (an American coordinator of training at Innotech) produced a guide and did some demonstrations (ref. 21). Nathenson stayed for about 4 months, after which the writers were left under the leadership of the local project director and the instructional methods expert (ref. 20, pp. 21−22). The details of how the research team adapted the Nathenson guide are given in a later chapter.

Chapter 4

Implementation: Progress, Problems, and Potentials

The final research design was placed in the hands of a local team of researchers and teachers for implementation. With outside technical aid, they started to develop and try out self-instructional modules for fourth graders, first for reading and gradually for other subject areas. In an effort to make the school a real Community Learning Centre (CLC), the team sought ideas from Filipino educators at various levels of the system. The recommended design for an Impact CLC proved difficult to implement. The CLC that eventually evolved was nothing more than a repartitioned and reorganized school building plus some kiosks for peer-group and programed teaching sessions. The requirement for parents to monitor and tutor their children had to be abandoned and parents' cooperation finally took the form of voluntary assistance to their children when they could. Cooperation of other community members was also on a voluntary basis; some who had specialized skills provided demonstration lessons in their homes or in school when modules called for learning such skills. Still, a continuous promotional campaign was required to maintain parental and community acceptance.

The real breakthroughs were in the teaching-learning aspects of programed instruction and in increasing the pupil-teacher ratio. Through trial and error, the self-instructional modules were refined and reduced in number. A relatively smooth system of monitoring and administering the instructional process eventually evolved. The use of older pupils an hour a day to help younger ones by programed teaching became a unique feature of the instructional system.

End-of-the-year achievement tests administered to Impact and non-Impact pupils showed either the same or better performance by Impact pupils. The encouraging results prompted the decision to replicate the delivery system without a research team in two semiurban areas — Lapu-lapu City near Cebu and Sapang Palay, Bulacan, 45 km north of Manila. These Impact projects were the first managed solely by existing school personnel.

Implementation was a major challenge for a team whose members were all "locals" mostly inexperienced in research. But they were hardworking and committed individuals, experienced in primary school teaching and thoroughly familiar with local sociocultural conditions. Moreover, the project leaders were capable and dynamic, continually challenging the creative talents of module writers, illustrators, and instructional supervisors. They all had behind them Regional Director Aurelio Tiro, without whose support the project would not have gone very far.

This chapter recalls the approaches, progress, problems, and results of developing and trying out the components of the system (e.g., modules, ISs, programed teaching, peer-group, and self-instruction, the roles of parents and the community). The team leaders designed in-house formative evaluation methods to

33

monitor activities and improve the performance of components (described in Chapter 7). Although the team had the benefit of short-term consultants from Innotech, such as Nathenson and Ellson, this assistance was in the technical areas of how to write programed materials and how to conduct programed teaching and self-paced learning. Most of the time, however, the project staff were left to solve their own problems. This was undoubtedly difficult for the project leaders and module writers but they responded well to the challenge. The staff's energy and talents were devoted to the developmental aspects: meeting module needs of pupils, solving problems of module writers and ISs, developing and refining management procedures, gaining parental and community acceptance and cooperation. The requirements of experimental research were neglected, in part because of the immediate demands of setting up the program, in part because of the inexperience of the staff. Nevertheless, perceptible progress had been made in creatively developing self-instructional materials and processes, not to mention the indigenous skills which were honed and sharpened.

The Community Learning Centre: Generating Ideas

Reference was made in the earlier Planning Document to the CLC and its important role in the delivery system. Although some of the CLC's characteristics had been described, their functions and relationships had not been spelled out. It was expected that progressively phasing in the components would eventually result in an integrated CLC. Nevertheless, Innotech decided toward the end of the first year of implementation to sponsor a seminar to generate ideas from national and local educators in Cebu City on 2–4 December 1974.

Specifically, the meeting had two objectives: to identify the components of a CLC and to structure these components into a model suitable for the Impact system. After 3 days of speeches and group work, ideas and suggestions were summarized under the headings: CLC components, structure and organization, teacher's role, and management. These suggestions were in turn reviewed immediately by the Impact research team and the Innotech staff present for the seminar. The product of the review was a basic framework or model of the Impact CLC. Among the important aspects of the model were:

(1) *Size of the CLC*. The basic size of the CLC to meet the needs of 200 pupils would be as follows: (a) three classrooms with multipurpose area, library and materials area, display area, testing area, a medical corner, and IS corner; (b) an adjacent room in the same building or separate building for a recreation and arts area; and (c) another room for home arts and an adjacent separate room for industrial arts.

(2) *Ratio of additional population to expanded floor area*. To solve the problem regarding the ratio of additional population to floor area, the multiactivity approach involving multigrade-level children would be implemented.

(3) *Component areas to serve the multigrade group*. A multigrade group would require the following component areas: multipurpose area, library and materials area, display area, testing area, arts and recreation area, garden space for science and elementary agriculture, playground, separate comfort rooms, and applied skills area for home arts and for industrial arts.

(4) *Materials used to construct the CLC*. Low cost materials should be used when a new building is possible, or else existing buildings or halls may be modified.

(5) *Design of the CLC should be advantageous to both pupils and the IS.* For example, the relative location of the other buildings or activity areas should be characterized by easy access. (A sample blueprint of the CLC was provided with the model.)

(6) *Low cost materials for each area and all grade levels.* Low cost materials which should be readily available in each subject area are as follow: (a) Reading: puppets, dioramas, flip charts, concrete materials, miniature objects, and others; (b) Language: cassettes (if available), charts, cut-outs, flash cards, etc.; (c) Social studies: maps, globes, clippings, newspapers, magazines, sandtable, and others; (d) Mathematics: abacus, compasses, protractors, rulers, fraction kits, fraction charts, multibase blocks, weighing scales, balance, etc.; (e) Science: thermometers, spring balances, bulbs, flashlights, batteries, cans, magnets, magnetic compasses, iron filings, lenses, liquids, jars, chalkboard, scissors, simple machines, etc. (f) Applied skills: garden tools, carpentry tools, crayons, paints, water colours, scissors, brushes, and others; (g) Home arts: sewing machines, kitchen utensils, sewing tools, scissors, bed sheets, bed, curtains, dining set, tableware, chinaware, and others; (h) Music arts: harmonica, guitar, ukulele, and other musical instruments; and (i) Physical education: all athletic equipment.

(7) *Duties of teacher aides.* Each subject area should have one teacher aide to assume the following duties: (a) to administer tests; (b) to prepare teaching aids; (c) to assist the IS in keeping records of pupils' progress; (d) to help the IS in checking the whereabouts of pupils irregular in their attendance; (e) to guide the children to that part of the CLC where they are supposed to stay at a particular time; (f) to help maintain discipline; (g) to help locate materials or tools the pupils will use; (h) to report to the IS any problem encountered; (i) to oversee children in the recreation area and apply first aid if needed; (j) to provide immediate remediation when a child encounters difficulty in the chunk tests; (k) to report tutorial accomplishment; (l) to act as tutee's "buddy" in the block modules in the absence of a peer; (m) to conduct some programed instruction; (n) to remind pupils regarding orderliness and cleanliness of the school; (o) to gather available teaching materials and aids; (p) to clarify directions in modules if needed; (q) to clarify ambiguities in the learning sequences; and (r) to give further examples or exercises similar to those in the chunks to ensure sufficient learning.

(8) *Responsibilities of the IS*: (a) to manage the learning experience of the pupil; (b) to train tutors; (c) to schedule tutors; (d) to motivate parents and members of the community to become involved in tutoring, monitoring, and improvement of the CLC; (e) to conduct enrichment sessions; (f) to set up the CLC; (g) to catalogue materials in the CLC with the assistance of teacher aides; and (h) to diagnose pupil weaknesses and problems.

(9) *Duties of the district supervisor,* (to be called "coordinator"): (a) to propose a plan for school and community interaction; (b) to assist in the administration of the CLC; (c) to serve as liaison officer; (d) to identify and propose solutions to the problems of the CLC; (e) to survey members of the community and request their assistance at the CLC whenever their particular expertise is needed; and (f) to cooperate closely with the IS in the evaluation of pupils' progress and of the self-instructional materials.

(10) *Activities that could be delegated to pupils and parents*: (a) parents could monitor their children's progress; (b) both could collect materials for the CLC; and (c) both could set up the CLC.

(11) *Role of the local steering committee in the CLC*: (a) to secure funds for the maintenance of the CLC; (b) to assist the IS in solving problems of the CLC; (c) to assist the IS in providing community resources; and (d) to act as advisory body for concomitant problems (ref. 22, pp. 105−115).

As the above listing illustrates, the model developed from the seminar inputs was indeed hypothetical. The most the implementors could do was to try and be satisfied with what was possible in the Impact barrio schools. By the end of that first school year (March 1975), the project director reported the following as regards the physical structure of the CLC.

> The CLC is composed of a two-room storage area where the modules, post-tests, garden tools, science facilities, and all other teaching devices are stored. Part of this area is utilized as the testing area. For individualized instruction, or peer learning activities, the CLC has a few small huts constructed around the school campus. Each hut, which is constructed of local building materials, is provided with a table, a loose board and three or four benches (ref. 20, p. 29).

The ambitious plan of making the CLC a real hub of the community never materalized. The CLC was just a school whose internal and external physical structure had been modified to allow flexible movement among pupils as they went about with their programed teaching, peer-group learning, and individual self-learning activities. Adults were not conspicuous, except as resource persons in some work-oriented lessons or as teacher aides.

Incremental Approach to Self-Instruction by Modules

Implementation of self-instruction by modules would answer questions about four interacting participants. The pupils: would they be able to learn effectively by modularized self-instruction? The teachers: could they carry out satisfactorily their new role as ISs? The parents: would they carry out seriously their monitoring and reporting role? The tutors: could a satisfactory arrangement be worked out to enable high school students to tutor Impact pupils?

Self-paced learning by modules for the first Impact pupils began only with reading, followed by the addition of language 2 months later and a third subject soon after that. It was not until the last quarter (January 1975) of that first school year that all the fourth grade academic subjects became modularized.

Initially the IS handled the normal grade 4 enrollment in her barrio school: 43 in Naalad; 53, Pangdan; 33, Lutac; 25, Balirong; and 36, Uling. She implemented the Impact learning system during the traditional period scheduled for a subject. She also acted as monitor of pupil progress and as tutor.

From the psychological and practical standpoint, the strategy of progressive implementation made acceptance of Impact easier for teachers, pupils, and parents. It also allowed the inexperienced project leaders and writers more time to learn skills and minimized the pressure to produce modules, train ISs, and devise teaching−learning methods, all at the same time. To have started operations based on a strictly experimental design might have been more scientific; we do not know whether acceptance or resistance by teachers, pupils, and parents would have been significantly different.

Parents' Role

As for the parents' role, the strategy was one of prudence in getting them to comply with the functions defined on paper. The first year was devoted mostly to information and acceptance campaigns. Selling Impact to the parents was relatively easy; persuading them to perform their functions and deliver results was a different matter. The many meetings conducted during the year were an indication of how difficult it was to get the parents to accept their new responsibilities. The first meeting was held in January 1974, followed by another in April, then June, October, and December of that year. There were two more of these promotional meetings before the school year closed in March. In the 1975−76 school year, five more meetings with parents were held.

The promotional campaign even took advantage of a popular Philippine cultural fare — the fiesta. An all-day Impact festival of dance and music at the end of the first year was held in all five barrios. From 8:30 A.M. to 6:00 P.M., prominent personalities from outside moved from barrio to barrio to join local officials, barrio folks, and school children for the celebration. The provincial governor, the undersecretary of education and culture, and Innotech officials were among those who attended. The celebration included songs by one parent, Leonides Padriguez, who was a labourer in the coal mines of Uling. All three songs, sung in jazzy tempo with guitar accompaniment, were part of an effort to win parental acceptance of the new system. The translated versions of the Cebuano compositions are relevant to the problem of parental acceptance of their new role (ref. 20, pp. 8−13).

Song No. 1

Project Impact is a fresh wind.
Parents have roles to play
In bringing up children —
Discipline is the thing.

Your child must be at your side
For some length of time;
The hours should be kept —
His lessons studied.

Thus our thanks to the leaders
For the birth of a new concept,
So we must stand solidly behind it
For here lies the parents' success.

Song No. 2

In the early dawn
We shake up the child from bed
To leaf through his module
And to the kitchen, too.

Refrain: When the sun breaks
To the bathroom he goes,
Then to the table for his meal
and thence to school.
So you children all . . .
To school you must hie,
For your lessons are in modules

37

under Project Impact — a new idea.
If the lessons are untouched
You will never learn.

O, my co-parents
The children must be taught
So that the years will not be wasted
The Innotech, too, will grow.

Song No. 3

Every night I sink deep into my lessons,
It shakes me to think the test is hard to answer.
On school days I must face my post-test
To know how far my industry has reaped results.

Refrain: Thank God for all His mercy.
I laboured hard for the success
of the new philosophy.

O, Project Impact is the name!
We're behind it for it aims at economy.
Children all — to school we must hie;
Parents, bundle off your children to Impact's door.

The first year progress report of the project director spoke of "unlimited cooperation given by the parents," but this was not in the areas of monitoring and reporting their children's learning activities. The watering down of these monitoring and reporting roles in the later period was evidence of the difficulty in persuading parents to comply with a requirement they viewed as a burden. How much educational responsibility can the school expect from parents who, even if literate, are engrossed in basic survival?

Pupil Completion Rate of Modules

Having no past experience to go by, the writers produced self-instructional modules without much idea how long it would take pupils to complete them. During the first year, the writers came up with an average of 50 modules per subject or 350 for seven subjects in the fourth grade! An evaluation of the number of modules completed by the end of the school year in March revealed that the fastest pupil finished only 126, the slowest 22, or an average of 67 modules.

The writers also had problems writing the modules at the learners' vocabulary level without oversimplifying and devising a format to minimize monotony. They reduced the quantity of material by weeding out repetitious instructions and content. They improved the format by providing more variety of presentation using algorithms, chains, comic strips, interviews, group work, and experiments. The vocabulary problem was remedied by employing an editor to review drafts for vocabulary, sentence structure, and style before printing.

The quality of materials used in these early modules was poor: mimeographed through hand-driven machines and using low grade newsprint paper, the stapled experimental booklets were far from durable and attractive. Yet, as one visitor to the site reported, "the Impact learners without exception say, when questioned, that they prefer this new system to the old way of teaching learning, and the first reason given,

again without exception, is 'I am learning more' or 'It is making me brighter.' The second most common reason given was . . . 'I now have my own books.' '' (ref. 23).

Community Participation

The letter C in Impact stands for Community. The plan called for contribution of human (i.e., voluntary services of parents and other adults) and material resources. The ISs compiled a list of residents with special skills and local social and civic organizations. Thus, when a module called for consultation with people possessing particular knowledge or skills, arrangements were made by the rural coordinator for pupils to interview them or to learn their skills. In addition to voluntary services, donations in the form of books and funds for book shelves were received by the barrio schools. The local steering committee undertook construction of learning kiosks or sheds where programed teaching and peer-group learning took place.

The contributions were modest. As long as these did not interfere with the survival activities of the people, they were given free though intermittently. When a regular commitment was required, resistance or noncompliance resulted. For example, during the opening of the school year, the local steering committee assigned parents to act as teacher aides. The volunteers reported during the first few weeks but soon stopped coming.

Another way in which the community participated was tutoring of Impact pupils by high school students from surrounding high schools. By acting as tutors they earned school credits for community service required under the New Society of President Marcos, promulgated under Martial Law in 1972. Problems of the distance between an Impact school and the high school discouraged many volunteers. Irregular reporting by tutors during scheduled hours became a problem to ISs. Although tutoring by high school students remained in the instructional component of the system, it was not a reliable kind of support.

Community participation in Impact, though understandably meager, provided substance to the CLC concept Innotech planners originally designed. Attempts were made by the project team and the ISs to attract more participation by people in the barrio. Local residents were encouraged to use the school and its facilities as a learning centre. For example, during the second year of Impact, modules on population education and nutrition education, especially prepared in Cebuano, were made available in the schools for adult use, together with pamphlets on crop cultivation, and magazines and newspapers in Cebuano. The response of the barrio people to these incentives was lukewarm and the school remained a learning centre for children rather than a CLC for children and adults.

Pupil—IS Ratio

Under the strategy of progressive implementation, the second year saw four grades (4 and 5; 1 and 2) placed under the Impact system. Pupil—teacher ratio in grades 4 and 5, originally averaging 38:1 increased to 56:1; that of the lower grades (1 and 2) was 47:1 (ref. 24, p. 26). This meant that some teachers had to be reassigned. The transfer of these teachers, though with their consent, conveyed clearly the threat of unemployment to other non-Impact teachers. Furthermore, the understandable discontent of the transferred teachers about the system spread to parents. For example, in the barrio of Pangdan, 21 of the previous year's 53 grade 4 pupils did not return for their fifth year. This "high mortality," as the project director reported,

"was caused by the information received by parents from non-Impact teachers that the Impact pupils could not complete grades 4 to 6 in three years time" (ref. 24, p. 26).

Programed Teaching

While older pupils (grades 4, 5, and 6) learned by self- or peer-group instruction using programed learning modules, children in the lower grades (1, 2, and 3) were taught by programed teaching. Under this method, pupils in grades 4, 5, and 6 trained by ISs presented programed lessons and drilled groups of six to eight younger pupils in reading and numeracy, following a step-by-step guide. Programed teaching was started in the second year. The ISs did the teaching during the first few months, supplemented by cassette tape recorders. Four months (September) after school year began, the ISs trained older pupils from grades 4 and 5 as programed teachers. These pupils taught first graders in January.

Printed lesson programs were used to train older pupils. The programed teachers' performance from January to March convinced both ISs and the project team leaders of the potential of this scheme. Many problems that remained, however, were thrown back to the research team for solution. For instance, the elder pupils were irregular in attendance during training and during their scheduled time to teach. Some deliberately slowed down their self-learning pace in order to have a good excuse for avoiding programed teaching and others deliberately did not follow the established teaching steps.

A team of four writers was sent out to the school to observe and talk to ISs. Their observation of programed teaching sessions revealed that some programed teachers found it difficult to follow the established steps in teaching lessons. Some younger pupils were unruly and did not show respect for their programed teachers. Daily training of programed teachers in preparation for the next day's lesson was omitted in some schools, but the older pupils were made to teach just the same. The cassette recorders and tapes aggravated the problem. The voice quality was poor on tapes recorded in ordinary rooms. The cheap cassette recorders performed badly. Reliance on this hardware was eventually minimized.

From the ISs, the team found that pupils under each IS were not organized on multigrade basis of grades 1−6, thus making it difficult for one IS to have a "hold" on older pupils for training and teaching. No wonder the ISs complained of many older pupils' tendency to skip either the training sessions or the teaching duties. The telling effects of these problems were seen in the module completion performance of the first and second grade pupils: first graders completed an average of only 47% of the targeted number of modules, while second graders averaged 56% (ref. 24, pp. 11−12).

Just before the close of 1975−76 school year, an achievement test was administered by the teachers and university students to grade 1, 4, and 5 pupils in the Impact and neighbouring non-Impact schools. In grade 1 reading and arithmetic, the Impact schools were significantly better than the non-Impact schools. Similar superior achievement by Impact grade 4 and 5 pupils was shown in the majority of subjects.

Even if the tests were valid and properly administered beyond all criticisms, the results would likely be viewed with reservation by outsiders. In this instance,

40

according to strict experimental design, control of variables for valid comparability may not have been strictly observed. Undoubtedly, the superior performance of the Impact pupils gave a boost to the staff morale; the results were also useful in reassuring parents about the efficacy of Impact. To parents whose children may have failed to move on to the next higher grade, however, the superior achievement results based on general averages were not satisfactory. These parents were small in number, but their damage to an experiment like Impact could be significant especially if they happened to be influential residents in a small barrio.

"Promising but fragile" were the words of former IDRC Social Sciences Division Director, Ruth K. Zagorin, in describing the progress achieved by the experimenters toward the end of the second year. It was during this year, too, that Innotech evacuated to Bangkok and then to Manila, where it was provided temporary shelter after its home city, Saigon, fell in April 1975. In his foreword to a July–December 1975 progress report, the Innotech officer-in-charge declared that "amidst the difficulties owing to the confusion in Vietnam . . . Project Impact . . . proceeded without interruption" (ref. 25, p. i). The declaration was exaggerated, as will be shown in a later chapter. The Impact field staff operated mostly on their own, and they had a difficult time. Some progress was made that merited optimism and enthusiasm, but there were problems, too.

Defined vs. Implemented Principles

The preceding sections have shown how the original working principles defined in the Planning Document were modified. Several principles had to be given up or watered down. For example, the requirement for parents to tutor, monitor, and report their children's learning activities and progress was judged impractical. Instead of being required, parents' tutoring and monitoring functions were made voluntary. Also, the idea of making school attendance voluntary was discontinued because it stifled the progress of many pupils. The cassette tapes created problems of sound quality, maintenance, and repair, leading to more reliance on printed materials and person-mediated procedures of teaching and learning such as programed teaching by older pupils and peer-group learning. Radio was found to be a viable and useful supplement in programed teaching, provided cooperation of the local radio stations was obtained. The 200:1 pupil–IS ratio was never attempted. The strategy adopted during the developmental stage in Naga was to gradually increase the pupil–teacher ratio until it reached 100:1. When the five Naga Impact schools opened in June 1974, the average number of fourth graders each IS managed was 38. The fourth grade enrollment in the five barrio schools ranged from 23 to 53. To have immediately operated on a larger pupil–teacher ratio or to have pushed the 100:1 ratio further might have invited strong resentment from ISs who, at the beginning, found it difficult to master and feel comfortable with their day-to-day functions. In fact, the hypothetical 200:1 ratio which appeared in an Innotech publication in May 1973 became widely disseminated and was seen by many teachers as a threat to their employment security.

The Third Year, 1976–77

With 2 years of valuable experience behind them, the project staff were in a better position to modify or refine various components of the system. The third year also saw Impact applied in all the grades of the experimental schools.

41

Family Grouping

Taking advantage of the strong and close family ties among Filipinos, the leaders decided to organize the entire school population into "families." A family was composed of about 40−50 pupils from grades 1−6. A family leader was elected and considered an "aunt" or "uncle." Upper grade members took turns teaching the younger ones by programed teaching. Each IS handled two to three families with the help of a teacher aide. This organizational structure worked well for managing programed teaching, peer-group learning, and self-instruction.

Function Definition

By the end of the third year, functions of ISs were revised to focus on management and supervision of instructional activities, leaving the routine record-keeping and handling of modules and post-tests to a salaried teacher aide. Parents' obligations were limited to tutoring their children at home and attending periodic meetings at school. Tutors' functions remained basically unchanged but irregular reporting for their tutorial task continued to be a problem.

Module Preparation/Production

Impact module production for the Naga schools was on schedule when a new factor was introduced. Innotech instructed the Impact staff to produce modules jointly with In-School-Out-School (ISOS) writers. The ISOS scheme was a brainchild of Dr Liceria B. Soriano, then director of public schools. Under the scheme, upper grade primary school pupils may come to school alternate weeks. During the weeks they were out of school, pupils learned by self-instruction. When they were in school, they were taught the traditional way. Several ISOS centres were operated within the country; the one with which Impact was requested to cooperate was Talisay, Cebu, 10 km from the Impact production centre in Cebu City.

The idea sounded excellent: it would at least illustrate the flexibility or adaptability of the Impact modules to other systems. A common set of modules was eventually produced but not without much sacrifice in time and effort on the part of the Impact instructional methods expert, editor, and printers. Moreover, the two project directors who shared an office did not see eye to eye on administrative practices such as dealing with frequent absences of writers. While Impact strictly enforced rules about absences, ISOS was more lenient — a problem that created irritants during the daily training sessions and slowed down the output of some Impact writers.

The Case of the Absentee Instructional Methods Expert

In an innovative project like Impact, it was difficult for team leaders to camouflage their performance. Among the important positions in the research team was that of instructional methods expert. Essentially, this officer was responsible for module production, the most important activity in the project. An academic supervisor was assigned to this post by the Department of Education and Culture when the project started in January 1974. Thinking perhaps that he could continue to hold the position as an absentee expert, the official never held office nor discharged his responsibilities in the project headquarters. His duties were performed by the associate director of the project. As a result, the instructional methods expert was recalled on 12 February 1974 from his Impact assignment and returned to a higher post as assistant superintendent of schools in Cebu province.

Despite the promotion, the embarrassing action of being recalled triggered a series of anti-Impact articles published in the local daily, *The Morning Times*. Only a restraining order resulting from the petition of the Impact staff stopped the series. The Ministry of Public Information ordered him not to publish aricles about Impact without prior clearance from that ministry.

A second attack by the same official more than 2 years later (September 1976) was more disastrous. Broadcasting over radio, he described Impact as a failure; of being "the creation of foreign minds forced down the throats of poor Filipinos." He also spoke before a meeting of the Federation of PTA Presidents. In a status-conscious society, such criticisms from a high ranking school official were easily taken as truth. For example, the discontented official was joined by one local town official and a retired school principal in a campaign to discourage parents from enrolling their children in Impact schools. ISs were told not to do their job well as it would result in unemployment of teachers. Rumors were floated around that Impact was being pushed because of the "dollars."

The project staff organized an information campaign to counter the adverse propaganda, but only the personal intervention of the undersecretary of education and culture ended the assistant superintendent's tirade against Impact. As a result of this verbal clash, enrollment in the Impact schools suffered from withdrawals. From a total of 1068 at the start of the school year, enrollment closed at 656 or a retention rate of 61%. Interestingly, the poll conducted by the Impact staff of parents' attitudes toward Impact during the period when the problem was brewing showed 62% "in favour," 36% "opposed," 2% "no response." Undoubtedly, there were other reasons for withdrawals, but compared with the retention figure of 72% in three non-Impact schools within the same district the rate was unusually low in the Impact schools in that turbulent year (ref. 26, pp. 59—62).

Formative Assessment

At the close of the third year, when Impact had been implemented in all primary grades, the Naga experiment went through an internal and external assessment. The results of pre- and post-tests of Impact pupils, covering all grades and all the content subjects were compared. With few exceptions, the statistical analysis showed significant gains by the end of the year in the various subjects. In addition, Impact-developed achievement tests in grade 1 Cebuano reading and all subjects in grade 6 were administered to Impact and non-Impact pupils. Again, there were few instances where no significant difference was found between the two groups. In the majority of subjects, Impact pupils performed better than their non-Impact counterparts.

As was pointed out earlier, these tests provided valuable reassurance to the Impact staff. Outsiders, however, tended to have reservations about the results. Only an independent external evaluation would be satisfactory to all. In fact, during the same year (March 1977), a Department of Education and Culture Regional Achievement Test was administered to grades 4 and 6 Impact and non-Impact pupils. This time, the results showed no significant difference between the two groups. To the Impact staff the result was still a victory — it showed that Impact pupils did as well as non-Impact pupils (ref. 26, pp.91—92).

Innotech also conducted another type of mid-stream assessment, by observation, interview, and examination of instructional materials. The Innotech evaluators recommended external development and administration of tests, new

pedagogical techniques to improve programed teaching by older pupils and peer group/self-instruction among upper grade pupils, and improvements in the day-to-day exercise of functions by ISs.

One of the most important recommendations made by the Innotech team was the revision of the modules. Inasmuch as the undertaking meant substantial financial allocation, Innotech consulted the sponsoring donor, IDRC. As the Department of Education and Culture had just instructed all government primary schools to implement an integrated curriculum approach, the IDRC program officer in the Singapore regional office suggested that revision should be based on this new policy. The suggestion was an important tactical move. The future of Impact in the Philippines, even if it proved efficient and economical through independent evaluation, faced formidable competition. The government had just embarked on a US $50 million textbook project with World Bank support. The goal was to supply every school with a ratio of one textbook per two pupils. Under this project, textbooks were written in each subject at specialized national centres. On the other hand, Impact modules were produced by ordinary teachers from primary schools. Yet, the hope was that Impact writers could produce immediately a complete set of instructional materials following the integrated approach. If this was done, there was a good reason to get the hierarchy in the Department of Education and Culture to take a serious look at Impact and its modules. The instructional materials expert and her module writers worked hard, followed a scientific process of curriculum development, and within the school year 1977−78, a complete set of ''integrated'' modules was produced. As will be elaborated in Chapter 7, this strategy was a major factor in getting the key education officials, including the chairman of the textbook board, to recognize the value of the Impact modules as well as the system itself.

Replication

Although promising results were achieved, the director of IDRC's social sciences division asked Innotech whether the system developed in the Naga Impact schools would operate as well or better in other geographical or cultural settings in the country.

Innotech (and SEAMES) replied that Impact at that stage was ''still a feasibility study and not yet a model for replication . . . .'' They reasoned that the modules, the management system, programed teaching, and the tests all needed improvement; the curriculum needed integration, after which modules should be revised with external assistance; and external evaluation should be conducted.

Although recognizing the validity of the preceding arguments, IDRC did not see how replication in a couple more locations could harm Impact. The modules were being revised and reprinted: additional copies could be made available to two other sites. Furthermore, it was important to attempt teacher reorientation to the Impact system in the absence of a research and development team. What kind of retraining was needed, and for how long? Would it work under the leadership of the local school personnel?

On her visit to Asia in May 1976, the IDRC social sciences division director, Ruth Zagorin, arranged to meet with SEAMES executive director, Vitalino Bernardino, and the new Innotech acting director, Liceria Soriano to discuss the issue. As it turned out, the difference in views on replication between IDRC and SEAMES/Innotech was semantic rather than substantive. Bernardino and Soriano

interpreted replication to mean wider national implementation, while IDRC was interested in testing and refining further the Impact components in new sites without the structure of the research team that Naga had. This issue was also considered crucial by the two SEAMEO officials. With agreement secured, the search for two additional sites began, leading to the choice of Lapu-lapu and Sapang Palay.

Work at the additional sites started in 1977. Lapu-lapu City is located in Mactan Island where commercial planes from Manila land. Mactan is connected to Cebu City by a bridge about a kilometer long. Three semiurban barrios were chosen in Lapu-lapu: Babag (population, 2638), 3 km west of the city proper; Gun-ob (population, 9320) 2.5 km south; and Pajo (population, 5802) in the north where Mactan air base is located.

Sapang Palay is a resettlement area for so-called squatters from urban Manila. The physical setting is rural, although many heads of families commute 45 km to jobs in Manila. The resettled population continues to grow as more squatters are sent out by the government. There are six complete primary schools and the decision was to choose one barrio school, Bagong Buhay F (New Life), the school with the highest enrollment — 1200 pupils.

In the Lapu-lapu and Sapang Palay sites, the leadership positions were assumed by existing supervisors of the schools. For example, the district supervisor of San Jose de Monte (where Sapang Palay schools belong), Mrs Lesmes S. Avena, was made project director; Mrs Juanita B. Rubi, English supervisor for Lapu-lapu City Schools, was appointed project director for the three Impact schools there. This simpler and more direct administrative set-up in the additional sites was possible because the implementation (in all six grades of primary school system) was almost a straight transfer of mechanism and instructional materials as they were developed and tried out in the Naga barrio schools. Still, the kind of previous positions held by the two project leaders seemed to have some bearing on the kinds of problems and difficulties they encountered in the exercise of their functions.

Although the leaders had new titles and special roles, the personnel under them viewed the extent of their authority no more than the positions they held prior to the new venture. For example, Lesmes Avena, as former district supervisor, continued to exercise direct administrative and supervisory control over subject supervisors, principals, and teachers in the Impact schools. Moreover, Avena adopted a clever procedure whereby several months prior to the implementation of Impact, she asked teachers in the proposed Impact school to write on a piece of paper whether they wished to participate in the Impact experiment. On the basis of their expressed desire, Avena decided who should be retained for Impact and who should be reassigned to non-Impact schools. This move contributed at least partly, to the relatively smooth operation of the Sapang Palay site. In comparison, the limited authority implicit in the position of English supervisor in the case of Juanita B. Rubi hindered her move to reassign excess teachers to other schools. It was not until some months after the project was implemented (and not without additional push from Innotech and IDRC) that the excess teachers finally agreed to move to other schools. While they reported to the principal's office in the first few months waiting for assignment to other schools, their low morale and dissatisfaction infected some teachers, pupils, and parents.

As was done in the original Naga barrio schools, acceptance campaigns in the two additional sites started with the formation of local steering committees followed

by public meetings with parents. Lapu-lapu had the largest committee chaired by the mayor. Aside from the superintendent of schools and the PTA president, heads of all civic and religious organizations were asked to serve. Sapang Palay put emphasis on political influence in the choice of committee members: the governor of the province was chairman, with the town mayor as vice-chairman. In addition, the school superintendent, the PTA president, the barrio captain, and chairman of the civic political youth group were included in the membership.

Some committee members were more nominal than functional, but their names represented political or social clout. Their names enhanced acceptance of Impact.

During the public meetings, parents were encouraged to speak out. In Lapu-lapu, the negative rumors and scepticism about Impact were frankly declared during meetings with teachers and barrio people. One parent commented: "I have heard that Project Impact is not effective. I will enroll my children in a private school and not in an Impact school." Another parent: "I have heard the Naga Project Impact is a failure. Why are we implementing this?" Said one father: "I am afraid that if this project is tried out in our school, my children would cut classes since teachers will just allow them to stay out of school." A city councilman was concerned that "there will be mass unemployment because of reduction of teaching force in these schools" (ref. 27, pp. 8−18). Much of this fear and scepticism was soothed by no less than Regional Director Tiro, the school superintendent, and by favourable opinions expressed by other community members.

In the case of the Sapang Palay project much of the credit for the relatively easy acceptance by the local community should go to the personal appeal and influence of the Regional Education Director, Dr Felicita G. Bernardino, and the strong project director, Lesmes Avena. Politically strong and atriculate, Bernardino (who is now deputy minister of education and a member of parliament) took time to speak out at meetings and "sell" Impact. She strengthened her credibility with the people by contributing funds for building of kiosks, an example which was followed by some local politicians and civic-minded citizens (ref. 28, pp. 4−5).

Chapter 5
Administrative and Technical Support

The motivation of the local research team is crucial to the success of an educational innovation such as Impact. Although technical and administrative support from the administering agency, Innotech, was important, the research team was left on its own most of the time to solve the day-to-day problems in the main office as well as in the school sites. Despite problems and difficulties, the team persisted and, in the process, gained valuable experience and expertise.

The research team learned to write self-learning and programed teaching materials from foreign experts and then improved on the basic techniques. The short-term foreign consultancy arrangement in Project Impact proved ideal in terms of encouraging the development of indigenous technical and research expertise. The strong motivation and commitment of the local research team persisted even at a time when administrative problems among SEAMES, Innotech, and IDRC threatened to kill the project with a shortage of funds.

In innovation as in revolution, the key to success is motivation. In the case of an educational innovation initiated and organized by intellectual elites supposedly for the welfare of the masses, it is ideal to have strong and sustained motivation at all levels of the administering and executing hierarchy — from the planners to promoters and workers in the field. Experience in Project Impact has shown that motivation of the local research team was the most critical factor in its success. The administrative and technical support of the Innotech office was important, but for various reasons this support could not always be depended on. This circumstance provided highly motivated local educators with an opportunity to demonstrate their capability. Their ability to provide their own administrative and technical support and local motivation are themes emphasized in this chapter.

Centralized vs. Decentralized Capability

As mentioned earlier, the Impact project was assigned for development and implementation by SEAMEC to its regional centre, Innotech. It was the centre's responsibility, therefore, to provide administrative and technical support to the research team in the project site. In the first 2-year phase of the project, SEAMES received the funds from IDRC and disbursed these to Innotech, which in turn sent them to the research team in the site.

Strengthening the research capability of Innotech as a regional centre against that of the country where the project was situated became an issue soon after the September Technical Proposal was sent out to donors. Concern was expressed that procedures and activities described in the proposal would strengthen the host country's research but not Innotech's. ''In fact,'' said Robert Jacobs, ''other than depending on Innotech for funds, the programs as proposed should be carried out with

little change or little adverse effect if Innotech were not in the picture at all.'' Jacobs went on to argue his preference for building the research capability of Innotech first (ref. 14).

Replying, Daryl Nichols, the author of the Technical Proposal, maintained that there was no attempt to establish a strong national centre or local capability. The Impact project sites were field research projects under the control of Innotech. Nichols gave further assurance that he would devote 1 week to each location during the first year of experimentation and would not allow any non-Innotech organization to run the project (ref. 15). Further assurance was given that Innotech's resources and strength were not going to be sapped by the project. Out of some 20 Innotech professional staff members, there would only be four (two project directors and two associate directors in the Philippine and Indonesian sites) in the field sites. Any impression that ''all of Innotech's resources are going to be devoted to two countries has come from the fact that the document was a proposal to IDRC—and we wanted to give that organization the feeling that they would be getting a lot of action for a relatively small investment'' (ref. 15).

There is logic to the argument for strengthening a regional centre to better serve the member countries. However, the strong support and cooperation of member countries is also needed; for example, for secondment of their competent professionals to Innotech research staff. Considering the wide gaps in national salary scales and the priority demand for scarce professionals in national programs, the regional centre's expectation was not realistic. Innotech's list of staff members from 1974 to 1980 illustrates the difficulty of creating a strong multicountry Asian team to staff its research division (ref. 29, pp. 71−72). Innotech had to recruit from within its host country to compensate for its inability to attract competent senior researchers from other member countries.

In the end, capacity development in Project Impact followed the decentralized pattern rather than centralized. The research skills developed at the site were considerable. The expertise gained by local researchers spilled over to countries outside their own. Those who had no opportunity to go abroad will undoubtedly be valuable in setting up new Impact schools within the country. The experience in Impact demonstrates that a decentralized strategy did not prevent national and even international sharing of expertise.

Technical Assistance

Due to its difficulty recruiting a strong research staff, Innotech only provided limited technical assistance to the research teams in the Impact sites. In 1976, the team on the External Evaluation of SEAMEO Units visited both the Philippine and Indonesian sites and reported that ''both field researchers in Cebu and Solo complained that little technical assistance had been given by Innotech ...'' (ref. 30, p. 27). Innotech needed no reminder of this deficiency. The team also complained that Innotech's ''research projects are less purely scientific works...'' a criticism that, if valid, could only be remedied by a much stronger research staff than Innotech was able to attract. Innotech's Governing Board did not accept the criticism and replied that the centre's responsibility was to find solutions to problems, and this ''implies the undertaking of applied research rather than research of a purely scientific nature'' (ref. 30, p. 3).

The most significant technical assistance to the research team came from foreign consultants or advisors in Innotech. Mention was made earlier of Michael Nathenson

who taught module writers the techniques of writing self-learning materials. Nathenson organized the principles and steps of linear programing into a *Guide to Writing Self-Instructional Modules*. The sequential stages of linear programing and their examples — initial learning stage, intermediate teaching stage, and testing stage — were arranged and framed in module format. After discussing a variety of ways of applying the principles and steps in writing self-instructional materials, Nathenson got the writers to write their own modules (ref. 21). The Impact writers not only learned the basic principles and steps but, under the leadership of their Instructional Methods Expert, Aida L. Pasigna, they applied linear programing methods on complex lessons Nathenson left. See, for example, how Nathenson's simple chaining techniques and examples were modified and applied by local writers to more complex lessons dealing with a variety of subjects.

Chaining Techniques Applied in Calculating an Arithmetic Mean — Nathenson's Model (ref. 21, Frames 29–33)

A. Initial Teaching Stage

Teaching information	Model	Testing items
Here is a set of numbers:	9,10,11,13, 14,16,18	7,11,12,15,16, 19,22
(1) First you must add the numbers	*91*	
(2) Now divide the sum by the number of numbers	91 ÷ 7 = 13	
(3) Write the result as the mean	Mean = *13*	Mean =

B. Intermediate Teaching Stage

Teaching information	(No model)	Testing items
Calculate the mean for this set of numbers: 115,106,102,99, 98,96,93,89		121,125,128,152, 160,171,176,183
(1) First you must add the numbers		
(2) Then divide by the number of numbers		

Note: A variation of this same teaching stage could be a *model* (instead of algorithm) and *testing items*.
For example:

115,106,102,99, 98,96,93,89	121,125,128,152, 160,171,176,183
798	
798 ÷ 8 = 99.75	
Mean = *99.75*	

C. Testing Stage — (test items only)

Chaining Techniques Modified and Applied in Composition Writing — Pasigna's Model (ref. 31, Part II pp. 158−162)

A. Initial Teaching Stage

Model	Testing items

Do you enjoy telling your friends about some of your interesting experiences?

Let us read this story about what happened to Rita one day.

Never Again

I'll never eat green mangoes again. Do you want to know why?

On my way home from church yesterday, I dropped by Tia Marina's fruit store. My aunt gave me a bag full of big green mangoes to take home. My mouth watered when I saw the mangoes, so I tasted one. I liked it and I ate some more. I was so hungry that I ate three more. That night, my stomach ached so much and I cried. I thought I would die, but I couldn't tell my mother. How could I?

Read the title and beginning sentences of Rita's story again. Do they make you want to know why Rita won't ever eat green mangoes again?

Never Again

I'll never eat green mangoes again. Do you want to knw why?''

Rita's story is good because it has an interesting title and a good beginning. It also answers the following questions:

Q. *When* did the story happen?

A. *Yesterday.*

Q. *Who* did it happen to?

A. *Rita.*

Q. *Where* did it happen?

A. *In Tia Marina's fruit store.*

Q. *What* interesting thing happened?

A. *Her aunt gave her a bag full of big green mangoes.*

B. Intermediate Teaching Stage

Teaching information	Testing items

The set of pictures below tells a story (a series of four pictures is provided and arranged to show a sequence of events).

Let's write a story about the pictures. The leader will ask the members of the group to take turns in giving the title, the beginning sentence, and one sentence each until the story is complete. You will first write your group story on the blackboard.

After the group discussion, copy the story on your answer sheet.

C. Testing Stage

Testing information	Testing items

Here are some things we should remember so that we can tell a good story:

(1) The title should be interesting.

(2) The beginning sentence of a story should be interesting. It should make the reader or listener want to know more.

(3) A good story should tell the *who, when, where,* and *what* of the story.

Below is another set of pictures. Look at each picture carefully. Then write your own story that the pictures suggest (a sequence of action pictures is provided).

Another valuable source of technical assistance was also mentioned in an earlier chapter — Douglas Ellson, specialist in programed teaching. As in the earlier case, the Impact module writers were already producing programed teaching materials when Ellson came and spent 2 weeks with the team. Ellson left behind with Pasigna and her writers the principles, steps, and examples of how to design and prepare programed instructional materials. The principles were applied and modified to write and produce a complete set of instructional materials for the first three grades. When Ellson returned to Cebu one and a half years later, he found the team's products to be beyond his expectation. He made suggestions on the instructional materials he saw and the programed teaching activities he observed, but undoubtedly he learned as much, if not more, on this return visit as he contributed. In fact, Ellson saw the improvements in the application of the principles he had taught. These modifications were achieved through brainstorming sessions among module writers with their Instructional Methods Expert. For example, they combined several basic procedures for teaching (item programs) to form a "chain program" used in simple word problems in mathematics for beginners. The chain of tasks in this program has four stages, each containing logical steps starting with knowing how to read all the words in a problem, how to solve the problem, writing the solution, and finally reading the problem up to the complete answer. Different pupils participate in the various stages of the chain (ref. 31, Part I pp. 70−72). Below are the details of the stages and steps of this chain program put together by the team of writers.

Chain Program for Solving Simple Word Problems in Math (ref. 31, Part I pp. 70−72)

Stage 1

Step 1: Test step: "Read the problem."

Step 2: Teaching step: Teach each word missed in *Step 1*. Say, "What is the word?" When all the words have been read correctly, go to *Step 3*.

Step 3: Test step: Say, "Now, can you read the problem?": (a) If the pupil reads it correctly, praise him and go to *Step 4*. (b) If the pupil does not read the problem correctly, read it to him and say, "Now, you read it." Then go to *Step 4*.

Step 4: Group response: Ask the group to read the problem in unison. Say, "Now, all of you read it." (a) If most of the group read it correctly, praise them. (b) If none of the group or only a few members of the group read it correctly, read it to them. Then say, "Now, all of you."

Stage 2

Step 1: Test step or task: "What should we do to solve the problem?"

Steps 2−3: Teaching and test steps: Teacher demonstrates the correct response and asks the pupil to do the same.

Step 4: Group response: (a) The teacher asks the group to repeat the correct response. Say, "Now everyone — ," or "Now all of you" or by gesturing. (b) If all or most of the group respond correctly, the teacher praises them. If few or none of the group respond correctly, the teacher repeats the correct response until the group does the same.

Stage 3

Step 1: Test step or task: "Write the solution on the blackboard."

Steps 2 — 3: The teacher repeats or gives the answer. The teacher asks the pupil to repeat the correct answers.

Stage 4

Step 1: Test step or task: "Read the problem and the complete answer."

Steps 2 — 4: Follow same *Steps 2 — 4* as in Stage 1 above.

The two major short-term technical assistance efforts described in the preceding paragraphs seem to be the ideal arrangement to develop indigenous capability, provided the research team has competent leadership and strong motivation. Based on the Impact experience, the effective process for developing local research capability through outside technical assistance moves along these lines: identify the specific technical need, find a consultant to provide the right expertise, and leave the decision on how to apply it to locals. There are, of course, constraints such as availability of experts and funds, which may affect the adequacy of assistance for the expressed needs of the project.

One of the commonly noted practices among outside consultants or advisors, especially the long-term type, is the temptation to preempt the locals in writing and publishing the results or products of the cooperative endeavor. Project Impact was no exception to this tendency.

In January 1978, a proposal was developed to produce seven volumes of Impact guides. The guides were to be prepared by three foreign consultants who at one time or another had helped to plan and implement the project. The proposed titles included project management, development of learning materials and procedures, educational coordinators' manual, instructional supervisors' manual, tutors' manual, training manuals, and questions and answers about Project Impact.

Innotech gave several reasons to justify the publication, among them were the following: the Impact system components had reached an established stage, and the guides would be useful to visitors and replicators in other countries. To the question of why the guides were not written by the research team members, four answers were given. One was that independent observers would be in a better position to identify critical components rather than just characteristics of the project. The second reason was that the staff at the Impact sites could not afford time while preparing for the final year (demonstration year) of the project; however, the proponents planned to ask the local staff to review their guide outlines (a reverse consultancy exercise?). Third, the three former consultants or advisors were thoroughly and intimately associated with Impact, well-known and respected by site personnel, and had a long association with Innotech. The last reason stated was that people outside the staff would be in a better position to produce the guides because they could provide a sufficiently broad perspective to make the Impact system easier to generalize to sites with differing conditions (ref. 32, pp. 11 — 12).

Fortunately for the local research team, the proposal was turned down by a funding agency on the ground that there was no outside evaluation of the project. Actually, the topics and substance of the proposed guides had been covered by the research team in their monthly, semiannual, and annual reports. If outsiders were to organize and write guides for replication, there was no doubt that they would depend

heavily on the advice and materials produced by the local team. As it turned out, the project director and the instructional methods expert were able to afford time during the final year to produce all the guides required (ref. 31).

Administrative Snags

Although the Impact project was administered by Innotech, the IDRC grant for Phase I was made to SEAMES. From IDRC, funds went to SEAMES, were transferred to Innotech and from there went to the experimental site. The reverse process operated in transmitting official progress and financial reports. The reason why SEAMES was the recipient of IDRC funds instead of Innotech was the latter's *ad interim* status as a regional centre at the time of the grant. (Innotech operated *ad interim* through December 1974. Its permanent phase began in January 1975.)

Perhaps the most serious administrative problem affecting the project was in the transfer of funds from donor to recipient and on to the sites. The problem was due mainly to several factors: the many stations involved in fund transfer and reporting dictated by Innotech's legal status; the political situation, which caused the movement of Innotech headquarters from Saigon to Bangkok and then to the Philippines; and the relationships between SEAMES and Innotech. Needless to say, an administrative problem such as irregular remittance of funds to the sites could do serious damage to staff morale and even stop vital activities like module writing and production.

The most serious of these periodic financial crises occurred around mid-1976. Both project directors of the Philippine and Indonesian sites were faced with depleted funds. As of 30 June 1976, Mante had only Pesos 76 (about US $10) left in the Project's Cebu account; Boorham Respati of Indonesia had borrowed Rupiah 2 000 000 (about US $4000) from BP3K (research and development section of the Ministry of Education and Culture). When asked how this situation developed, the new Innotech director, Liceria B. Soriano replied that SEAMES had not remitted funds to Innotech. A check with SEAMES revealed that all IDRC funds in their hands had been released to Innotech. The SEAMES director explained that the problem "results essentially from the fact that Innotech has yet to submit to SEAMES . . . financial statements pertaining to the receipt and disbursements of IDRC funds for Project Impact . . ." (ref. 33). The required statements covered the period 1 July 1975 to 30 June 1976.

Actually, the former officer-in-charge of Innotech had submitted the financial report but SEAMES returned it because some items in the statement did not tally with the SEAMES record. Eventually, these recording discrepancies were ironed out and SEAMES finally submitted the financial statement to IDRC in mid September 1976.

During the period that the financial problem remained unresolved, an appeal was made by IDRC to the new Innotech director to prevent stoppage of vital operations in the sites. She responded generously by advancing the needed funds until IDRC's replenishment started flowing again.

A cooking class with a community resource person.

Chapter 6
Evaluation

Formal efforts to evaluate Impact must be understood from the standpoint of the developmental nature of the research project and its goal of an effective and economical delivery system for mass primary education. Thus, evaluation during the first few years of the project consisted mainly of in-house activities intended to refine the instructional technology (e.g. self-instructional and programed teaching modules) and the pedogogical processes (e.g., peer-groups, programed teaching, and self-learning methods). The evaluating was done through a system of regular feedback to the project team and end-of-the-year achievement testing.

Informal types of evaluation were also made in the form of reports and recommendations by Innotech staff, consultants, and teams from other countries. Most of the reports and statements from these groups, however, were based on superficial observations and interviews. Some reports came up with constructive suggestions; others provoked controversy either because of improper evaluation procedures or sheer ignorance of the actual situation.

Toward the start of the project's fourth year, it became obvious that Impact needed a formal, independent evaluation to assess the extent to which the economy and efficiency objectives of the project had been achieved. Thus, a cost analysis design was formulated by a University of the Philippines economist, later implemented by a professor from De La Salle University in Manila, and a consultant from Australia. Their conclusions were essentially the same: the Impact system is as much as 50% more economical than the traditional schooling. Most of the cost savings are made possible by the much increased pupil—teacher ratio.

To ascertain Impact's effectiveness, a team from the Ministry of Education administered a nationally validated primary school achievement test in 1978 to both Impact and non-Impact pupils. Checking and analysis were done at the University of the Philippines Computer Center. The comparative results showed Impact children to be either about the same or better than non-Impact pupils. To verify this conclusion and to assess the longer term effect of the Impact and traditional systems, a follow-up study is being done on the pupils who took the 1978 test.

The software technology and expertise developed at Project Impact have also been tested in the Philippines and abroad. A complete set of instructional and evaluation materials for the primary grades was developed and tested. Guides for instruction and replication have also been printed. Moreover, some members of the local research team have shared their expertise with other countries that are experimenting with versions of the Impact system.

The subject of evaluation has posed difficulties for Project Impact as it often does for educational innovation, despite the fact that most evaluations of Impact have been favourable, sometimes highly so.

The problem with evaluation is that it is conducted by human beings who judge the performance of other human beings. The problem is confounded by the many kinds of evaluation. For example, evaluation can be formal or informal, internal or external, qualitative or quantitative and formative or summative. Often to the discouragement of persons adhering to other methods, a combination of "external" and "quantitative" is usually regarded as the highest court of appeal. Unfortunately, this method is subject to conflicting interpretation, which raises a further problem with evaluation: either its presense or its absence can be used with equal vigour to justify postponing action.

In the case of Project Impact, where replication even on an international scale of what has been developed in the Philippine sites is now being seriously considered, it is understandable that the demand for a longitudinal evaluation is strong and growing. Such an evaluation is now under way and is described near the end of this chapter. Yet throughout the development of Impact several evaluations of various sorts have been undertaken, almost always with useful results.

There is, first, the early history, and the regular formative evaluation done by the research team of the project. There were also observations and interviews done by visitors, who, while confessing the superficiality of their one day or few days tour to the Impact schools, nevertheless filed reports, which drew conclusions, and in effect made judgments which somehow spread to odd corners of the world. Attention will also be given to Impact's first experience with quasi-external evaluation of a quasi-formal nature, in late 1975 (results available in early 1976), because it illustrates vividly many of the pitfalls to which evaluations and evaluators are prey. Then in October 1977 and again in February/March 1978 pupils at Impact sites and comparable non-Impact pupils were tested formally using Soutele instruments. (Soutele was a national survey of the effectiveness of primary schooling in the Philippines in 1975. Thus, the instruments used were validated nationally by the time the Impact testing was undertaken.) The administration of the tests and the analysis of their results were done by an independent group — the Ministry of Education and the University of the Philippines Computer Center. The year also saw the undertaking of a cost-analysis study, published in 1978.

Bases of Evaluation

Two main points directly related to the issue of Impact evaluation must be made at the outset. First, the twin goals of Impact — to develop an *effective* and *economical* delivery of mass primary education. Second, the research design of the final Technical Proposal (10 September 1973) on "Delivery of Mass Primary Education in Rural Southeast Asian Communities" submitted to the IDRC by SEAMEO for Innotech was not strictly experimental. The reason behind this was the desire of Innotech to be flexible — to do field research to develop a completely new approach to education and to avoid being handicapped by a particular set of studies (ref. 12, p. 12). Following this plan, eight specific research items were proposed during the "first several years" of Impact (ref. 12, pp. 10−12). As can be seen from the list below, most of these items involve developing, testing, and refining components. It is a scheme commonly practiced in educational innovation projects in the Philippines.

(1) Determining appropriate community resources and how best to use them, including how to motivate community participants;

(2)   Developing means for orienting, encouraging, and directing parents to take an active role in monitoring the self-directed learning of their children;

(3)   Developing a tutorial process whereby other children were to tutor younger children. Such development was to include determining appropriate education level of tutors, their specific responsibilities, the kinds of knowledge and training they needed, and the management and monitoring system for the tutorial program;

(4)   Developing of instructional materials — mostly self-instructional modules;

(5)   Finding the most efficient way for children to learn how to handle their own instruction;

(6)   Exploring the use of community members or older students who had no professional training to teach young children by "programed teaching";

(7)   Testing the hypotheses that second language training could begin with learning to understand the spoken language and that this could be accomplished by scheduled radio broadcast; and

(8)   After the basic elements of the system were operating, to develop content and function of learning centres; to train community people to operate such centres; to determine materials needed for the centres; and to review optimum size, sequence of modules, and subject matter.

Consistent with the above research scheme, the Technical Proposal made clear that Impact would be a "developmental project." As such, "formative types of evaluation will have the most relevance. We need answers to the question: How well does a given activity work, and how can it be improved?" (ref. 12, p. 15). One mechanism suggested for such evaluation was regular meetings of staff and outside advisors (e.g., on instructional methods, curriculum, and measurement) whose recommendations were to be quickly reflected in changes. The same approach applied to the managerial aspects of the system. Such strategy permitted continuous identification of problems as they emerged, and the designing and monitoring of possible solutions. In other words, the implementors were free to modify their goals and actions in the light of the circumstances.

Additionally, the Technical Proposal suggested some comparison of different approaches to achieve a given set of learning outcomes. For example, achievement comparisons were proposed between Impact and non-Impact schools, as well as within the Impact schools. Finally, there was mention of summative evaluations, but these were not specified beyond saying that these would be based on established objectives.

The above background is very important because the kinds of evaluation done in the Impact schools followed the guidelines set forth in the Technical Proposal. This is not to say that the implementors were slaves to the Technical Proposal. The project's research team felt that evaluation would be better conducted once the new system was both designed and in operation. Then, too, there was a legitimate urgency in tackling problems of the program and designing systems to overcome them.

Formative Evaluations

As Impact was progressively implemented, the various pedagogical approaches, educational technology, and managerial strategies were developed, implemented,

and monitored. In-house evaluations during the formative years aimed to find out how well they worked and how they could be improved.

From the start of field activities in June 1974, regular weekly evaluation meetings were held by the research staff with ISs and rural coordinators. These meetings were billed as "brainstorming," mainly to identify progress and problems and work out solutions. Periodic meetings were also held with parents to discuss their children's progress and behaviour. Several significant problems were aired in these sessions. For example, some parents expressed skepticism about the project. It was suspected that the problem was tied up to some teachers' feelings of insecurity resulting from the publicized goal to achieve a 200:1 pupil—teacher ratio. The need for more information campaigns was stressed as a solution. The same campaign among parents was suggested for pupils who lagged behind in their module completion because of prolonged absence. The tendency of ISs to return to traditional methods of instruction was also brought out. To curb this, periodic informal training sessions were scheduled. The ISs and parents complained that module production and supply could not cope with the speed of the brighter pupils. This management problem was brought to the attention of module writers and printers (ref. 20, pp. 39—41).

A more formal end-of-the-year achievement test was conducted and the analysis of results was used to revise modules and improve teaching-learning approaches. During the 1974—75 school year, three kinds of reading tests (two in English and one in Pilipino) (ref. 20, pp. 41—47) were administered to fourth graders in the Naga Impact schools and three nearby non-Impact schools (Colon, Mainit, and Bairan). Analyzing mean scores to test significant differences, the results showed Impact children performing better in all three tests: the silent reading test, the Pilipino reading test, and the nationally validated Philippine Achievement Test in reading.

Other pre- and post-tests were administered that same year to two groups in the Impact schools — those who used modularized instruction and those who were taught by the traditional methods. (During the first year, only reading and language were modularized and applied to all pupils in the five schools. Due to manpower limitation, five other subjects were modularized but each was implemented only in one school: science in Naalad, Pilipino in Pangdan, math in Lutac, social studies in Uling, and practical arts in Balirong.) The results revealed that gains of pupils under the Impact method were significant in four subjects (language, science, math, and social studies) out of six. No significant difference was shown in gains made in Pilipino and practical arts. This analysis guided the later revision of the modules. Among those taught in the traditional methods, significant gains were noted in Pilipino, math, social studies, and practical arts. Negative gain was revealed in the science subject. When the gains in the same subjects of pupils under the new and old systems were compared, the Impact group showed higher gains in science and math. They were about the same in Pilipino, social studies, and practical arts (ref. 20, pp. 47—52).

Formative in-house evaluation continued during the next 2 years as more components of the system were added. During the 1975—76 school year, for example, the number of modules completed in the previous year by grade 4 pupils was assessed. The result showed that the number of modules a pupil was expected to complete was almost twice the actual completion rate. Accordingly, the modules were revised to remove duplications, unnecessary content, and difficult vocabulary. The module writers took into account feedback from ISs and the results of the achievement tests and produced an average of 30 modules per subject from the original 50 (ref. 24, pp. 5—14).

Parental and community participation were also subject to the formative evaluation. Statistics were collected on parents' attendance during scheduled meetings. Likewise, pupils were asked how much tutoring assistance they were getting from their parents. These data became the basis for developing campaign strategies to encourage more parental participation (ref. 24, p. 27).

As in the previous year, achievement tests were conducted just before the close of the school year 1975−76. A pre- and post-test method was adopted to compare pupils in Impact and non-Impact schools. This time two grades — 4 and 5 — were tested. In the pre-test, fourth grade Impact pupils were better than non-Impact counterparts in language, social studies, and reading (Pilipino and English). They were about the same in math. Among the fifth graders, the Impact group was superior in language and Pilipino; the two groups were about equal in science, math, and social studies. Another comparison was made after the post-test. Performance of both Impact and non-Impact fourth graders was analyzed in terms of mean gains. The analysis showed the Impact pupils achieving significantly higher gains than the non-Impact group in all five subjects: language, science, social studies, math, and reading. For the grade 5 pupils, comparison of mean differences of the post-tests disclosed superiority of Impact pupils in math and Pilipino, superiority of non-Impact group in social studies, and about equal performance in language and science.

One shortcoming of the achievement evaluation comparing the experimental and control groups was the inability to account for the influence of important factors like the motivation of teachers and pupils or the availability of instructional materials — Impact having been intended as developmental rather than experimental research. Thus, the question frequently asked about the comparison testing was whether teachers and pupils in control schools had the same motivation and whether, given as many instructional materials, the achievement of pupils in traditional schools might not be just as good as in Impact schools.

The 1975−76 school year also saw the implementation of a new pedagogical component into the system: programed teaching of first-graders conducted by trained older pupils. The year-end comparison of achievement between Impact and non-Impact children indicated better performance of the former in language, Pilipino, and mathematics. Both groups were about the same in Cebuano (the local language) (ref. 24, pp. 34−41).

In addition to the usual formative evaluations done during the first 2 years, the third year saw a more systematic assessment of the functions of the IS. The defined tasks of the IS became the criteria of an evaluation done by the ISs themselves and the education analyst of the research staff. The results were used to redefine the functions of the ISs (e.g., routine functions were eventually transferred to nonprofessional instructional aides) and as input into the in-service training program. A questionnaire survey was also conducted among parents of all Impact pupils to assess their general attitude toward the Impact system. Two apprehensions were revealed by this survey: parents' feeling of inability to carry out functions assigned to them and the fear of their children not completing the elementary cycle within the normal 6 years. Similar surveys were done on utilization of community resources by Impact pupils and the efficiency of high school students' work as tutors. The research staff took measures to remedy the deficiencies disclosed by the surveys (ref. 26, pp. 34−53).

The year-end achievement testing continued to show the generally superior academic performance of Impact pupils over their non-Impact counterparts (ref. 26, pp. 66−92).

59

Evaluation and Visitors to the Project

Project Impact has had plenty of experience with visitors from within the country and abroad. Visitors to Project Impact may be classified according to their purpose: to observe ongoing activities and to recommend improvements, to explore the possibility of replicating or adapting the system or parts of it, or just to observe the project. The visitors have sometimes been pointed out as a major factor motivating project leaders, teachers, and pupils to strive for the experiment's success. Many visitors reported their impressions and conclusions even if the visit was only for a day or two.

Evaluative reports were also sometimes based on second-hand information. Documentation of this idiosyncratic and sometimes annoying form of evaluation is useful to project developers. In some instances the assessments written by nonvisitors influenced educational plans and actions.

Innotech Staff and Consultants' Visits

Between 1975 and 1979, Innotech documented a total of 27 visits by various members of its staff. In addition, 18 visits were made by various foreign consultants attached to Innotech. Most of these visits were at the Naga Impact schools. The purposes were frequently a combination of orientation, observation, and evaluation.

Foreign consultants attached to Innotech on short- and long-term bases made periodic visits to the sites. During the first year of operation, Robert Jacobs, one of the earlier architects of the project, made a 4-day tour (9−12 November 1974) of the Naga schools. Jacobs noted the lack of structural mechanism for feedback from pupils, instructional managers, and tutors "but considered these oversights understandable in view of the urgent and complex problems of acceptance campaigns, project organization, recruitment of staff, remedial English, and materials preparation."

Another point Jacobs made referred back to his earlier "no-more-schools" stand at the Saigon project development seminar. To quote:

> Obviously the 'teacher' role was different, the dynamics of the learning situation were different, the active involvement of each pupil with his or her learning was different, but the school orientation is nonetheless there. The image of going to school to learn is still there. The utilization of a classroom with its usual furnishings is still there. And the provision of a teacher for every 30−35 pupils is still there. Project Impact is designed to produce a system which will not depend on the traditional classroom or the traditional teacher/pupil ratio for implementing learning. And though there are definite intentions to move away from the school orientation as soon as the 'Learning Center' concept is more fully developed and other community resources are brought into the system, there is a possible danger that the images and impressions developed in the minds of parents, teachers and pupils during the current phase will become fixed so that they become disillusioned and disenchanted if and when children no longer 'go to school' as they have in the past, and if and when teachers of 35 pupils become managers of learning for 200 learners. And at some point these things will be true if the project observes its original design. If this observation has any validity perhaps it will serve to strengthen caution and concern regarding possible fixing of early phase characteristics which must eventually be changed. Safeguards against such 'setting in' are needed. Moving into subsequent phases just as soon as feasible is probably one of these safeguards (ref. 23).

Donald Simpson of IDRC replied to Jacobs' report as follows:

> I did enjoy very much reading your report and find that on most points we are in agreement. If we had a chance to discuss it together I think our conversation might be an extension of one we began in the Innotech office many months ago. I am interested in improving the efficiency and effectiveness of delivering primary education and I think that the Impact approach shows some possibilities of developing a system that will bring about these improvements. If they accomplish this I do not care whether they end up still using something that they call a school, directed by someone they call a teacher and utilizing therefore a system that might still be referred to as formal even though quite different from what takes place in most schools. You, I know, feel quite differently and this comes through in your report as it has in all our discussions. I am still not clear exactly why you press these issues but I know that you do them out of a concern for the ultimate success of the project. Only time will tell (ref. 34).

Notwithstanding these observed deficiencies, which he attributed to the original plans, Jacobs praised the accomplishments that he said far outweighed the problems and limitations. He was especially impressed by the enthusiasm, participation, and motivation of the pupils as they worked on their modules, the freedom of mobility of the pupils without the teacher hovering over them (ref. 23). Whatever subjectivity one might ascribe to Jacobs' report would be understandable, given the history of his involvement in the project's development and his relationships with both Innotech and the research team.

Another type of visitor is one who goes with his or her own set of criteria of good education and looks around for something to criticize. Take the case of one visitor who toured the Naga schools for a day in October 1976. The visitor complained about pupils who did not seem to occupy themselves with serious work, modules that did not provide sufficient manipulative activity, and pupils who were not free to pick up equipment and materials for science experimentation. The visitor demonstrated a lack of sensitivity to the cultural background and practices of Filipino rural children. Filipino rural children tend to stare at touring foreign visitors and stop their work when visitors look over their shoulders. They engage in manipulative activities at home and in the fields where they function as full participants in the family's struggle for survival. The established custom is to ask permission before using things not their own.

The most extensive visit by Innotech personnel was a field evaluation in February 1976. Designated as a Task Force, the team's objectives were to assess progress and to make "recommendations relevant to the continuance of the project" (ref. 1, pp. 70—72). The group was composed of four Innotech specialists (Siswojo Hardjodipuro, Artemio Vizconde, Mohamad Rifai, and Bibiana Corcoro) and two internal consultants (Rene Minot and Caetane Minot).

The team's report created much controversy, the reason why it was never officially published, despite the explicit promises of the SEAMES director and the Innotech officer-in-charge to send the report to the IDRC (ref. 35). It was not perhaps so much its critical findings and recommendations for improvements that aroused controversy as the procedures followed by the team members. In the words of a site project director, the members were like eagles who swooped on their prey. If any lesson is to be learned from this experience, it is that for any internal or external evaluation of a project like Impact, planning must involve the leaders and implementors in the sites. An evaluation team cannot, for example, fly to a site and say on arrival "having seen the symptoms, we came to find out the causes," without

discussing with the implementors the symptoms to be investigated. Neither should an evaluation team produce a report without first giving the implementors an opportunity to comment on findings and recommendations.

The procedural style of the task force team differed from that of another consultants' team commissioned a year later by SEAMES to do a wider evaluation of SEAMEO units, including Innotech and Project Impact. The external evaluators consulted with those whose work was to be evaluated and the centres were given opportunity to react to the findings and recommendations.

Writing on Innotech, the second team complained about research projects being "less purely scientific works than practical training courses"; that "none of the research projects had been applied in any of the member countries after its completion"; that the "relevance of Innotech's activities to regional problems seemed to prevail only on the surface." Specifically on Impact, the evaluation team noted the "little technical assistance given by Innotech" to field researchers. The team also recommended that Impact "should not be expanded to include a third site until the completion of the research at the two sites." These criticisms were presented for reaction and clarification to Innotech's director and members of the governing board, after which the views of both parties were published (ref. 30, pp. 2−8; 22; 27−28).

Country Team Visits

Impressions of visitors from other Third World countries are interesting not only for their evaluative content but also for their cross-cultural implications. It is useful to recall what some foreign country visitors think of the system and its feasibility in other cultural settings. Two such groups were the Jamaicans and the Bangladeshis.

Sometime in October 1977, a Jamaican team headed by the Minister of Education visited the Philippine Impact sites. In search of a solution to the serious problem of underachievement in literacy and numeracy among 53% of their primary school children and the heavy burden education imposed on the country (24% of the national budget), the six-member delegation was an impressive mix of key educators. Aside from the minister of education, there was the national president of the teachers association, two researchers, one school architect, and one curriculum expert. The group shared their observations and impressions in a conference with the Innotech staff (ref. 36).

The members were unanimous in declaring the usefulness of Impact, especially the modular approach and the new role of the teacher. However, they voiced misgivings about the adaptability of some components to the Jamaican situation. For example, a question was asked as to how it was possible for the Philippine staff to maintain the evident "discipline." Its equivalent in Jamaica, the question implied, would be difficult to achieve. The question suggested that Project Impact "works" in the Philippines for reasons connected to the important values underlying Filipino society in which respect for and consideration of others is early instilled. Other more explicitly individualistic cultures might reap chaos where the Philippines has achieved order in a large multilevel grouping of children.

The Jamaicans had reservations, too, about the acceptability and effectiveness of programed teaching conducted by elder pupils. The repetitive nature of the procedure for module study and post-test in cases where pupils failed in their first and second attempts could result in pupil dropout, they said. Doubts were expressed about

the heavy load carried by the teacher and the reliability of sustained community support.

Like the Jamaicans, the three Bangladeshis who came in March 1979 were impressed by what they saw but had more serious concerns about how Impact could be made to succeed in their country. They were impressed by Impact's potential to answer their problems of unequal access among sexes (54% girls enrolled against 87% boys of the primary school age population), high dropout rate (more than half of grade 1 entrants dropped out before grade 5), low quality of education, and financial constraints.

The most serious questions raised by the Bangladeshis after their tour of Sapang Palay and Naga schools were (ref. 37, pp. 24−26):

(1) Does Bangladesh have a reservoir of trained personnel like that in the Philippines? Can committed and dedicated people be found to lead and implement a similar experiment?

(2) Can local people's cooperation and participation be gained, considering that a great bulk of the rural population is uneducated and poor?

(3) What will be the reaction of the powerful teachers' union to the increased pupil−teacher ratio?

(4) What will happen to the textbooks when modularized instruction is implemented?

(5) Can modules be managed effectively by the schools so that they do not find their way to the market to be sold by the kilo?

(6) Will Impact succeed in a social environment like rural Bangladesh? For example, the home background of a Bangladesh child is different from that of a Filipino; teachers in Philippine primary schools are mostly women; in Bangladesh, mostly men.

Reports from Reports

Evaluative reporting based on second-hand information can either be safe or dangerous depending on the source and the writer's motive. On 12 September 1977, for example, two prominent Thai educators visited the Naga schools and on their return to Bangkok submitted a report to their sponsor (ref. 38). Although they actually observed three experimental schools, their report was a straight description of the system and its components — information that was available in previous progress reports. The absence of criticism was due to the observers' original purpose to learn about the system through reading, interview, and observation.

A sharp contrast to the preceding report was one written by an employee of a well-known international agency (ref. 39). The author did not get his basic facts correct. In his attempt to emphasize the damaging effects of adopting the Impact system in developing countries, he had referred to an entirely different project in Indonesia — ''The Development School Pilot Project'' — instead of Pamong (the acronym for Impact in Indonesia). He wrongly labeled the Impact objective in Indonesia as one ''designed to develop a new system of education . . . implemented in eight prominent teacher colleges.'' His unfounded fear that Impact modules could replace all teachers and the existing system made him raise big questions such as: ''What would happen to the giant teacher education system'' and to ''more than half a million teachers?''; ''to the text-books and the new projects in the field?''

Though the write-up appeared to be a draft, it somehow found its way to another major donor agency, which in turn listed it as a reference document in an appraisal report. This case illustrates the danger of making judgments from limited information or from sheer ignorance, and circulating such evaluation in international circles.

An interesting report based on published information was done by a noted Filipino anthropologist for another international donor agency (ref. 40). It emphasized the issue of how inadequate understanding of native culture could cause serious problems to experimenters in education. Starting with an excellent description of the geographic-socioeconomic conditions of the five Impact barrios in Naga, Dr Marcelino Maceda summarized from available reports the technical aspects and progress of the experiment including problems encountered in the implementation process. Maceda strongly endorsed the rationale and basic concepts of Impact, calling them "interesting and promising"; maybe one of the solutions, he said, in the delivery of good education in rural areas of Southeast Asia. His concluding remarks stressed the importance of thorough understanding of indigenous culture to minimize problems expected in a culture change project such as education. Two quotations from the report illustrate the anthropological theme of Maceda's comments:

> In culture change projects, education is a culture change, the target people must be given plenty of attention for after all they are the beneficiaries of the project. In this case their culture has not been properly studied and this led to resistance and non-cooperation in some aspects. It must be noticed that while the implementors of the project talk about the socioeconomic conditions, data on this aspect is rather skimpy and of course includes their general culture. This error may be because the client people have been taken for granted. The implementors being Cebuanos thought that they knew enough of their client. The problems encountered in the implementation are a witness to the fact that the educators concerned have still a lot to learn about the involved people. The fears of the teacher's unemployment due to the higher pupil—teacher ratio is real. Such things should have to be studied carefully for these fears are legitimate; the fear of losing some privileges among the teachers who participated in the experimental class, i.e., salary increments. With the turnover to the national government and to the division consequently, it is wondered whether the same amount could be earned by the teachers. The increment added to the original salary was a strong incentive. The removal of this may cause the deterioration of their strong belief in the new technology. A second group that would be affected much are the direct supervisors of the teachers, viz., principals, headteachers and district supervisors. Their retraining will become a must. In the old system, they were "foreman" if not "policeman." The amount of teacher independence in the new educational set-up will threaten their superior position (ref. 40, pp. 38—40).

Cost and Effectiveness Evaluation, 1977—78

In an attempt to find out whether Impact's twin goals of economy and learning effectiveness had been met, an independent evaluation was undertaken toward the end of the project. The only achievement evaluations before this were those conducted by the research staff based on regular module post-tests and some regionally and nationally validated tests. Although procedures for test administration and analysis of results were properly followed, such in-house evaluation could be easily regarded with doubts, especially if the results were favourable to the experimental group. To avoid any suspicion or possible bias and to verify earlier results obtained, independent evaluation of cost and learning effectiveness was

commissioned in 1977−78. The entire process of evaluation — design, test instrument, tabulation, and analysis — was executed by the independent evaluators.

Cost Analysis Design

Dr Edita A. Tan, an economist from the University of the Philippines, was contracted to draw up a suitable design for cost-effectiveness analysis. In her subsequent report, Dr Tan outlined two objectives: to estimate the research cost of the Naga project until its final experimental phase and to develop a design for evaluating the economic efficiency of the technique if applied on mass scale (ref. 41, p. 3). Tan's design became the framework for the final cost analysis on Impact. It also guided the external learning effectiveness evaluation.

In estimating the research cost for Naga, Professor Tan considered all the inputs into materials preparation, including salaries, supplies and printing, and those where no outlay was made such as salaries of ministry personnel detailed to the project. She came up with a total research cost for Naga from 1974 to 1979 of US $262 930. Dividing these by the product of the research — a total of 768 modules — Tan came up with a high estimate of US $342 as the unit cost of module preparation. These figures are meaningful only to show developmental cost of modules. The modules underwent revision later resulting in much reduced number and commercial printing. The total research cost did not include imputed cost of community services, which Tan listed as legitimate developmental inputs which ought to be included. The reason for this omission is the lack of a record of the services, due to the absence of cost analysis design at the start of the project.

To achieve the second objective of a design for evaluating the economic efficiency of Impact technology applied on a mass scale, Tan focused on analyzing the relation of two major variables: cost and output, the latter including both quantity and quality. This was also to be applied to the traditional or conventional system and the systems compared for different levels of enrollment. Instead of defining output in terms of number completing a grade, as some United Nations publications used to do, Tan decided on measured achievement of learning. She found her preference difficult to implement, however, because of the noncomparability of Impact achievement test instruments (which were based on learning objectives of the modules) and the EDPITAF (Educational Development Projects Implementing Task Force) tests used to assess achievement in traditional schools. A decision was made to administer the EDPITAF tests to both Impact and the traditional schools to make comparisons valid.

To measure cost variables for mass application, Tan recommended the separation of fixed costs (e.g., costs incurred in the development of modules) and variable costs (e.g., salaries, imputed cost of community services, and supplies). These two types of costs, she said, should be related to enrollment because the latter directly affects the former. The same kinds of costs in the traditional school could be estimated for comparison.

Cost Analysis

Using the general framework prepared by Tan, a young economist, Tereso Tullao, from De La Salle University in Manila, worked part-time for 5 months from June 1977 and produced a cost-effectiveness analysis for Impact. Tullao estimated the inputs that yielded the unit costs of Impact and traditional technologies. He then proceeded to do a comparative analysis of these costs (ref. 42). To measure the two technologies by the same scale, Tullao decided to focus on the cost of Impact

technology rather than the cost of Project Impact overall. The data were based on the Naga Impact schools and comparable traditional schools in the same geographical area. For Impact, the following variables were considered: (1) instructional materials: modules and post-test papers; (2) learning centre costs: salaries of ISs, instructional aides, rural coordinators, costs of classrooms, buildings, kiosks, and equipment; (3) overhead: cost of central administration; and (4) development costs: IDRC contribution to the project.

Comparable input requirements for traditional schooling were used: (1) instructional materials: textbooks, based on EDPITAF's pupil—book ratio of 2:1 per academic area; (2) school cost: salaries of school personnel, costs of buildings and classrooms, equipment, maintenance, and utilities; and (3) overhead: cost of central administration.

Comparison was based on the same number of schools with the same enrollment per school, factors which can influence annual cost per pupil. Thus, his computations showed a range in annual cost per pupil for each of the two systems. For example, for five schools with an enrollment of 200 per school, annual cost per pupil for Impact was US $54.31 and for traditional schooling, US $64.49. For the same number of schools, but with an enrollment of 1200 per school, the annual cost per pupil came up to US $24.01 for Impact and US $37.61 for traditional. Applied in a bigger system of 500 schools with small, medium, and large school populations, the comparative figures were: for a small school (enrollment of 200), the annual cost per pupil for Impact was US $20.69 and US $52.39 for traditional; a medium school (700 enrollment), Impact US $19.24 and US $39.83 for traditional; and for a large school (1200 enrollment), Impact US $18.68 and US $35.87 for traditional. Tullao concluded that the Impact technology could be as much as 50% more economical than traditional schooling.

Further application of the Tan design for mass application was done a year after Tullao by an Australian economist seconded to Innotech as consultant by his government. Instead of using the data from Naga Impact schools as a basis for analysis, James McMaster took the Sapang Palay Impact school and a nearby equivalent traditional school (ref. 43). In 1978, Sapang Palay was in its first year as an Impact extension site to further test the technology's viability. The Sapang Palay school closely fitted normal conditions for mass delivery because it is an almost straight transfer of the Impact technology developed in Naga. Except for the reassignment of excess teachers, Impact was implemented with modules from Naga and by personnel already there before the school's conversion to the new technology. Furthermore, a more realistic cost estimate could now be made of modules because these had been printed commercially.

The calculation of costs of two Sapang Palay schools with enrollments of about 1200 each yielded an annual cost per pupil of US $25.19 for Impact and US $46.80 for the traditional school. Although these figures differ from Tullao's, the result confirmed Tullao's conclusion showing Impact technology as more economical than traditional schooling by as much as 50%. The main reason for the difference in the figures of Tullao and McMaster was that the Tullao's figures were based on Naga schools with smaller enrollments and included overhead costs in the form of the research staff and project administration paid from IDRC grant. McMaster's figures were based on Sapang Palay whose schools had bigger enrollment than Naga's. As mentioned earlier, Sapang Palay was almost a straight transfer of the technology without the research personnel.

Commenting on the Innotech report, supposedly a consolidation of the Tan, Tullao, and McMaster analyses, two Southeast Asian PhD economists affirmed the soundness of the Tan design. Without disrupting the conclusion that Impact could be more economical than traditional schooling, both Fong Chan-Onn of the University of Malaya and Pang Eng-Fong of the Economic Research Centre, University of Singapore, noted an important analytical deficiency: the neglect to cost various volunteer community services. Fong also felt that the cost of continuously motivating the community to support the learning centre should be included as this is crucial to the success of the Impact technology. Pang had questions that, through no fault of the analysts, were not clarified by the Innotech report. For example, the costs of developing the Impact modules were not shown in the report because only the data from an extension site, Sapang Palay, which did not have to go through module development, were presented. Tullao's comparative data, which included cost of developing the Naga modules, were not reported, although he was listed as coauthor of the synthesis study. Similarly, the report was titled ''cost effectiveness,'' but no data were included about how learning effectiveness of the Impact technology and the traditional schooling were measured, leading a reader to wonder how the effectiveness conclusion was arrived at. The report was really just a ''cost analysis.''

Instructional Materials and Teaching Costs (ref. 43, pp. 21−23; 35)

Two major cost items deserve elaboration. Comparison of cost of instructional materials should be between Impact modules and textbooks under the EDPITAF Textbook Development Program. The latter aims to distribute 60 million primary school textbooks during a 5-year period. There will be 109 titles — 59 textbooks and 50 teacher's manuals — for a complete primary school system.

EDPITAF estimates that the average unit cost of the textbooks is US $0.84. Assuming the textbooks will be used for 5 years, the unit cost per year is US $0.17. On the basis of the EDPITAF's distribution formula of eight textbooks for each grade, one copy to every two students, the annual cost per student is estimated at US $0.17 multiplied by four textbooks or US $0.68.

It is not possible to compare the textbooks and the Impact modules on exactly the same scale. The estimates for the modules were based on three types of school populations — 1200, 600, and 300. These were based on the pupil population in the Impact schools (e.g., Sapang Palay had 1200, Naga schools had between 200−300 each). Through economies of scale, the production cost of modules could be decreased and per pupil cost accordingly lowered.

The Innotech estimates include cost of all the modules, manuals, and leader's books for an entire primary school system. For a school of 1200 pupils, annual cost per school, assuming 5-year life expectancy, is US $678.92 or an annual cost per pupil of US $0.57. For a school enrollment of 600, the annual per pupil cost is estimated at US $0.58 and for a school of 300 pupils, US $0.52. These costs exclude post-tests and answer sheets.

Modules, according to the preceding estimates, compare favourably with textbooks in cost as instructional materials. But the obvious great savings in cost that Impact can claim is in teachers' salaries. This is done through an increased pupil−teacher ratio. For example, the original Naga schools had the following enrollment and teachers as set out in Table 2 just before it started Impact in 1974 and when the experiment was completed in 1979.

Table 2. Enrollment and number of teachers at the original Naga schools from 1974–1978[a]

| School | Enrollment | | Teachers | 1977–78 | |
	1974[b]	1977–78[c]	1974	IS	IS aide
Naalad	250	202	14	2	1
Pangdan	327	214	14	2	1
Lutac	220	138	9	1	1
Balirong	235	195	9	2	1
Uling	284	182	12	2	1
Total	1316	931	58	9	5

[a]In 1977–78 there was one field coordinator, one instructional coordinator, and two itinerant teachers. The pupil–teacher ratio in 1974 was 23:1 and in 1977–78 it was 72:1.
[b]See ref. 20, Appendix p. 1.
[c]See ref. 44, Appendix L.

Perhaps, the Impact school that has maintained the most stable pupil–teacher ratio has been Sapang Palay (ref. 28, Appendix). Pupil enrollment in this school has been stable, an enrollment of approximately 1250, since 1977 when it started under the Impact system. The school has been managed by 12 ISs, 12 IS aides, four subject matter specialists, one instructional systems coordinator, and one project director. Based on these figures, the pupil–IS ratio is 104:1. Counting the four professionally-trained staff members in the school, that ratio becomes 78:1, still twice the 35:1 national average. If the IS aides were to be counted, their cost in terms of salary would be at the maximum one-fourth of the IS's salary.

Learning Effectiveness Evaluation

Although the Innotech cost-effectiveness report had no data nor results on "effectiveness," these data were in two thick separate reports. A thinner final summary was printed by Innotech as part of the termination report of Project Impact (ref. 45).

As mentioned earlier, an external group administered, tabulated, and analyzed learning achievement using an independent test. Research staff from the Ministry of Education and Culture administered the EDPITAF tests used to stress achievement of upper primary school children (grades 4–6) throughout the country. The University of the Philippines Computer Center scored, tabulated, and analyzed the test results.

Impact's learning effectiveness was measured in relation to the effectiveness of the traditional system. Impact pupils and comparable non-Impact children were chosen for this aspect of evaluation. The factors considered in choosing the non-Impact schools to be compared with Impact schools were: socioeconomic characteristics of the community, size of enrollment, pupils' characteristics, parents' socioeconomic status, and teachers' qualifications and experience. Based on these criteria, the following schools were picked for comparison of achievement: in Naga, the five Impact schools (Naalad, Balirong, Lutac, Uling, and Pangdan) and three nearby non-Impact schools (Mainit, Cantao-an, and Lanas); in Lapu-lapu City, the Gun-ob, Babag, and Mactan Air Base Impact schools with the Tiague, Pajo, and Lo-ok non-Impact schools; and in Sapang Palay, the Bagong Buhay F Impact school and the Bagong Buhay B non-Impact school. The total subjects in the initial testing on 11–28 October 1977 consisted of 2169 pupils — 1049 Impact and 1120 non-Impact.

These figures were slightly reduced during the retest 5 months later (20 February to 22 March 1976) to assess gains.

The achievement tests covered subjects taught in English (language, reading, science, mathematics, social studies, work education, and home economics) and those in Pilipino (*wika* or language, *pagbasa* or reading, *araling panlipunan* or social studies, and *edukasyong panggawin* or work education). In addition, the EDPITAF instruments included a nonverbal mental ability test for pupils and questionnaires for teachers and school heads. The scores in the mental ability test were taken into consideration to achieve better comparability between the two groups. The questionnaires assessed attitudes toward pupils and innovation.

The analysis of achievement involved (1) a comparison of mean scores in achievement tests of Impact and of non-Impact pupils by subject area and level and (2) a comparison of the growth/gains of Impact and of non-Impact pupils also by subject area and level. Data on attitudes of teachers about their pupils and about innovation were analyzed for their effect on pupils' academic achievement.

Statistical measures were applied to analyze test results. The T-test determined the significance of the difference in the mean achievement test scores of Impact and non-Impact pupils in each subject for each level. Analysis of variance tested the extent of homogeneity and concurrence of regressions of growth/gains in achievement on initial scores of the two groups.

Tables 3 and 4 show the variations in results through comparison of means by school subjects of the Impact and non-Impact pupils at each level (ref. 45, pp. 93–94). The variations may be attributed to a combination of factors. For example, there was a gap of about 3 months between the first and second testing. During this period, teacher motivation could have remained steady, or some teachers may have striven harder to prepare their pupils for the second test. Teacher motivation could, for example, have been responsible for reducing the original advantage Impact pupils had over non-Impact pupils to insignificance as was the case in language, reading, and *wika*. Increased motivation of Impact teachers could have been responsible for the change from insignificant to significant difference in favour of Impact in language (grade 6) and reading (grade 5) after the second test.

As indicated in Table 3, Impact pupils as a group performed either better or equally well in the various school subjects compared with their non-Impact counterparts. A similar pattern was found for the the Naga Impact and non-Impact sample. Separate analysis was done for this group because Impact had been implemented for 4 years in the original Naga schools and therefore the results were possibly more representative than in the other Impact schools where the system was only in its first year.

Based on mental ability groupings of high, average, and low, a sample of 28 comparisons (10 in grade 4 and nine each in grades 5 and 6) for each mental ability level yielded the following results:

(1) Among pupils of high mental ability, non-Impact pupils performed significantly better than Impact in five grade 4 subjects: language, reading, *wika*, *pabgasa*, and work education—English. Impact pupils bettered their non-Impact counterparts in grade 5 mathematics. Among sixth graders in this high mental ability group, the two groups were about the same in all subjects. These results imply that for pupils of high mental ability, the conventional system could be more or equally as effective as the Impact system.

69

Table 3. Results in comparison of means in achievement tests of Impact and non-Impact pupils for the three sites combined, showing inconsistency of results in the initial and final evaluations.

| | Grade levels | | | |
| | Consistent results | | Inconsistent results | |
Achievement tests	Means not significantly different in both initial and final evaluation	Means significantly different in favour of Impact in both initial and final evaluation	Means significantly different in favour of Impact in initial evaluation but not significantly different in final evaluation	Means not significantly different in initial evaluation but significantly different in favour of Impact in final evaluation
1. Language	5		4,6	
2. Reading	4		6	5
3. *Wika*		5,6	4	
4. *Pagbasa*		4,5,6		
5. Science			4,5,6	
6. Mathematics			4,5,6	
7. Social Studies — English	4,5,6			
8. *Araling Panlipunan*[a] (Social Studies in Pilipino)			4	
9. Work Education — English	5,6			4
10. *Edukasyong Panggawain*[a] (Work Education in Pilipino)			4	
11. Home Economics	5		6	

[a]Administered to grade 4 pupils in Sapang Palay.

Table 4. Results in the comparison of means in achievement tests of Impact and non-Impact pupils for Naga, Cebu, showing consistency or inconsistency of results in the initial and final evaluations.

Achievement tests	Grade levels			
	Consistent results		Inconsistent results	
	Means not significantly different in both initial and final evaluation	Means significantly different in favour of Impact in both initial and final evaluation	Means significantly different in favour of Impact in initial evaluation but not significantly different in final evaluation	Means not significantly different in initial evaluation but significantly different in favour of Impact in final evaluation
1. Language	4,5			6
2. Reading	4,5		6	
3. *Wika*	4,5		6	
4. *Pagbasa*	5	6		4
5. Science		4,5,6		
6. Mathematics	4		5,6	
7. Social Studies — English	4,5,6			
8. Work Education — English	5,6	4		
9. Home Economics	6	5		

(2) For pupils in the average and low mental ability levels, significant differences in mean scores were mostly in favour of Impact. Impact pupils in the average mental ability group scored significantly higher than comparable non-Impact pupils in eight subjects: four in grade 4 (*pagbasa*, science, math, and social studies in Pilipino); one in grade 5 (*pagbasa*); and three in grade 6 (*wika, pagbasa*, and social sciences in English). Likewise, Impact pupils of low mental ability scored significantly better than non-Impact equivalents in seven subjects: three in grade 4 (*wika, pagbasa* and science); one in grade 5 (science); and three in grade 6 (*wika, pagbasa*, and social studies in English). The obvious implication is that the Impact system could be more effective than the traditional system for pupils of average or low mental ability. If this is indeed the case the Impact technology could be tested as a solution to the problem of dropouts and underachievers.

For comparison of growth/gains in achievement, data from Naga schools were used in the analysis. The results were as follows:

(1) Comparisons between gains in achievement and initial scores by correlation yielded negative results. High scores in the initial test attain smaller gains while initially low scores show higher gains. This finding is consistent with available research evidence that there is a negative correlation between growth/gains in achievement and pre-test or initial test scores.

(2) The Impact pupils made significantly bigger gains than non-Impact pupils in three of 14 subjects analyzed. The three were *wika* in grade 5, *pagbasa* in grade 4 and work education in English also in grade 4. For the remaining 11 subjects, the comparison showed no significant difference.

Certain findings from the questionnaire responses of teachers and school heads could have some effect on the achievement of Impact pupils. On attitude toward innovation, Impact teachers and school heads had a more positive attitude than those in non-Impact schools. Likewise, Impact teachers' perceptions of pupils' motivations were higher than those of non-Impact teachers. Such psychological dispositions — innate or acquired — could be potent in the performance of both teachers and pupils, thus affecting academic achievement.

Follow-Up Evaluation

The independent learning effectiveness evaluation provides useful baseline data in the follow-up of Impact and non-Impact pupils. Rosetta F. Mante, former director of the original Naga project, is undertaking a 2-year study that would perhaps furnish evidence on the long-term influence of Impact technology on academic achievement, retention of achievement, and attitudes of the pupils (ref. 46). The subjects are the fifth and sixth grade pupils who took the EDPITAF tests in 1978. These pupils may have either stopped schooling or continued on to secondary schools. Mante's first task was to trace the whereabouts of these Impact and non-Impact pupils and do an evaluation of their secondary school achievement, work performance (for those who went into gainful occupation), and attitudes. Most of these data will be gathered toward the end of 1980 — 3 years after the last evaluation.

Objectives of the Study

A comparison of Impact and non-Impact students from the 1978 evaluation population will be based on: (1) academic achievement in secondary school if they

72

continued on to that level; (2) the retention of academic achievement (as measured by the same EDPITAF tests) if they dropped out of school; and (3) attitudes and values based on objectives of primary education.

Subjects of Study

A total of 688 Impact and 803 non-Impact pupils were fifth and six graders in the 1977–1978 evaluation. A survey of their whereabouts as of the end of 1979 is shown in Table 5.

Table 5. Status of Impact and non-Impact pupils at the end of 1979.

Status	Impact				Non-Impact			
	S. Playa	Naga	Lapu-lapu	Total	S. Palay	Naga	Lapu-lapu	Total
Enrolled in secondary schools	283	66	225	574	312	46	213	571
Employed	12	7	2	21	0	5	10	15
Unemployed	15	17	22	54	10	57	119	186
Still in grade 6	0	10	3	13	0	5	8	13
Deceased	0	0	0	0	3	0	0	3
Cannot be located				26				15

The figures in Table 5 show a great percentage of graduates from both Impact (83%) and non-Impact (71%) who proceeded to high school. In the unemployed category, the non-Impact pupils had 23% and Impact had 8%.

Methodology

Mante will match pairs of Impact and non-Impact subjects and categorize them based on individual characteristics, socioeconomic factors, and post-school experience. For those who have dropped out of school, the EDPITAF achievement tests will be administered by an independent group to determine retention of achievement. Academic grades of those who proceeded to high school will be the basis of comparison. A questionnaire will gather data on the two groups' attitudes and values as they compare with the objectives of Philippine primary education. These student responses will be correlated with responses of teachers (class advisers) about the students through a parallel questionnaire. Similar data will be collected through interviews of dropouts and their employers. Analyses of all these data will employ factorial analysis of variance and the F-test to compare achievements and retention of achievement; a T-test for comparison of relationships between dependent and independent variables.

Unanswered Questions

But even after this follow-up study on Impact graduates, there will continue to be many unanswered questions about the system. These concern not only the amount of learning that takes place at an Impact school but the noncognitive outcomes as well, specifically those arising from such radical modification of standard teaching — learning roles. What effect does acting as a teacher have on pupils? What effect do students as teachers have on pupils? Similar questions concern the heavy reliance on

self-instructional materials. Could the traditional textbook—teacher method of instruction be made as effective and cheap? What other noncognitive outcomes occur as a result of frequent self-instruction and peer-group interaction? If evaluation of the long-term effects of Impact on a community is someday undertaken, it would not be surprising to learn that the little girl chosen to appear in an Impact film for her seemingly natural teaching and leadership abilities profited from the opportunity to exercise these abilities at an early age. Less naturally gifted children may be found to have profited from the opportunities given to assist their peers and children less advanced than themselves. On the other hand, long-term effects of Impact may be found to be limited to those who were at school.

Products of Research

The developmental and action-orientation of Impact research required training of local teachers in the preparation and production of modules and other instructional aids. The effects of training as well as the quality of concrete products are as important as the empirical evidence of effectiveness in an evaluation exercise. Just as important are the mechanisms and processes developed to operate the delivery system efficiently.

The following list specifies the kinds and quantities of instructional materials produced by the Naga project (ref. 44, Appendix B). As stated earlier, these materials were developed by a group of untrained, ordinary school teachers guided by their local leaders and a few short-term foreign consultants. The indigenous team deserves much of the credit for this achievement. Questions may be raised about the quality of these instructional materials, especially the modules. At a 1979 seminar attended by key Ministry of Education officials (the minister, deputy and assistant ministers, bureau director, regional directors, EDPITAF director, and chairman of the textbook board), the complete set of modules for an entire primary school system was presented for scrutiny. The officials' decision to do a further try-out of Impact and its modules in various parts of the country testifies to the usefulness and quality of the instructional materials, which perhaps for the first time were written and produced by teachers from the field instead of in the national centres.

Instructional Materials

(1) *Modules:* (a) programed teaching modules (for grades 1−3) number produced, 50; (b) transition modules (for later part of grade 3) number produced, 40; (c) peer-group learning modules (for grades 4−6) number produced, 243; (d) advanced modules (for grades 4−6) number produced, 76; (e) applied skills modules (for grades 4−6) number produced, 32; and (f) home economics modules (for grades 4−6) number produced, 24.

(2) *Readers for Radio Lessons* (to go with programed teaching): (a) readers for Pilipino, number produced, 3; and (b) readers for English, number produced, 3.

(3) *Manuals for Home Economics and Applied Skills*: number produced, 4.

(4) *Scripts for Radio Lessons*.

(5) *Aids for Programed Teaching*: (a) charts number produced, 213; (b) flashcards number produced, 39; (c) worksheets number produced, 52; (d) posters number produced, 21; (e) tachistoscope; and (f) toy clocks, wheels of fortune, pocket charts, and place value boards.

(6) *Aids for Transition and Peer-Group Learning*: (a) maps and globe; (b) science facilities; (c) tools for applied skills; (d) utensils for home economics; and (e) leaders' books, answer sheets, post-tests.

(7) *Practice Exercises for Spelling, Vocabulary, and Math.*

Technical Skills

To go with the above materials, the Naga project team developed forms such as attendance records, individual progress charts, teachers' daily logs, programed teaching assignment schedules, learning contracts, and end-of-the-year reports. Also, project leaders Rosetta Mante and Aida Pasigna wrote manuals for curriculum (module) writers and replication manuals for administrators and implementors. These technical documents will be published officially by Innotech.

The skills gained by Impact personnel can hopefully be utilized within the country or abroad. In fact, three of the Naga team members have been involved as consultants (Rosetta Mante, Aida Pasigna, and Rebecca Belleza) in Impact-type projects in Malaysia, Liberia, and Jamaica. At least four module writers of the Naga project have successfully applied their skills to research for masters' degrees.

In chapter one, the management mechanism and how it works as a system were described. This, too, is an important product — perhaps the heart of the delivery system. The mechanism was tested and adapted in other sites outside Naga and its viability was upheld.

Recommendations of the Cost-Effectiveness Report

Regional Implementation

While recommending that Impact technology "should be introduced on a regional basis" within the country, the Innotech report (ref. 43, pp. 27—40) notes the necessity to "construct a regional implementation plan, to establish implementing procedures and to identify any expected implementation problems." The procedures, the report continues, should build in a "monitoring, evaluation, and feedback system" and "continuous data should be collected on the performance and effectiveness of Impact and non-Impact schools so that evaluation can be continued."

Selective Implementation

The report is forthright too in noting that "the Impact system may *not* be suitable in all situations", e.g., where it is "too demanding on . . . inadequate community resources," or in highly congested urban areas where physical space limitations could preclude the building of kiosks and would certainly destroy any pleasure pupils might take in sitting in them. The report therefore recommends that prior to any replication, an evaluation be undertaken "of characteristics and resources of the communities" in question in order to determine whether they possess sufficient resources — human, material, and psychological — to make the system practicable. Ultimately a "checklist procedure or community survey" could be carried out to identify the areas more or less suitable for Impact replication.

Teacher Supply

The report also tackles one of the thornier problems associated with teachers: "A planned gradual introduction of Impact technology to the elementary schools of the

Philippines need *not* lead to any unemployment or superfluity of teachers," although it recognizes that replication on a wide scale could in the end "reduce the need to train as many new teachers." The report points out that resource savings achieved through the application of Impact technology could be used to increase teachers' salaries as well as to up-grade facilities and equipment in schools.

Converting Traditional Schools to Impact

The report discusses the cost of converting traditional schools to Impact schools. Few physical changes are needed (essentially construction of kiosks and open shelving to hold instructional materials), and these are relatively inexpensive. In other areas, i.e., motivating the community and training costs, the report suggests that economies of scale could be achieved were replication to take place on a regional basis. Transition and adaptation costs for the modules have already been noted as minimal, given the fact that the prototypes already exist. But the report goes on to recommend a 1-year lead time for any school embarking on an Impact path, so that it can be fully prepared for its new role. This would include gathering and preparing equipment and gaining community acceptance and understanding. It further recommends that the Impact project staff and Innotech research staff be used as consultants throughout the replication efforts. As well, the current Impact sites could be used as demonstration centres.

Caveats on Cost

In its concluding chapter the report notes that results achieved under experimental conditions are often more satisfactory than those to be expected when a system is adopted widely. It identifies six problems that could cause cost increases (or reduction in educational achievement) if wider dissemination were to be attempted: (1) resistance to change, on the part of teaching and supervisory personnel as well as community members; (2) inadequate special training for teachers; (3) lack of physical capital resources; (4) lack of parental support and inadequate community resources; (5) inadequate teaching−learning materials; and (6) difficulties with module development and adaptation.

Evaluating Research Quality

The Impact case is an example of the kinds of and standard for research prevalent in developing countries. In many such countries, development problems, such as provisions of universal primary education, are considered urgent, even desperate. The type of research that then emerges is developmental, one where indigenous implementors feel free to modify their goals and actions in light of circumstances in the field.

Does such research qualify as science? By "what" and "whose" standards should the research and its results be judged? If research and its results were to serve an urgent development need, and if the definition of development includes mastery by developing countries of their own destiny, the answers to the above questions lie with the people of these countries. It is they who should decide what research is and what methods are appropriate. In the case of the Philippine Impact the products of the research are to a great extent a result of indigenous effort. The validity of the data obtained and their practical application were scrutinized by native decision-makers who recommended expansion of the system.

76

An alternative to the strategy of putting research decisions in the hands of nationals is the practice of sending outside experts to lead local researchers by the hand throughout the duration of the project. This has been common practice in projects with foreign funding. The major danger of such an arrangement is the strong temptation for the expert to dominate the research activities through the cultural bias and expectations he or she brings into the job and the project. When this happens, native research capability remains where it was before the project was born. If research for development with outside assistance is to lead toward self-reliance, it must be in the hands of the country's nationals. Research must be based on need as perceived by the natives rather than as discovered or justified by foreign funders or their agents. The same respect should be accorded to evaluation of results and recommendations about utilization by local decision-makers.

Chapter 7

Dissemination and Utilization

The dissemination and utilization of the results of a successful educational innovation are obviously desirable. In many cases, however, a successful action research pilot project leads to nothing more than a printed report. What responsibilities do the donor and the recipient have for the dissemination and application of research?

In Project Impact, donors like the IDRC and USAID encouraged the sharing of the Impact experience with other developing countries through field visits of national teams to the experimental sites. Thus, Liberians, Malaysians, Jamaicans, and Bangladeshis made trips to the Philippines and took home components of the system for experimentation in their respective countries.

Within the Philippines, the challenge was picked up by a dynamic agency of the Ministry of Education. With the cooperation of Innotech and IDRC, the Educational Development Projects Implementing Task Force (EDPITAF) took responsibility for disseminating to the various levels of the education system the results and products of Impact's 5-years of work. Officials in all the regional units of the ministry were challenged to replicate the system using locally available funds, with training assistance provided by EDPITAF in cooperation with Innotech. At the time this report was written, 23 schools in seven regions of the country had started their own Impact projects.

The general difficulty of dissemination and utilization of research results in the social sciences is universally recognized. Often, the original justification of a research project, proposed for its applied value, is forgotten at completion time. Thus, the research findings contribute to knowledge, while the urgent development problems the research was supposed to alleviate remain. But the flow of applied research proposals to sources of funds — local or foreign — continues and so does favourable response from these sources.

The issue of the dissemination of research results raises questions about the role of the donor and the use of its funds during or after the end of a project. What is the best means of promoting effective dissemination and utilization without being manipulative? Should project budgets include funds for dissemination and utilization activities? Both recipient and donor in Project Impact had answers to the above questions.

International Dissemination

In the preceding chapter, two examples were cited of visits made to the Philippine Impact sites by teams from other developing countries. The purpose of these trips was to explore the feasibility of adoption or adaptation. At least seven groups visited the Philippines with this objective in mind. Three of these led into Impact-type experimental projects in Malaysia, Jamaica, and Liberia. One more — in

Bangladesh — is in the planning stage. Trips of most of these groups were sponsored by donor agencies, mainly IDRC and USAID.

Liberia

From 21−24 June 1977, a six-member team of Liberians from the Ministry of Education toured the Naga and Sapang Palay Impact schools. Impressed by the possibilities of the technology, the delegation recommended its adaptation in Liberia. With support from USAID, Project IEL (Improved Efficiency of Learning) got started in September 1977 in Gbarnga, Liberia. Materials for grades 1−3 are currently undergoing formative try-outs in a project laboratory school. The plan is to try the system in five schools in 1981 and 1982 and 10 schools in 1983. If evaluation results show IEL's viability as an alternative delivery system, the government plans to expand to an additional 90 schools (ref. 47, pp. 10−11).

Malaysia

Interest started to develop from the first visit in December 1975 by a professor from the Science University of Malaysia in Penang; subsequently information reached officials of the Ministry of Education through its representative on Innotech's Governing Board. This interest matured in a seminar−workshop in Penang on 13−14 July 1976 attended by national, state, and university educators. The meeting reviewed the status and problems of primary education in Malaysia, sharply focusing on the low quality of instruction and underachievement in rural areas. A draft research proposal was tabled for discussion. This proposal described an adapted version of Impact. After suggestions were received from various education officials, a final project proposal was submitted to the Ministry of Education for approval and support and later to the IDRC, which funded about 50% of the experiment's total requirements. Activities preparatory to field try-out began in November 1978.

As the words in the project's acronym InSPIRE (Integrated Systems of Programmed Instructions for Rural Environment) imply, the Malaysian experiment is concerned with improvement of teaching and learning. Reduction of cost may eventually come about, but it is not an explicit objective as in the Philippine Impact where there was a deliberate plan to increase the pupil−teacher ratio. Phase I of the project, now operating in three schools in the State of Perak, concentrates on grade 1 and will move gradually upward until the first three grades are covered by the end of 1983. The Malaysians hypothesize that if achievement quality in the first three grades of primary schooling is high, this will affect upper grade performance as well.

Jamaica

Like Liberia, this Caribbean country sent a team of education ministry officials to visit the Philippine sites in October 1977 under the sponsorship of IDRC. The varied group of six educators, headed by their Minister, expressed their interest in an experiment, with some modifications to suit the Jamaican situation.

Although a project proposal was worked out soon after the return of the team to Jamaica, implementation did not get under way until April 1979 because of changes in the top administration of the Ministry. Like the Malaysian project, Jamaica's Project PRIMER (Project for Reshaping and Improving the Management of Educational Resources) aims at upgrading the quality of teaching and learning. There is a desire to increase the pupil−teacher ratio, but this will occur only by attrition of teachers. As of this writing, preparatory activities are nearing completion and field

testing of materials and management strategies started with the opening of the 1980−81 school year in September. Five rural schools in the relatively depressed areas of Mandeville town (about 105 km from Kingston) comprise the experimental sites.

Bangladesh

Three Bangladeshi educators, one from the University of Dacca and two from the Department of Public Instruction, made a trip to two Philippine sites on 27−28 February 1979. The Bangladeshis were impressed by the activities they saw in the schools but had reservations about Impact's adaptability in Bangladesh. They questioned whether the pupils' and teachers' cultural background would permit an Impact-type experiment and whether talent would be available to mount such an experiment. But realizing the potential of some Impact components to alleviate their problems of access, dropouts and teacher training, they decided to propose the Impact technology as part of their Primary Education Project presented to the World Bank for assistance.

National Dissemination and Expansion

The influx of local and foreign visitors to the three Philippine Impact sites together with public reports about the project placed Impact in the national limelight. Despite this, informal and personalized links with key Ministry of Education and Culture offices and people had to be forged. These links, important in post-project decisions, were developed by both Innotech and IDRC with EDPITAF and the ministry itself.

"Expanded Tryout" Plans

A direct quotation from an EDPITAF report discloses the background and action leading to the crucial dissemination meetings:

> Sometime before April this year, EDPITAF, in the role of broker, initiated discussions with the Regional Centre for Educational Innovation and Technology (Innotech) and the International Development Research Centre towards plans to elicit interest among the regions to try-out the Impact technology on an expanded scale.

> Subsequently, the first two of three seminar−workshops planned were held in May and July of 1979, respectively. The objective of the seminar−workshops was to draw up plans for the try-out by levels in the regional hierarchy (i.e., first the Regional Directors at regional policy level, then the Assistant Regional Directors and Regional Supervisors at the planning level, and finally the District Supervisors and school principals of the schools to be tapped as experimental sites, at the implementation level (ref. 48, Introduction).

EDPITAF, in undertaking this role, was not without additional motive. As the government's prime initiator of educational development projects, EDPITAF's executive director and his key planners recognized Impact's potential in the decentralization and development scheme to improve quality and access to primary education among rural school children. Thus, prior to its formal action as a broker, EDPITAF mentioned Impact in its working papers for PRODED (Program for Decentralized Educational Development), a 5-year program directed at "removal of educational poverty and the reduction of educational inequalities/gaps between regions and between the poor and the non-poor" (ref. 49).

Seminar–Workshop I

Following agreement by Innotech and IDRC with EDPITAF's initiative, a three-man committee of regional directors representing Luzon, Visayas, and Mindanao met in April 1979 with Innotech and EDPITAF staff to set up plans for the seminar–workshop series. The plans had the full support of former Minister of Education, Juan L. Manuel, who named the participants at the first meeting in a memorandum dated 26 April 1979. These were the political deputy minister; the assistant secretary for personnel; the director of the Bureau of Elementary Education; the 13 regional directors or assistant regional directors; chairman of textbook board; presidents of the Federation of PTAs in Luzon, Visayas, and Mindanao; and some representatives from sponsoring organizations. Expenses incident to the attendance of the workshop, the memorandum said, were to be borne by IDRC. The live-in meeting in Malolos, Bulacan, lasted for three days (9–11 May 1979).

Through films, hand-outs, oral presentations, question-and-answer periods, exhibits of instructional materials, and a tour of an Impact school, the participants were informed about the system. Perhaps most significant were the frank interchanges among the participants and Impact managers on many issues involved in replication. Some examples of typical questions and answers illustrate the wide-ranging concerns expressed.

(1) *On Modules*

Q. How efficient are modules as a medium of instruction? In particular, how effective is the teaching of English through a module by a programed teacher (older pupil)?

A. Small group arrangements in programed teaching provide more opportunity for individual pupils to read orally, thus facilitating learning. Studies show that introduction of English in the later stage of the curriculum does not significantly affect learning of that language. To demonstrate the overall efficiency of the modular approach, a summary of the findings of the external evaluation of pupil achievement was presented.

Q. How expedient is it to totally adopt the Cebu-developed modules, considering regional diversities?

A. The national director of primary education replied that each region can have a team of writers to provide modifications. On funding — the logical extension of the question — a regional director encouraged self-reliance through local funds.

(2) *Grading System and Pupil Promotion*

Q. Would the nongraded and descriptive grading system of Impact create difficulties in transferring from Impact to non-Impact schools and vice-versa?

A. The modules were based on the learning continuum developed by the Bureau of Elementary Education. The progressive levels in Impact can easily be translated to their equivalents in the conventional school. In regard to the descriptive grading system, the participants agreed that providing numeric equivalents would not be difficult.

Q. Would the self-pacing feature of Impact not pose psychological and sociological problems?

A. There is a control mechanism built into the system. Post-tests after each module for pupils at the same level are scheduled simultaneously. While waiting for the post-test, the fast learners are provided with advanced modules.

(3) *Administration*

Q.   Who among the local school officials should direct an Impact school?

A.   Based on the experience at Sapang Palay and Lapu-lapu, there is an advantage in having a district supervisor direct a school converting to Impact. Reallocation of teachers, accessibility to sources of local funds, and comparative evaluation were cited as examples of arrangements that would be easily facilitated by such an official.

(4) *Supervision*

Q.   What will happen to the subject area supervisors in a district where Impact is implemented?

A.   No adequate answer was provided, and it was decided to reopen the question in the second meeting.

(5) *Relationship to Other EDPITAF Projects*

Q.   How do Impact modules fit with the Textbook Development Project?

A.   Textbooks were used as supplementary materials in Impact schools. There should be further discussion of the issue.

Q.   Would conflict not arise between Impact and the Decentralized Learning Resource Centres (DLRCs) also developed by EDPITAF?

A.   Both the deputy minister and the director of primary education argued that the DLRC should strengthen Impact by making its resources available and by including Impact teachers in its in-service training activities.

(6) *Impact vs Conventional School Under Comparable Resources and Situations*

Q.   With the same amount of effort and support, wouldn't a conventional school produce comparable results?

A.   This question could be researched during the expanded try-out.

Perhaps a more interesting way of capturing the flavour of some dissemination strategies and problems is to present some quotations from the extemporaneous remarks and response to questions from the Sapang Palay project director, Lesmes Avena (ref. 50).

Personnel Traits

To ensure the smooth implementation of the project and to avoid problems of administration and supervision, the following factors should be considered. First and foremost is the selection of the members of the staff. The selection of the members of the staff from the project director to instructional supervisors, system's coordinator, clerk/typists and down to the community aides should be made on the basis of the interest, attitude and capability. If the project staff is composed of people who have the right attitude and capability, they will learn the project easily, do the job well, learn the techniques fast with or without close supervision, and they will not complain no matter how difficult the task is. This is what I did in Sapang Palay. I did not select the teachers who were already high in their salary or who were in graduate degree programs. The first and foremost criterion was their attitude to join an innovation. What I did was to tell them: 'Will you get a piece of paper and write if you are willing to join the project?' Before I asked them to write on that piece of paper, I told them, 'We are embarking on an innovation and this innovation is not easy. It is a big task; sometimes it may require a lot of sacrifice.' So knowing that the work would be big and hard, very few wrote on that piece of paper that they wanted to join the project. Others said: 'I don't like the project because I cannot leave my home often'; 'I don't

like the project because I cannot stay long in school.' Still others said: 'I don't like the project because I don't like to be involved in an innovation.' Actually only around 15 wrote on the piece of paper that they were willing to join the project and out of the 15, I chose 12 ISs.

Community Cooperation

Another factor is that the project has to be sold to the parents and the people in the community. To secure the cooperation of the people and the parents in the community, they should know what the project is all about — its benefits to them and their responsibilities. They must understand their roles and functions, because the parents are sometimes invited as resource persons or to serve as teacher aides. The permission of the local officials and other government leaders should be secured so that the necessary activities may be undertaken smoothly. The survey of community resources should be made and updated so that they can be utilized by the school and the children. For example, how many farmers are there? How many dressmakers, etc.? And in the survey questionnaire, it is necessary to ask the head of the family what time of the day he is available. And all of these should be written in the index cards.

Community Support

We were able to purchase equipment and make improvements through the assistance of government officials, the local school board, and civic-minded citizens. During the launching of the project, our governor gave us 10 000 Pesos that we used to purchase equipment and furniture for the learning centre. Our mayor donated materials for the construction of learning kiosks. Other civic-minded persons donated labour for constructing different facilities. And no less than the Deputy Minister, Dr Bernardino, and several regional directors gave us funds to be used for putting up three additional kiosks. We also gained full support from our school authorities. Our past and present regional directors and superintendents likewise extended to us their full cooperation.

Difficulties

We also encountered difficulties during the launching of the project in spite of the massive information drive we conducted prior to the launching. There were still parents who resisted the implementation of the project. Some parents didn't want their children to serve as programed teachers. Other parents didn't want their children to be taught by programed teachers. They said they would like their children to study and not to teach. These parents transferred their children to a nearby non-Impact school, but later these parents came back and pleaded with the school to accept their children again for the reason that the children said they didn't like studying in another school. Though we were anticipating that the enrollment of Impact schools would be reduced gradually, our expectation did not come about. On the contrary our enrollment in the Impact school increased by 200 when the school year opened. We also experienced difficulty in shifting from horizontal to vertical grouping in the early try-out. The children who were used to the conventional horizontal grouping were confused when they were grouped vertically. The classroom was like a market filled with all sorts of commotion. We wondered how the pupils could learn under such a situation. But after a few days when the children got used to the new arrangement, everything went smoothly.

Administration

Performing a dual role as project director and district supervisor was also difficult for me in the beginning. The district under my charge is composed of 20 schools with more than 300 teachers and about 13 000 enrollment. It took some time to adjust to administer and supervise effectively both the Impact and the conventional schools. But there are also advantages in performing the dual role. Here are the advantages: (1) it is easier for me to transfer excess teachers from Impact schools to other non-Impact schools where their services are needed; (2) it is easier to use the services of teachers with specialized skills for the project. For example, our illustrator for modules came from one of my extension schools; (3) in the absence of regular binders and collators, I have requested some of our teachers to do the job during their free period; and (4) as district supervisor, and concurrently chairman of the school board, I could easily request the members to appropriate local funds fairly for both conventional and Impact schools.

In view of the above, I feel that the district supervisor is in the best position to serve as project director of an Impact school.

Decisions

Except for one region, which was not represented, all the regions accepted Impact for an expanded try-out in one division per region. Five regional directors expressed readiness to implement the system in more than one division. The expansion was under way in the school year 1980−81.

One important decision pertained to honoraria for Impact teachers, which had been the cause of jealousy and skepticism about Impact. The regional directors firmly said that no supplementary stipends should be paid. Instead, an alternative incentive of rank upgrading was proposed: the ISs would gain credit toward their becoming master teachers.

Another decision made related to provision of numeric translation of descriptive grades for transfer purposes. Research, too, is to be built into the plans for the expanded try-out, using the research unit of the regional office and the resources of the provincial universities.

Seminar−Workshop II

Toward the later part of Seminar−Workshop I, a plan for a second meeting was agreed upon. As for the first seminar, the Minister of Education and Culture issued a memorandum specifying the kinds of participants, date, and venue. The meeting was held on 17−20 July 1979 in Cebu City. Expenses were shared between IDRC and EDPITAF.

The program of the meeting was geared to tap assistant regional directors, division superintendents, and principals of schools chosen as possible participants in the expanded try-out. The main objective was to acquaint middle-level education officials about the various aspects of the Impact system. If the general decision were to go for a try-out in their schools, a plan of implementation would be produced during the workshop by each regional group.

The decision favoured an expanded try-out. Each region specified the number of schools to be converted to Impact. The numbers ranged from one to five; the schools were a mixture of urban and rural locations. Control schools were also identified, implying that comparative research would be conducted. There were, however,

variations in regional plans. Some explicitly committed themselves to start with the entire primary level; others were less courageous, preferring to postpone their decision on this issue.

Although each region made a presentation on the last day of the workshop, it was obvious that there was not enough time during the meeting to produce a plan reflecting the many questions to be addressed. Assessing the quality of regional plans, EDPITAF reported that "enough time must be allowed for the regions to contemplate the demands of transition from the conventional to the Impact set-up" if Impact were to avoid the fate of most innovations after withdrawal of external support. "There is evident, once more," the report continued, "the oft-occurring attitude towards innovations: a 'receiving-end' attitude that accepts whatever the central office so decides instead of first assessing the merits . . . with respect to the conditions of the region" (ref. 48, Attachment F p. 10).

Seminar—Workshop III Plans

Partly because of the preceding weakness in the plans of the various regions, and partly due to a change in the top ministry leadership, the series of regional workshops to prepare for plan implementation suffered some delay.

Soon after the Cebu workshop, Minister Manuel retired and was replaced by Onofre D. Corpuz. The third round of meetings, to be supported totally from local sources, was delayed pending policy guidelines from the new Minister. EDPITAF's position was clear: "Clearance is important — whether the previous commitment/support of former Minister Juan L. Manuel for an expanded try-out of Impact will be upheld by Minister Corpuz" (ref. 48, Introduction).

A "go" signal for an expanded try-out enabled EDPITAF to respond to regional requests for training on the implementation of Impact. EDPITAF's policy was to conduct these school-based intensive implementation and training workshops for principals and teachers on a staggered basis. The criteria for responding to these requests were need, commitment in the form of local or regional funds, ability, and readiness. Among the first batch of implementors, schools in six regions were found ready and their training programs were scheduled accordingly (ref. 51).

The implementation and training programs have been conducted under the leadership of EDPITAF, Innotech, and project leaders in the original Impact sites. Among the activities emphasized during the standard 5-day seminar—workshop is an overview of Impact, acceptance strategies, pupil grouping, learning modes and techniques, management forms, use of modules and accompanying materials, demonstration in training of programed teachers, demonstration of programed teaching, and transition learning and peer-group learning techniques. In addition, actual observation of an Impact school by the trainees is scheduled on separate dates.

The gradual process of expansion has started. Given the EDPITAF emphasis on motivation and self-reliance in responding to regional requests, there is every reason to expect success in the efforts of the first batch of implementing schools. This is a realistic approach to dissemination and implementation of an innovation. Once these early implementation models get under way, EDPITAF hopes to give up its role as pump primer or "broker" and place Impact in the hands of the Bureau of Elementary Education. This is the office in the Ministry responsible for all public primary schools throughout the country and is therefore in the best position to promote the interlocking of Impact with the whole primary school system.

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86

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