

# Project Impact

an experiment  
in mass primary  
education



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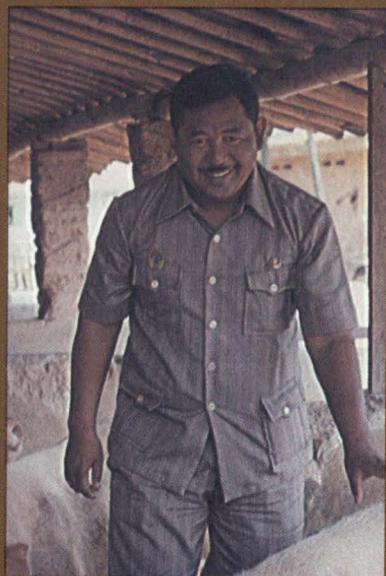


# Project Impact

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A progress report on  
Innotech Project Impact in the  
Philippines and Proyek Pamong in  
Indonesia

Clyde Sanger



# Contents

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Foreword	4
The Problem Defined	6
The out-of-school gap	6
The Setting	11
The Philippine barrios — Naalad, Pangdan, Lutac, Balirong, and Uling	12
Indonesia — Kebak and Alastuwo	14
Components	19
Modules	19
Community Learning Centres	25
Instructional Supervisors	29
Rural Education Coordinator	31
Peer tutors, high school tutors, and programed teachers	33
Home tutors	37
Parents	38
Community	40
An Assessment of Results	45
Learning effectiveness	45
Cost effectiveness	47
Some other concerns:	48
Displacement of teachers	48
Student attendance	49
Language of instruction	49
Replication of the project	50
Appendix	52
A Personal Postscript	54

**T**he difficulties of making primary education available to all children in developing countries are familiar to governments, to teachers — and to parents. The ever increasing number of children of primary school age makes heavy demands upon a country's capacity to train teachers and to cover the costs of more salaries, more schools, and more equipment. At the same time, parents need the help of their children to carry out many tasks essential to a family's survival. As a result, even where schools are available some children never start and for others attendance becomes irregular until the point when a child "drops out." These out-of-school youth — half of their age-group, in many countries — often face serious obstacles in finding employment. The country, in turn, loses the benefit of their productive labour: yet governments must find the funds to take the next age-group of children as far as possible through this imperfect circle.

From the early 1970s the South East Asian Ministers of Education Organization (SEAMEO) gave this set of problems a particular priority. In August 1972 SEAMEO organized a Technical Working Group, composed of key educators from all eight member countries, to identify priorities for SEAMEO to concentrate on in the 1970s. The group listed four priorities, including the "Development of an Effective and Economical Delivery System for Mass Primary Education." This task was entrusted to one of SEAMEO's regional centres, Innotech. The objective, clearly stated, was to improve the delivery system, not to suggest changes to the curriculum. Innotech, the Regional Centre for Educational Innovation and Technology, held two regional seminars in 1973 to refine the objectives; and a series of meetings

followed at the original two research sites to explain the plan to parents and community, and to win the approval of the villagers. Late in 1974 Project Impact was launched in the Naga district of Cebu island in the central Philippines, and the companion Proyek Pamong began in villages near Solo in Indonesia.

The experiments at Naga and Solo are not due to be completed until 1979. Why then a booklet describing this work now, at little more than the halfway point?

In part, because of the wide interest Project Impact has already aroused in many countries, in Asia and beyond. To give a fuller answer to policymakers, who have been asking at international conferences or by letter about the details of this research, some description was needed that provided more integrated information than is available in the periodic progress reports coming from the research directors, Rosetta Mante and Boorham Respati. But, equally, we decided that it was worth publishing a booklet now because much has already been learned at Naga and Solo, and the results are exciting in their potential for improving the delivery system of primary education.

The essence of the research has been to create a system that will reach every child in the community with effective education at a reasonable cost. Such a system must have flexibility as its hallmark. No child should become a "dropout." A student should be able to reenter the system even after an interval of years, to study in his own time and at his own pace.

Such reasoning has led to rewriting the school syllabus in the form of "modules," self-instructional booklets that take a student step by step to a post-test that he can take with a



minimum of supervision. The work that has been done in Project Impact in refining techniques of module preparation and utilization is, we think, an important achievement. This has resulted in freeing the teacher from the fixed position in front of a class, allowing her to move about and to give help where it is most effective, whether to the slower learner or to the quick student who wants further stimulation and direction. To allow each teacher to do this for many more students than the traditional classroom of 35 to 40 (perhaps for as many as 70 to 100) children, the Naga and Solo teams have experimented with different kinds of tutors and other aides, who may take some of the routine workload from a teacher.

This booklet describes the experiment and identifies some of the early problems that have been encountered. Despite some uncertainties and the need for continued experimentation, the experiences in Project Impact have been encouraging: teachers have settled into their broader role as Instructional Supervisors, communities have been receptive in varying degrees, and the tutoring program is undergoing some useful changes.

Of primary concern is the effectiveness of the system in terms of costs and learning results. The section in this booklet that deals with these questions can give only preliminary calculations. However, these show that students in the Impact schools are more than keeping pace with their contemporaries in the traditional system, and greater achievement is expected; and that the costs per pupil of operating an Impact-type system are likely to be less than the traditional system. A third conclusion in this section, and perhaps the most positive of all even though it cannot be

measured in precise financial terms, is that Impact really gives the opportunity for any child to stay with the learning system or, if he has to leave it temporarily, to reenter it at any time.

Many projects in educational research suffer the fate of oblivion through having been carried out quite separately from the existing school system, or through the research teams recommending drastic and abrupt changes. The planners of Project Impact were concerned from the outset that this should not be its fate. There has been the closest possible cooperation with the governments of Indonesia and the Philippines, and with the education authorities at district level. Again, in the 1977–79 phase of the project the issues of replication of the Impact system are being explored as fully as possible. Two new sites in the Philippines, at Lapu-lapu and Sapang Palay, have joined the project so that some understanding can be gained about the problems that will be encountered if there is to be widespread adoption of the system. Can there be replication of the system in a range of communities with minimal disruption and minimal early costs?

When Project Impact is completed, a full report will be written that can answer in a more definitive way the questions being asked about this kind of approach to the problems of primary education. We hope this booklet will stimulate discussion and perhaps decisions among those responsible for educational policies in the Third World.

Ruth K. Zagorin  
Director, Social Sciences and  
Human Resources Division, IDRC.

# The Problem Defined

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**I feel very much encouraged to go on with the project. Many of the obstacles that we met at the beginning of the project have now been overcome. There are a few more difficulties that we must solve, but I know that our experiences in the first phase of the project will help us to do better in the second. The people in the field sites are likewise very enthusiastic about the results of some of their findings and the reaction of the people.**

**Dr Liceria Soriano**  
Innotech Director

## THE OUT-OF-SCHOOL GAP

Walk through any village in South Asia or Southeast Asia, and you will at once be in a throng of young children, moving to the fields or just standing by a store or playing near their homes. Put your head through the doorway of a primary school classroom, and you will find a young teacher energetically performing (chalk in one hand, flash cards in the other) to hold the attention and prod the curiosity of 40 girls and boys, tightly packed three or four to a double desk. Talk to a local government inspector in the nearby town, and he will somberly tell you that his greatest preoccupations are unemployment and out-of-school youth. Go to the capital city, where the very streets are lined with young children, and interview the Minister of Education; he will say that there is no conceivable way to double the education budget over the next 20 years and thus keep pace (and no more than keep pace) with the increase in numbers of primary-school-age children.

There is a strange paradox here, isn't there? So much of the wealth of these countries lies in the vigour and enthusiasm of their young people. This is what government planners tend to call "human resources," as though they were slightly animated bits of metal, whereas they are so much more vital — and renewable — than ore. Yet more than

half this wealth is cast aside because there is no money to provide school places or teachers for them. And then they become, not an asset as part of the dynamo of the country, but a major liability: out-of-school youth, unemployed, and often unemployable.

What is to be done? The linked problems of ballooning populations of school-age children, and of education budgets bursting the seams of the national purse, are common throughout the Third World — and are sure to worsen in the next decades. They are not likely to be solved by the conventional mathematics of educational budgeting, in which most of the operating budget goes to pay teachers' salaries. A teacher's time and talents have to be spread over more than 40 children; and yet the quality of learning has to be maintained, and preferably improved.

As well, there are the millions of out-of-school youth, the so-called dropouts, human resources who should be reclaimed for the country just as goldminers pick over their dumps to recover precious metals they neglected during the first processing. These youth should have the opportunity to reenter the learning system. In fact, it should be made much easier for any child in the countryside, pressed by parents to help in the home or the fields, to take leave from school and return without dropping back or dropping out.

The problems of providing a five- or a six-year course of primary schooling to every child in Southeast Asia between the ages of 6 and 12 are depressingly clear to any policymaker. At present, half the children in this age-group have either never been to school at all or else drop out of school before completing Grade 4. In other words, they will not acquire the basic knowledge, skills, or attitudes that they will need if they are going to take an active part in their country's development; they are condemned to a backwater, because they have not learnt even in an elementary



way how to navigate the mainstream of modern life.

The efforts of governments to increase the schooling opportunities for young people soon run into the limits of national revenue. Merely to keep pace with the increasing school-age population and provide full primary education for 50 percent of the children, as at present, is to place a growing strain on national treasuries. To close the gap and provide education for all, so that the talents of half the nation do not continue to be wasted, is well nigh impossible. The major obstacle is the expenditure on teachers' salaries. At present, 80 to 90 percent of the recurring expenses of education budgets in Southeast Asia are teachers salaries. Doubling the number of children in primary school implies, in present circumstances, doubling the number of teachers — and thereby doubling the greatest part of the budget.

Take figures from either Indonesia or the Philippines to illustrate this dilemma. In 1972 in Indonesia, according to Dr Santoso Hamijoyo, the Director-General of primary and secondary schools, there were about 13 million children between the ages of 7 and 12 enrolled in primary schools; another 7 million were not in school at all. And the gap was widening each year because, although the numbers in this age-group were increasing by more than 3 percent a year, the growth in enrollment in primary schools was less than 2 percent. The government in 1973 and 1974 launched a major effort to increase junior primary classes, and by 1976 could claim that more than 17 million children were enrolled either in government primary schools or in Islamic schools. The target for 1979, the year when the Second Five-Year Plan ends, is to be providing primary schooling for 20.9 million children, out of a possible 24 million in the age-group. It will still mean that 3 million, or 15 percent, will have no place in the schools, and little hope of acquiring modern skills.

In the Philippines, enrollment in both primary and secondary schools has soared. It took 24 years for the numbers in school to rise from 3.2 million in 1946 to 7 million in 1970. But in this decade they are expected to double again, reaching 14 million in 1979. At present, there are

nearly 12 million in primary and secondary schools. Dr Juan Manuel, the Secretary for Education and Culture, expects that the country's school-age population will again more than double by the year 2000. "Unfortunately," he adds, "we are not sure there are enough funds." To offer places for 24 million or more children in the Philippines will require some drastic changes in educational budgeting.

It is not that individual teachers' salaries are high. In Indonesia an experienced primary school teacher is paid up to 25 000 rupiah a month (\$60) and a primary school principal between Rp 30 000 and 35 000 (\$72 and \$85). A teacher in his mid-thirties in Naga district in the Philippines said his pay was only two-thirds the wage of many parents who worked in the copper mine over the hills in Lutopan — and less, even, than that of a security guard in a Cebu City bank. It is, rather, that there have to be so many teachers, if the traditional teacher:student ratio is to be preserved as student enrollment climbs. In the Philippines there are now some 400 000 teachers, which, with an enrollment of 12 million students, gives a ratio of 1:30, and that ratio cannot change, as long as the school system allows a maximum of 35 to 40 students in a class. There lies the nub of the financial problem.

Most educators acknowledge that these figures, and similar statistics that can be cited from other parts of the Third World, point to the need for a much more flexible system of learning. At that stage, understandably, opinions diverge. In pursuit of total flexibility, those of the opinion of Ivan Illich have argued a case for "de-schooling" and the giving to every human being of "educredits," a ration card of mental nourishment that may be cashed in at any stage of a lifetime. Others would not go so far in demolishing the present system in deference to individuality, but would place heavy emphasis on "nonformal" education. The experiment that this booklet will describe is a move toward a system of

\*IMPACT is an acronym for *I*nstructional *M*anagement by *P*arents, *C*ommunity and *T*eachers. PAMONG is the equivalent in Bahasa Indonesia (the national language of Indonesia): *P*endidikan *A*nak oleh *M*asyarakat, *O*rangtua dan *G*uru.

primary education that introduces as much flexibility as possible without jettisoning what is sound in the school structure; it is seeking a pragmatic way to the solution of the main problem: how to achieve better learning results for a larger number of students at a greatly reduced cost per student.

The experiment is at this stage modest and incomplete. During the school year 1976-77 it involved only 1065 children in five rural schools in the Naga district of Cebu island, in the central Philippines, and another 526 students during 1976 in two villages near Solo in central Java, Indonesia. By then it had been in progress for less than three years, or half the time it takes for a student to move through primary school. It is still a fragile experiment.

Crowded schoolroom typical of traditional system in the Philippines



Nevertheless, it has aroused wide interest and inquiries from many parts of Asia and Africa. The reason for the excitement about what is called Project IMPACT\* in the Philippines and Proyek PAMONG\* in Indonesia seems clear enough. It does offer a promise of a solution to these problems in a practical form, and the early results have been encouraging enough to prompt a second stage of research that includes its extension to other sites (in the Philippines and elsewhere), to explore the all-important question of how the patterns evolved at Naga and Solo may best be replicated in different economic and cultural contexts.

Inevitably, some accounts of Project Impact given at conferences or in some articles have contained higher claims for it than the results so far warrant. Some enthusiasts have also suggested that it is a more radical departure from conventional systems than it actually is. Certainly, the project teams under Rosetta Mante in the Philippines and Boorham Respati in Indonesia have been making dramatic changes. The most notable of these are the writing of self-instructional modules that allow students in Grades 4 to 6 to move through the syllabus at their own pace, and of programed materials for the use of lower grades; and the retraining of classroom teachers as Instructional Supervisors with wider responsibilities and up to four times as many students in their care. But, in making these changes, they are not interested in destroying the foundations of present systems but rather in making the maximum use of all the resources at hand.

To emphasize the point that, in launching this project, Innotech has been working closely with the national governments, there are interspersed through this booklet some quotations from interviews with senior educational authorities: Dr Juan Manuel and Dr Narciso Albarracin, Secretary and Under-Secretary for Education in the Philippines; Dr Santoso Hamijoyo, Director-General of the Bureau of Primary and Secondary Education in Indonesia. Dr Liceria Soriano herself was Director of Public Schools in the Philippines, before she became Director of Innotech in early 1976. Innotech, which has been sustained by the U.S.

Inside Naalad CLC today the only students are those taking post-tests



Agency for International Development as well as SEAMEO's member governments during difficult times (headquarters had to be moved three times while the research program was being organized), has worked hard to reconcile the pragmatic with the visionary. It recognized that Project Impact had to be venturesome, but well founded.

Here is the vision the Impact teams had at the outset of the project: The school becomes a Community Learning Centre (CLC). Dividing walls are removed to allow students to move freely around the various parts of the building where the stacks of modules and the simple equipment for science and other subjects are stored, and where an area is set aside for taking tests when they feel ready to do so. The students form themselves into "groups" of the same grade or level, and help each other along with their self-instructional modules. The lower grades will have a "programed teacher," a student from the higher primary grades, to lead them in reading and mathematics. The upper grades have a peer tutor from their own group to guide them; high school students come for a day each month as tutors on a rotating basis. Members of the community with special

**The expectation is that our population will double in a period of 23 years, and our school population will more than double in that time. Unfortunately, we do not have double the funds that we are spending now to meet the needs of education by then. So we are looking for ways by which we can increase the efficiency of the teacher. As of now, they are teaching only 40 children at a time. It may be possible to double, or treble, or even quadruple that number, thus reducing the cost in aggregate terms of delivering elementary education.**

**Apart from this, we cannot expect the schools, during the period that the child is in a school, to teach everything that should be learned by him. What we expect them to do is to equip the child with the skills of communication, so that he can do the learning by himself. And that is one of the visible reported accomplishments of the Project Impact.**

**Dr Juan Manuel  
Secretary for Education and Culture  
Government of the Philippines**

skills, such as carpenters and tailors, take over the tuition of groups in applied skills either at the CLC or at their own place of work. Home tutors — either parents, siblings or neighbours — are recruited for as many students as possible. The students work on their modules, either at home in the afternoons, or earlier in the day in shady corners of the school grounds.

What of the classroom teacher? She or he becomes an "instructional supervisor" (IS), a term that (like some others in the preceding paragraph) needs to be explained at length in a later section. Nearly all the routine duties are lifted off her shoulders, and more time can be spent on individual tutoring of the children who are slow to learn. The chore of correcting tests is spread over several people: some of it is done by students themselves, some by an aide or registrar, and only the major tests are checked by the IS, whose time is freed for broader work in the whole community. There is time and staff, as well, to encourage out-of-school youth and older people to complete primary courses in their own time. In effect, education becomes a total community effort. As the Indonesian team has written: "Community participation is the heart of IMPACT . . . This is a learning society we are bound to achieve."

That, in two paragraphs, is the vision of Project Impact. It is not an unclouded vision. The remainder of the booklet will go into details of the project, the difficulties the two teams have faced, the retracing of some steps, the doubts they still have about parts of the road ahead. It will start by describing the largest reality and the biggest constraint: the seven villages that have been the setting for Project Impact. They are the biggest constraint because, if the people do not accept the need for change and do not contribute to the process of change, then the experiment will never take root. Yet there must be visionaries, brave enough to press innovative ideas. In December 1974, when the project was newly launched, Dr Soriano went to Cebu and ended a speech of advice and encouragement by quoting the words of André Gide: "One cannot discover new oceans unless he has the courage to lose sight of the shores."

# The Setting

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In September 1973 Innotech put forward a technical proposal with the title "Delivery of Mass Primary Education in Rural Southeast Asian communities," and it included some criteria for selecting the research sites. The villages, suggested the Innotech document,

- should be typical of rural areas of Southeast Asia, and yet be within reasonably easy access of Innotech's headquarters;

- they should be in a cluster of four or five villages, conveniently close together;

- they should have only about half their children in the 7–12 age-group actually in primary schools, or else they should at least be in need of reducing educational costs per student. (This figure was typical of the country: Indonesia had 53 percent of this age-group enrolled in schools that year.);

- they should be places where many, if not most, children grow up speaking a language different from the language of instruction that is normally introduced in Grade 4;

- and, finally, they should show a clear willingness to take part in the experiment.

The two areas that were chosen, one of them 15 km east of Solo in central Java and the other 20 km south of Cebu City, were known to Innotech staff members. A small expedition, which included a senior staff member of BP3K (the Educational Development Office of the Indonesia Government's Department of Education and Culture) visited both Jogjakarta and Solo in September 1973 and came to an agreement with the authorities at IKIP Surakarta, the teacher training college in Solo, that it would undertake the study in four villages in the district of Kebakkramat: Kebak, Malang-gaten, Alastuwo, and Banjarharjo. During the second year of

the project three schools in Malang-gaten and Banjarharjo dropped out of the experiment, leaving two schools each in Kebak and Alastuwo to carry on. It had become clear that a more manageable number of schools was four, rather than seven.

A similar expedition from Innotech came to Manila in October, and Dr Narciso Albarracin, Undersecretary of the Department of Education and Culture, held a planning meeting that included Dr Soriano and Dr Aurelio Tiro, the regional director of Central Visayas, the group of islands in the central Philippines that includes Cebu. They later became members of the national steering committee of Project Impact, and Dr Albarracin became its chairman. So, as in Indonesia, having started as a regional initiative, the project gathered the strongest possible national support before being launched at the local level.

A number of villages, or barrios, were surveyed on Cebu island, before it was decided that four in Naga district suited the criteria. They had an average population of 2000, and an average primary school population of 280 pupils. But, since there were only 140 students in the four schools who would be in the first class to enter the experiment — Grade 4 — a fifth village, Uling, was added several months later. In the meantime, an acceptance campaign led by Dr Albarracin was carried out among the teachers and villagers of Naalad, Pangdan, Lutac, and Balirong.

In preparation, a research staff was recruited from the Cebu area, of a somewhat different composition from the Indonesian team. Whereas the Solo team of specialists came from the faculty of the teacher training college, in Cebu the module writers were chosen almost entirely from among primary school teachers who taught the grades for which they would now be writing materials of a new style.



## THE PHILIPPINE BARRIOS — NAALAD, PANGDAN, LUTAC, BALIRONG, AND ULING

Cebu island has about 2 million people, and some 400 000 of them live in Cebu City, the second largest city of the Philippines. They are fond of telling visitors how they got rid of their "first tourist," Ferdinand Magellan. (The Portuguese navigator was killed in 1521 on Mactan Island, near the present airport, having allied himself with the weaker side in a skirmish between local chieftains). But in truth they are an open-hearted people, happy to share the charms of their island. Cebu is famous for its sweet mangoes and its seashells, and many of the young warriors of Mactan Island today spend their hours turning the local *nangka* wood into superb guitars, for country groups to sing sad Visayan love songs on warm evenings.

Filipinos on other islands refer to the Cebu people as "corn-eaters," but they take this joking lightly. It is a fact they have always lived with that their cigar-shaped island has a hilly spine and very little lowland country suitable for rice. To compensate, they have minerals in the hills — and good humour.

Their language, Cebuano, is, with variations of dialect, spoken by more people in the Philippines than is Tagalog, the tongue of Luzon island and of Manila and the basis of the national language Pilipino. Although there is no real apprehension that Cebuano is therefore a language doomed to extinction, it means that a child has to move from Cebuano to Pilipino — and to English — during the first three years of primary school.

Naga town is a coastal fishing village turned administrative centre, quiet even at its core, the white-painted plaza. A thermal power plant is being built and a jetty constructed, and this activity intrudes upon its tranquillity; somehow, you feel, peace will reassert itself as soon as the trucks and earth-movers roll away.

The valley that curls inland from Naga town is often narrow, but never oppressively so. The name of the first barrio, Naalad, means "surrounded" and one villager added

in explanation "like a pigpen," hardly a poetic description for the neatly terraced hills. In the valley they can grow three crops of corn a year, but on the hills only one. However, they also grow tobacco on the terraces between September and April, and, when the soil is depleted after three seasons, they plant ipil-ipil trees, which have several fine properties. The ipil-ipil tree's roots prevent erosion and form the "anchor" for the terracing. Its leaves, shaped like those of a flamboyant tree, fertilize the soil, and are also used as medicine. And its trunk, cut after five years, provides good firewood.

The village, then, is relatively prosperous. Many of those among the 2400 people of Naalad who don't have land have found jobs in Naga town, or else go in daily to Cebu City. For those who have land there is continuous work during the year — and some parents make regular demands on their children to stay out of school and help with the planting, the harvests, and a dozen other jobs.

Near Pangdan, another 3 kilometres up the valley, there is a broad stretch of lowland and the cash crop is rice rather than tobacco. The average family income is higher than in Naalad, and on the same level (US \$70 to 75 a month in 1974) as in the fourth barrio Balirong. Balirong, the smallest village with a population (in 1975) of only 1200, is an up-and-coming place that recently graduated to barrio status from being a sitio. There are two mines in operation in the hills, and the PTA president has a habit of coming to school meetings in his hard hat. There is a noticeable amount of in-migration, and a young mother newly arrived from Mindanao is not shy of speaking up at a parents' meeting.

In contrast to Balirong's self-confidence, Uling at the head of the valley has had a sobering (even, for some, souring) history of setbacks. It has known prosperity with a large cement works that used coking coal dug out of the nearby hills. But the plant closed down in 1959, its large compound is now overgrown with banana trees, and the coal bunker on the main road is covered in shrubs. Jobs disappeared, and even the electricity vanished, since it ran off the cement works' generator. But the coal deposits



remained a rich asset — enough, it is said, to provide all of Cebu province with energy for 15 years — and coal is suddenly in demand again because of the thermal power station the government is building in Naga. There will soon be electricity along the whole valley, and the men of Uling are back in the mines, pleased with their turn of fortune but also skeptical about how long it will last. Some of this same skepticism was also shown toward Project Impact, as innovations have not always been a success in Uling.

Lutac, the barrio in the middle, is the poorest of them all, in terms of average cash income per family. It is 8 kilometres from Naga, and only a few find work there. It has no mines of its own, although some men ride off on motorbikes to mines up the valley. Its 1500 people are mainly dependent on farming — corn and bananas and some good stands of coconuts. Yet it has an air of stability and community. Little scenes confirm this: the elderly farmer riding his water buffalo up the riverbed to his land in the early morning, the groups gathered round the roadside stores to gossip in the evening. They have known hardship, but not been disheartened, like the people of Uling.

If this section has lingered impressionistically on the apparent differences between the five barrios, it is because there seems to be a close correlation between the characteristic attitude of a particular barrio and its reactions to Project Impact. These socioeconomic factors are important, and so are climatic factors. The river that winds down the valley can cut the villages off from each other, and children from their schools, for hours during the rainy season. These factors deserve more attention than they usually receive at the outset of a research project.

### **INDONESIA — KEBAK AND ALASTUWO**

Solo, an hour away by daily flight from Jakarta, is a town for scholars. It became the home of Central Javanese culture after the Mataram king moved his capital there in 1745. His empire soon collapsed, but Solo survived as a centre for dance and gamelan music, for wayang theatre, and for batik. Its streets carry relatively little motor traffic today, but



Transplanting rice is one of many duties that cut into regular school hours



are full of betjaks and bicycles, for the most part children riding to school. Even its river, Bengawan Solo, the longest in Java, has flowed sedately through history, bearing royal barges, and has now found a place in modern literature — the setting for a famous love song.

As you leave the city and head eastward toward the mountain Tawangmangu (“Sky uncertain,” an appropriate name since the rain there is unpredictable), you pass transport that belongs to a less hastening era; farmers trotting to market in their andong, a four-wheeled pony cart, the bigger gerobak sapi trundling along behind white oxen, and cyclists enjoying the spaciousness of their own roadways. Everything seems neat and ordered, and the very water gushing from the hills is trained to visit and nourish every tiny terrace where a few rice plants stand. There are 25 million people in Central Java; but, perhaps because of the stately pace of life, there is no feeling of crowdedness in the country around Solo.

This same atmosphere prevails in the villages of Kebak and Alastuwo, the site of Proyek Pamong. Yet the young district head or camat, Mr Soenarto, a political science scholar, will say there are striking differences between the two villages. Kebak, although 15 kilometres out of Solo, is close to a main road and is in the process of becoming semiurban. Many of its young people can find jobs in a nearby textile works or as packers in a large factory down the road that processes traditional drugs. As a result, it is losing the closely knit social structure that Alastuwo, 5 kilometres on by dirt road, has preserved.

Alastuwo has a larger population (about 4000 to Kebak’s 2700) and some 240 hectares under crops. The village head, Mathew Soemali, says the soil is “only average” for this fertile plain, but they still take about 8 tons of rice, and more than 10 tons of sugar, off each hectare in a year. Fewer than one family in three owns land in Alastuwo, and there is a problem of unemployment among the out-of-school youth and others. But Mr Soemali, always a positive person, says the young people will learn skills and create jobs in the village. He himself has invested in a piggery, which has



Mathew Soemali, Alastuwo village head, in the piggery that employs out-of-school youth

some 180 pigs, and it gives jobs for five out-of-school youth. He hopes to help the village to set up some other small businesses, like a repair shop for motorbikes and bicycles, and a grain mill.

However, there is little prospect of either village getting electricity for several years, and the only major bit of mechanization is the railway line laid by a private sugar company to carry the cane to its mill. Most other activities are done by hand or foot. The pantile industry in particular requires a lot of footwork: one man stamping the clay soil onto a wooden block for eight hours a day, his workmate adding a curve to the tiles on a sloping board and setting them out to dry in the sun: 400 tiles in a working day, for a wage of one dollar (400 rupiah). The tiles are fired in kilns at night in the village and sold all round Solo. The villagers are proud of this cottage industry, but there must be better ways for them to make a livelihood.

The strong sense of community and the very positive leadership of the local government officials have fashioned the early shape of Proyek Pamong differently from Impact. Although the drive in Naga has been to make changes in the five schools that will in time appeal to the parents, in the Indonesian villages the community has been put, if not first, at least equal with the schools.

In Soenarto's view, "educational development cannot proceed without parallel development in the society as a whole." The project was formally launched from his office, not from one of the schools. In 1976 a big effort was made to enroll out-of-school youth as students, for two days a week, in "learning posts" set up in village houses. This was done after a survey had suggested there was a "potential clientele" of 1450 young men and women. Although the early response was not overwhelming, two teachers were given the job of working full time with some 67 who enrolled and persevered with the course, in the hope that successes with them would draw many more in later years.

Even stronger evidence of the Indonesian concern to integrate social changes into broader community development was provided in March 1976, when BP3K (the Educational Development Office in Jakarta) put one million rupiah (\$2500) into a "social fund" to finance short-term, low-interest loans to villagers, mainly women in landless households who make a living by running a small store or selling food to the field workers. A later section will go into details both of these village social funds and of the learning posts for out-of-school youth and adults.

To make a direct comparison between conditions and attitudes in the Naga barrios and the villages beyond Solo is more difficult than it might seem. Both areas are in a process of social and economic change, and in each area a visitor can glimpse poverty one minute, prosperity the next. However, to risk a generalization, there is a greater feeling of traditionalism and gradualism in Solo, whereas Naga is in a colourful flurry to become modern. It is the difference between an oxcart and a jeepney.



New fences and other village improvements have paralleled the changes in Alastuwo schools

Levels 1 to 3 module writers at Cebu: Rebecca Belleza, Bibiana Condé, and Damiana Latonio



# Components

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## MODULES

Modules are being used, in place of textbooks, in many parts of the world. Most of the early experimentation took place in the United States; but now they are also being tried out in several high schools in Indonesian cities and Dr Albarracin says that a dozen colleges in the Philippines are offering a credit course that involves learning the skills needed for writing them. Nevertheless, Project Impact is probably the first attempt to use them as the basic learning materials in primary schools in Asia.

In the quotation above, Dr Soriano has listed some of the advantages of modules over textbooks. They are not bulky or expensive. They run anything from 32 to 100 pages long, with only a few lines of material on each page, and they are subdivided into “chunks” of learning. A student finds them easy to handle in two senses. They can be completed in two to four hours of work in a student’s own time. As well, they are written in the simplest possible language, and have built-in tests to make sure the student has mastered the particular lesson: a readiness test, to check that the pupil understands the concept and all the key words before starting, and self-tests that he takes after each chunk. Correct answers are provided on following and reverse pages, so that a student has a sense of completeness when he has finished the module. He has achieved the objectives that were set out on its first page.

Modules are to be seen everywhere in the Naga and Solo villages. Stacks of modules, in bookcases made by carpenters in the community, line the walls of the main schoolroom, now renamed the “community learning centre.” They fill the school day for students in Levels 4 to 6, for their seven or eight main subjects have been rewritten in this form, and, as Dr Soriano says, parents pick them up for a

read when their children bring them home. Modules are, in fact, absolutely central to Project Impact.

It is surprising, then, to discover that very little was known by the research teams about modules and the art of module writing before the project started. Rosetta Mante recalls that she saw some programmed learning materials at an Innotech seminar in Saigon in November 1973, and that Dr Darryl Nichols, the Innotech academic adviser introduced her to them. The original six module writers in Cebu then spent three months writing nine experimental modules each, before Michael Nathenson (of the American Institute of Research) came and wrote a sample module on how to plan the frames and sequences and so on. By then it was March 1974, and the Grade 4 pupils were due to start the next school year in June with a full set of modules. So the writers began in earnest, with only three months’ lead time.

There has been a nagging problem of pressure ever since, to keep production of modules ahead of their consumption by the quickest pupils. The writers in Cebu agree that they need deadlines — “we only wish they had not been so close on our heels!” The Solo team had a little longer — until September 1974; but by January they were having to produce modules for both Grades 4 and 5, and have felt the same pressures.

It would have been much better, say the Cebu writers, to have had a full 12 months’ lead time. This would have given

**I am very certain that the modular portion of the project is very successful and the cost is reasonable. One advantage of modules is that they are very easy to handle. Another is that they are easy to revise, and another that the children can take them home to learn with the parents. So, as the children are learning, the parents are also learning. The subject-matter can be updated and selected so that they will also be interesting to the parents.**

**Dr Soriano**

them time for orientation to a novel job, for a reordering of the textbook material into a "continuum" without repetitious matter, and for full tryouts and revisions of their early modules; and it would have given adequate time to provide remediation in reading and comprehension for the children, then in Grade 3, who would be launched into modularized learning the next year.

To pause for a moment on this last point. The decision to start modularized learning at Grade 4 was made on the assumption that pupils at this stage could read and understand well enough (even in a second language) to tackle self-instructional material. But tests at both sites soon proved otherwise. The Solo team found that the Grade 4 students in 1974 understood only 480 out of a possible 1000 "entry" words in Bahasa Indonesia; it took two remediation courses for them to master the other 520. At Naga a test done in February 1974 with students just finishing Grade 3, on reading word lists for that grade in English, showed that 20 percent were nonreaders, 75 percent could recognize words but not understand them, and only 5 percent could with any confidence tackle this second language. Hastily, the research team organized a two-month remediation course with mini-modules during the vacation in April-May.

This problem, of Grade 3 students being unprepared for modularized learning because of lack of comprehension skills, has plagued the project for three years, as each freshly graduating Grade 3 class encounters the same problem of transition from classroom to self-instruction. At Cebu they have produced special "transition modules" to accustom these pupils to the change; in the Solo schools the teachers have eased the Grade 4 students gradually into working on their own over a period of two months. It is a problem that might have been avoided if the teams could have begun the experiment by devising programed teaching materials for Grade 1 and then in subsequent years have followed that particular class up through the grades. But they were not given five or six years for their study. As a result, each year they have had to face some anxious

parents whose children, newly launched on modules in Grade 4, are floundering for a time.

How much of a specialist does a module writer have to be?

In Cebu they originally had the cheerful idea of holding a month-long workshop with 30 students at teacher training college writing one module each; but they soon decided it was no job for amateurs. The age of a writer does not matter, but attitude does: it would be hard for someone who firmly believed that learning required a dominant classroom presence by a teacher to accept the new principles that modules entail. And module writers tend to become better and quicker with practice, rather than lose freshness. At Cebu a module writer is expected to produce on average six modules a month. At Solo they measure their output in "chunks," of which three, four, or five (even occasionally eight) go to make up a module, and they are expected to hand in a chunk a day. Many of the Solo subject specialists do their writing at home in the early mornings, whereas in Cebu the 20 module writers and two editors\* assemble daily in one large room in lines of desks piled high with reference books. To any visitor gazing with surprise at this scene that resembles a factory of scholars, they are quick to say that working together is helpful: they work in pairs on a subject, and during 1976 they began the practice of ending the day's work with a group discussion, for 30 minutes or more, of a book or a government report that was germane to their writing. There can be no doubt of their dedication.

Their task has been not to rewrite the curriculum and change the educational content but to provide an alternative "delivery system" for the normal syllabus. In Indonesia they began writing their modules in accordance with the 1968 curriculum, and had to revise them when the curriculum was

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\*Cebu has had 20 module writers and two editors because its team of eight subject specialists working on Grade 4 to 6 material were joined in mid-1975 by a matching number of writers who had previously been producing similar material called "self learning kits" for the In School-Off School (ISOS) experiment in nearby Talisay. The other four Impact writers are producing programed teaching materials for Grades 1 to 3.

altered in 1975. In the Philippines they followed the curriculum prescribed by the Bureau of Elementary Education and, using the syllabus for the different subjects in Grade 4, they decided they would need to write an average of 50 modules per subject to cover the ground. This meant that a student would be faced with no fewer than 350 modules, because there are seven subjects to be studied: Pilipino, English language, English reading, science, social studies, mathematics, and applied skills.

It was soon clear that even the fastest learner would never complete 350 modules in a school year of only 185 days. So it was decided that the subject specialists would work over the continuum for all three years, from Levels 4 to 6, and delete any unnecessary repetition. There was, it turned out, so much repetition that they were able to cut and compress the material into 30 modules per subject each year; 222 modules in Level 4 (there are 12 extra modules on health) and 240 in Levels 5 and 6 (where an eighth subject, home economics, is added) make a manageable number.

The specialists in social studies probably had the largest task in reorganizing a three-year continuum. The emphasis in the Philippines curriculum had for some years been moving away from simply economics and locational geography and, although integration was ordained in 1970, there was still a scarcity of textbooks that pulled together sociology, political science, civics, history, and anthropology.

However, Mrs Esperanza Rodriguez and her ISOS colleague Mrs Myrna Rosario in three weeks' work compiled a detailed continuum bringing together elements of all these subjects and focusing for the first year (Level 4) on "The Philippines and the Family of Nations," for Level 5 on "Citizens and their Government," and for Level 6 on "Economic Development." In Indonesia the social studies curriculum was also being broadened, and the specialists needed to write their modules around the framework of *Pancasila*, the Five Principles of morality: Belief in God, Love of Humanity, Nationalism, Sovereignty of the People, and Social Justice.

**How does one bring change? How does one make a community into a learning society? I've been pushing several new ideas.**

**One is the Travelling School Theatre. Every Friday afternoon it would be playing in the communities: songs and recitations and, most important, one-act plays in the vernacular. We're encouraging playwriting at normal colleges. We have to use a traditional means in order to bring change.**

**Another scheme is for a Master of Arts degree in agricultural skills. Three-quarters of our elementary school children are malnourished or undernourished; yet it is difficult to get teachers to manage the vegetable gardens, teach agricultural skills and help carry out the Green Revolution of the First Lady. The good agricultural teachers soon get hired away by other government departments or by private business. So we have instituted this M.A. degree course and, do you know, we have had 35 000 applications already. It's a break from the colonial pattern, when nobody wanted such jobs; everyone wanted to be the conqueror.**

**Dr Narciso Albarracin  
Under Secretary for Education  
Government of the Philippines**

How exactly is a module put together in Cebu or Solo?

There is a growing library of scholarly works on the subject of programmed learning, and the teams are well versed in the ideas of Skinner and Crowder, W. James Popham and Donald Bullock, Wilbur Schramm, and Benjamin Bloom. In late 1975, Douglas Ellson, Professor of Psychology at Indiana University, spent 10 weeks visiting the sites and holding workshops in programmed-teaching techniques. So, in the face of this volume of study and practice, a short section here can be only the briefest sketch.

The first set of materials were written along the linear model lines that are usually called "Skinnerian." B. F. Skinner is (to quote from a report of a 1963 workshop of the Ontario Teachers Federation) the "founder of the linear or sequential type of programing that presents material in small discrete statements, followed by questions that are cued to elicit correct responses that are immediately verified. This immediate reinforcement draws the pupil on to the objective of the program." Scholars have argued over the relative

merits of cueing the questions and prompting correct answers, and have worked out compromises with dramatic terms such as “partial prompting” and “fading cues.” But the first real challenge to the Skinnerian approach came when N. A. Crowder began to advocate *branching*, which gives students a choice of answers. Branching was defined by Schramm as “introducing remedial or explanatory loops, or review passages, into a program for learners who need them, while permitting swifter learners to skip the extra practice.”

Toward the end of 1976 the Cebu team started out to write a whole new set — Set B — of modules incorporating the branching passages. But the Solo team, which had experimented with some elements of branching in their early modules, judged that this made for too much complexity and confusion. They had found that 14 out of 22 of the math and science modules they produced in the second trimester of 1975 for Grade 4 were “unworkable” in that very few students achieved a good mark first time, and they blamed this on branching. So they determined to stick to the simpler linear approach, in which everyone is required to go step by step.

Whether constructed on linear or branching principles, most information modules have a common sequence, with three stages. The *initial* stage combines a fair amount of information with some first tests; in the *intermediate* stage the teaching information is reduced in comparison with the tests; and the *last* stage is devoted to evaluation and testing, making sure the material is mastered. In most cases these stages comprise the different “chunks” of a module, and a student takes a self-test after each chunk. There is a tendency among some of the lazier students to cheat and look up the answers (on the next page) before tackling the self-tests. But laziness catches up with them when they finish the module and take the post-test, because this test is written on a separate sheet, with no answers provided.

There are other elements in what Aida Pasigna, the Instructional Methods Expert (IME) at Cebu, calls the “strategy” of a module. It is important to begin with a

readiness test, to make sure the student has the prerequisite skills for the module and, for instance, understands all the words that will be used in it. So a section headed, “Are you ready? Let’s find out” contains exercises with unfamiliar words or fresh ideas.

Even before the readiness test, the objective of the module is clearly set out. “Why is this module important?” it asks and gives the answer: “You will be a better gardener” or “You will use a dictionary to learn the meanings of new words by yourself.”

The module writers are given other general directions. Work out the criteria for the post-test before you start: that may mean writing the post-test first, and then writing everything else to fit the test. Use dialogue and storytelling to lighten the instruction. Plan for illustrations. Keep the language and the sentences as simple as possible. And there is much more to it: the alteration of specific example and general rule, for which the delightful jargon is “*egrul-ruleg*”; the use of link frames and review frames. But enough has been said to show that module writing is indeed an art and a science.

Besides information modules, there are performance modules, mainly in applied skills and home economics (and in arts — drawing and singing — in Solo): How to plant peccay cabbages; How to make a kapok duck (an exercise in cutting and stitching cloth). In these modules, self-tests are hardly possible, and the evaluation is done on a checklist by a member of the family or the community.

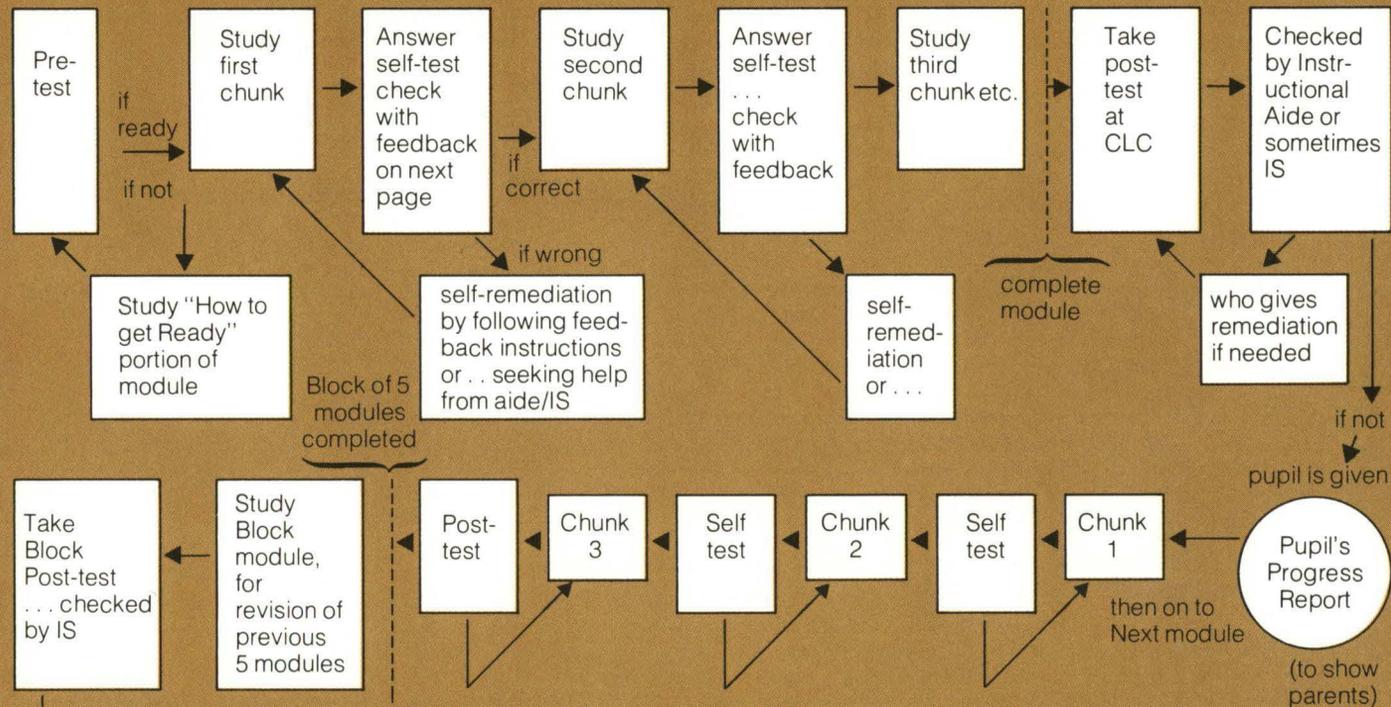
When the writer has handed in the draft module, it has several stages yet to pass before reaching the student. At Cebu it first goes to the instructional methods expert, who checks it for its strategy as well as for clarity of ideas and phrasing; it may have to go back to the writer for revision. Next, the editors check it for grammatical errors and for difficult words, before sending it for typing. Then to the illustrator, who works mainly from the writer’s specifications. Finally to the production unit, for duplicating, collating, and stapling. The covers are in different colours, depending upon the subject, for easy recognition by a student.

Start first 'block' of five modules in any of 7 or 8 subjects

Take Pre-Test with IS to establish readiness

Diagram showing typical pattern of work of a Level 4, 5 or 6 student with self-instructional modules; also showing the points at which an IS (Instructional Supervisor) is involved.

Study out-of-doors at Learning Kiosks, singly, or in peer groups



... and so on, for four more 'blocks' until the year's course (25 ordinary modules + 5 block modules in all) in the particular subject is completed. If the student has completed all the subjects in that Level before the year's end, she/he can move on to the next Level.

In Solo the editing and checking is done by a validation team of three, including an instructional methods adviser based at BP3K who comes to Solo for regular meetings. Participation of an adviser from the education ministry in this work helps to sustain a strong link between the department and the research team.

The Solo team has also a workability test, which is called the 60:60 test. A new module is tried out on a sample cross section of students: slow, average, and quick learners. To be called "workable," a module has to be clear enough for 60 percent of the sample to score a 60 percent mark on the post-test at first try.

Another contribution of the Solo team has been to list no fewer than 25 different forms of modules, and define their main features. Each form is given a different symbol, so that a student glancing at the cover knows what kind of module it is. The most frequently in use are the "goat" modules, consisting of information plus pictures. Other common ones are "ant" modules, involving practice of some skill; a "mousedeer" module based on storytelling; a "chicken" module that reviews and picks over earlier material; and another that entails identifying and filling in maps, which has as its symbol the figure of Gatutkaca, a legendary giant who can fly and have a bird's-eye view of the world. The Indonesian team tries to vary the module forms, having found in the early days that they tended to produce mostly "goat" modules, which depended heavily on memorizing and often did not stimulate much thought.

In addition to the set of modules in each subject for Levels 4 to 6, there are "block modules" that consolidate the work done. They are organized so that one block module follows after every five ordinary modules. A full set of modules, therefore, usually consists of 25 ordinary and 5 block modules. The block module tests that a student takes are important ones, since that is the point at which the student can show mastery of a considerable amount of material. These are the only tests (as will be explained more fully later) that are normally checked by the IS.

Both teams have had problems in keeping their production of modules ahead of their consumption by the quicker students. Sometimes the bottleneck has been with illustrators who cannot find photographs or artifacts on which to base accurate drawings. Sometimes there were power cuts (Cebu had several "brownouts") that hindered printing. And then module writers were absent because of illness, or to have a baby; any new writer coming on staff took time to get into stride. A tight schedule gives little margin for these unpredictable happenings.

The quantitative supply of modules has been less of a problem. In the early days Cebu was turning out a full set of modules for every student. They were an experimental series that would be soon revised: producing a full set per student allowed the pupils the experience of keeping books. Later, it was worked out that the students read through them at such different speeds that one module to every six students was sufficient. In the Indonesian schools the average is one module to every four or five students. This, of course, results in large cost-savings: but the system depends upon a careful check being kept of which student has which modules. In the Naga schools this is done by each student signing a weekly contract: "I agree to complete the following modules on the dates indicated after each . . ."

Throughout this section we have been referring to modules only in terms of the self-instructional booklets (SIM) that are worked on by students in Levels 4 to 6. But there are also the programmed teaching materials for Grades (or Levels) 1 to 3 that are produced by module writers. As a consequence, they are also called "modules" (PTM), although the programmed teachers, rather than the younger students, handle them.

Programed teaching has been defined in this context as "Instruction in which the teacher strictly follows a prearranged plan or program, which presents not only what is to be taught, but also specific procedures for testing it." Under the original plan, the "programed teachers" are students in Levels 4 to 6 who give part of their time to doing this work with the junior grades: instructing them in reading and

writing, testing them in comprehension and simple mathematics, and using flash cards and flip charts as well as blackboards and books.

In the Naga schools they have been teaching the decoding of Cebuano, reading in Pilipino and English, print and cursive writing, as well as mathematics. The IS works with Grades 2 and 3 in reading and language, and in sounding out English words, because the programed teacher cannot be expected to have enough mastery of a foreign language for this. But for the rest, older pupils working in relays for one hour each day have been in charge of all instruction of the junior grades for their daily 4 or 5 hours at school, drawing from a teacher's guide or module. It is a large responsibility for an 11-year-old.

In Solo the plan for the lower grades is slightly different. The programed teaching subjects are reading and writing in Javanese and Indonesian, and mathematics for Grade 1; and science is added in Grade 2. Other subjects will be taught in the traditional classroom way. This means that each school in Indonesia will need one IS specifically to look after the teaching in the lower grades, keeping an eye as well on the programed teachers.

Inevitably, many threads are left hanging at the end of a section dealing with modules. Later sections, I hope, will tie them in place.

### **COMMUNITY LEARNING CENTRES**

The Community Learning Centre (CLC) "is aptly called the heart of the system." "It is essentially a service facility using a wide variety of instructional media. . . Its service and activities are not confined in the building, but extend much beyond the walls of the structure". "The Learning Centre provides varied opportunities for promoting modern education with newer media and technology. . ."

It is worthwhile, if a little sobering, to turn back to the ideas and phrases in a 120-page volume that was produced in Cebu as the record of a seminar in December 1974 on "Community Learning Centre for Low Cost and Quality Primary Education." Some of the ideas were tried, and did

Signing up for the next work contract: Minie Abangan



not work. Some have yet to be tried. Others have been modified. But what has been achieved in Naga is certainly a transformation of the old schoolhouse, even if it is less than the vision of some of the seminar speakers. The seminar, in any case, set the general direction for change from classrooms to CLCs.

Dr Minda Sutaria, Chief of the Elementary Education Division in the Philippine government's Bureau of Public Schools, launched the three-day seminar into very specific discussion of the changes needed. But it was certainly not simply a discussion of furniture and equipment. She began her paper with a 300-word quotation from *The Underachieving School* by John Holt, which contained the sentences: "In short, I feel that children would learn to read better and more

easily if they were not taught. I think children learn better when they learn what they want to learn when they want to learn it and how they want to learn it, learning for their own curiosity and not at somebody's order. . . ."

There has to be open space. In the Philippines many of the school buildings are made up of standard-size classrooms, 6 metres by 7 metres, that are known as "Marcos-type," having been built during the early years of his presidency with Japanese war reparations funds. If the higher rows of cement blocks are removed from the outside walls, the ventilation and lighting is much improved; and, if the dividing walls between three of these classrooms are also taken down, enough space is created for the main activities of the CLC.

As Dr Sutaria listed them, there were four components to a CLC: a multipurpose area, a library and materials area, a display area, and a testing area. At the close of the seminar, the Cebu/Naga research team looked over all the recommendations and added a medical corner and an IS corner to the general purpose area. They also planned for a separate arts and recreation area, and an applied skills area, to be housed in another Marcos-type building, where possible. A playground, and a garden space both for science experiments and elementary agriculture, completed the needs on their list.

In the year between the seminar and the time when renovations were made to the Naga schools, these plans were slightly modified. It was felt they needed some separate indoor space for the programed teaching of Grades 1 to 3; so the other building was put to that purpose, and corners allotted in the display area for applied skills and also arts and music. In March–April 1976 carpenters and other workers in the community moved in to make the important changes.

The first change that strikes the visitor's eye (and which was thought of after the seminar) is the line of "learning kiosks" in the school grounds. They are of different designs, because puroks (groups of households inside a barrio) cooperated to build one each for a CLC; but most of them

Lutac school building before structural changes were made



Members of the community built these learning kiosks at Lutac



resemble 10-foot-high mushrooms with thatch roofs. Under them the junior grades have some of their programed teaching, while Levels 4 to 6 can gather in groups for peer learning or self-instruction. These kiosks both relieve pressure on the main general purpose building area, spreading the volume of sound throughout the grounds, and also add a freshness and liveliness to activities because the students move freely to and from them. One Filipino visitor from Manila expressed pleasure that the kiosks had been "built in the vernacular" and that the schools themselves had not been replaced with "plush new buildings."

They certainly have not. The changes in the buildings were inexpensively made. Local carpenters provided the main additions, the rows of bookshelves that carry the hundreds of modules, and the waist-high partition that demarcates an area where the IS can have a desk and do some individual tutoring. Science equipment is improvised out of old bottles. An early excitement with tape recorders for language training has subsided: there were problems of quality and maintenance, and now each CLC keeps the three they have mainly for the IS to check as a model for pronunciation before sounding out English words.

Naturally enough, the various areas in the CLC tend to merge into each other. The testing area, a few rows of low desks, is surrounded by the library of modules. These are organized into bays by subjects and have numbered tags

**Some teachers are reluctant to see changes come. That is a natural reaction. Many of the teachers would like to follow the path of least resistance. They want to do things as they used to do them during the last so many years. The usual cause for the failure of innovation in a school is not involving the teachers thoroughly in knowing why an innovation is being introduced and the role they should play for this innovation to succeed.**

**What is very important is the training of, first, the superintendents and then the officials like the district supervisors, division supervisors, the principals and the head teachers as well as teachers. They should all be involved in some kind of in-service education, for them to grasp the significance of all of these innovations.**

protruding so that a student can at once find the next module that is needed. The display area has posters as well as some work done by students, such as a map of the community and its resources. Some of its space is also given over to inspirational sayings, for which Filipinos have a great predilection. All the schools carry, in large print, the admonition of Dr Albarracin: "The Core of the Curriculum is WORK!" Naalad CLC has added the blunt words of Benjamin Franklin: "Lose no time; be employed in something useful; cut off all unnecessary actions."

There is a big job for someone to keep the CLC orderly; to keep track of all the modules that should be returned, and see they go back in place; to look after all the flip charts and flash cards and chalk that are needed daily by the programed teachers; to keep the weekly contracts and record the progress of each student; to check and mark the post-tests done as each module is completed; and half a dozen other jobs that don't require a trained teacher to do, but need a neat and competent person — otherwise the system would collapse within days.

In the Naga schools these jobs have been given to someone with the title of "instructional aide." The five aides do not fit a common pattern: Lucita at Naalad is a recent primary school graduate; others in the valley are middle-aged and come to the job with the experience of having run a household. What they have in common is a subdued passion for orderliness and for getting things done quickly. They lift a weight of clerical and administrative work off the shoulders of an IS.

In Indonesia they are arranging things differently. Instead of an instructional aide, each school has a registrar, whose job includes responsibility for safeguarding the modules and for keeping track of the students' achievements; these are marked on wall charts, which are intended as incentives for those who are lagging to catch up. The registrar also keeps track of attendance but does not check the post-tests. The post-tests (a visitor may be surprised to find) are corrected and marked inside a peer group, being exchanged between each other; apparently the peer-group members mark each

other's tests more sharply and accurately than teachers have done. Not having to receive and mark post-tests (beyond occasionally doing a spot sample) leaves the registrar in Solo schools much freer during the middle part of the day than the instructional aide is in Naga; so the registrars tend to move round the peer groups, acting like an additional IS. Whether they will continue this way is not certain.

The staff in the Solo schools had not, at the start of 1977, taken many steps to change the physical lay out of their schools. True, one school in Kebak and one in Alastuwo had been equipped with mushroom-like kiosks. The other Kebak school has blackboards hung along an outside wall, where the younger grades sit on benches for programmed teaching. There are charts on walls to record the achievements of students, and in the newer school in Alastuwo there is an open-floor plan, with bookshelves of modules down the middle. But when the peer groups work together, they mostly sit on the covered walkway outside the classrooms or else at desks inside. The Solo team, perhaps because of concern to achieve parallel development in the community, has not been hurrying to make strikingly visible changes in the schools themselves.

## **INSTRUCTIONAL SUPERVISORS**

The classrooms physically disappeared as the traditional school building was turned into a CLC. In parallel, but more importantly, a human change took place as the classroom teacher became an instructional supervisor. If this section on the IS is comparatively brief, it is because references to the role of an IS pervade the entire booklet. The IS is central to the whole learning system and, like a central piece in a jigsaw puzzle, touches every surrounding piece. This section, then, attempts only to sketch the evolving role of an IS. Later sections will touch on the relationship of an IS with the other parts, or partners, in the system.

The simile of a jigsaw puzzle cannot be pushed too far, however, because the shapes of various jobs in the Impact system have been changing year by year as the roles of IS,

instructional aides or registrars, the rural education coordinator, and even the tutors have been redefined in relation to each other. In broad terms, an early trend was to place more and more work in the hands of an IS, and to make the responsibilities of an IS encompass almost everything connected with a CLC. But by 1976 it was clear that this meant loading too much burden onto two (in some cases, three) persons at each CLC, and both in Naga and Solo the job was redefined and somewhat simplified, and several responsibilities devolved onto other people. Nevertheless, it will be clear from the following list that the job of an IS is seen both in Naga and Solo as being broader than the traditional tasks of a teacher.

Here is a list of 12 functions that were delineated for an IS by the Impact team in its 1976–77 management plan.

(1) *Record keeping.* Mainly monthly report cards on each pupil's progress, and the number of modules completed; but also other lists such as a record of high school tutors reporting to the CLC. In all, there are some 18 different reports to be regularly completed.

(2) *Remediation activities.* Tutoring the slow learners, checking whether a student is ready to take a particular post-test and generally diagnosing a pupil's weaknesses.

(3) *Small group enrichment sessions.* Deciding, on the basis of advice from tutors, what sort of activities are needed, and conducting such sessions.

(4) *Monitoring and managing a pupil's learning activities.* A dozen jobs in this category, ranging from reading the newly produced modules to evaluating the results of post-tests. For the IS who is involved with Levels 1 to 3, it includes training and monitoring the programmed teachers, and conducting programmed lessons in language and reading for Levels 2 and 3.

(5) *Enlisting the cooperation of parents and community.* Talking with parents about their children's progress, finding out about their homework and their absences, and keeping in touch with the PTA and barrio officials.

(6) *Maintaining close relations with school officials,* including the district supervisor.

(7) *Providing feedback* on the effectiveness of the instructional materials to the module writers and other research staff.

(8) *Maintaining discipline* at the CLC.

(9) *Supervising the "green revolution"* activities in the CLC garden plots.

(10) *Maintaining cleanliness* within the CLC.

(11) *Keeping an inventory* of all instructional material delivered to the CLC.

(12) *Keeping custody* of all the property there.

A study of the weekly reports of various ISs in Naga in mid-1976 showed that they spent most of their time on remediation work, on monitoring the students' own learning activities, and on record keeping. Remediation may very well consist simply of helping a student who has made only one or two mistakes in a module or block module post-test. The mastery-learning theory is applied by chunks, so that if the student scored a mark between 50 and 80 percent on a module, he would be referred to a tutor for remediation on the particular chunk he failed to master; if he scored below 50 percent, his tutor would help him study the whole module again. If a student was a slow learner to the extent that he was lagging noticeably behind in the number of modules completed, the IS would give him special attention and time.

The jobs on the list that seem to have been given less priority — or, at least, allotted less time — are keeping in touch with parents and the community, and providing feedback to the module writers. Somewhere in the middle the ISs have managed to spend some time conducting enrichment sessions for small groups, and in half-a-dozen activities that have been adapted from Bechtol's *Individualizing Instruction and Keeping your Sanity* (LaFollet Publishing Co., Chicago, 1973): small groups in brainstorming, group tasks, workshops, inquiries, problem studies, Socratic discussions, and role playing.

The IS could clearly never do all these jobs if she could not rely on the instructional aide, on the one hand, to keep all the basic records and be generally responsible for the modules and other materials around the CLC, and on the

tutors, on the other hand, to do the main remediation work with the students. Later in this section we will discuss how the rural education coordinator dovetails his work with the community into that done by the IS.

At Solo the research team has gone through a similar exercise each year of writing a job description for an IS. By 1976 the list had grown to awesome proportions, with 31 different functions set down, and the team came to admit that the jobs as listed were "well beyond the capability" of any IS candidate then in the field — or likely to be. (The Solo team had not by 1977 appointed anyone definitively as an IS, but called them "candidates" or "potential IS," because the team felt the job description had first to be refined, and a training program launched, before anyone could qualify for the title. But, for simplicity's sake, let me refer to them here as plain IS.)

For 1977 the list was winnowed down to 10 functions, partly on the basis of what the team felt was essential and partly on the selection made by the IS himself sorting out what was feasible to do. These 10 functions mainly fit inside three of the categories on the Naga list: monitoring and remediation activities, and cooperation with parents. One other function, of "stimulating pupils' creativity," might be aligned with Naga's enrichment sessions although it has not yet been elaborated. What an IS in Solo is not being asked to do is keep any files or records, or be responsible for the modules and other property. These jobs are handled by the registrar, who also administers the "school bank" or social fund.

The Solo team members made a comparative analysis of the qualifications needed in a traditional teacher and an IS. For a traditional teacher they listed four main qualifications: managerial skills, teaching skills, administrative skills, and some social worker expertise. For an IS their list was broader: a knowledge of modular learning, a managerial skill to handle the interlinked functions of the system, a special skill in carrying out a supervisor's role, a librarian's skill to handle the modules, and the sensitivity of a social worker in approaching a community. The Solo team believes that the

training of ISs in their new role has been “one of the most neglected areas” of the project and its research director, Boorham Respati, suggests that the training for an IS should include all that a teacher now receives, plus additional training in social worker expertise, guidance counseling, and librarian’s work.

At Naga they would probably not agree that the training of ISs has been neglected. At any rate, an intensive five-week course was held in Cebu in April–May 1976. A nine-page summary of the syllabus for that course is printed in their second annual report. Suffice it to say here that the course went deeply into the theory and techniques of individualized instruction, into the theory of mastery learning, and into the mechanics of good communications with parents. The trainees also had practice in enrichment programs and in supervising programmed teachers.

Neither team would claim that it had yet finally defined the functions of an IS, or the precise training needed for the job, although such a goal is not far off. Both teams would agree that the success of an Impact system depends overwhelmingly upon how well former teachers adapt to their new IS role. In early 1977, there were most encouraging signs — particularly in Naga, where the process has gone faster than in Solo — that the ISs were settling well in their new role . . . and positively enjoying the challenge.

### **RURAL EDUCATION COORDINATOR**

The two teams use the title of Rural Education Coordinator (REC) to identify the person who is the principal daily link between the research team, the CLCs, and the community.

The role of the REC, according to the 1976–77 management plan of the Impact team, comprises 10 functions, most of which have to do with the running of the CLCs: overseeing the physical arrangements there, being responsible for the distribution of modules and other equipment, helping the ISs in the orientation of tutors and programmed teachers, and being in touch with school supervisors about general CLC activities. The jobs the REC

### ***On training ISs:***

**I think this is encouraging if they have a different system of training, because the job of supervisors is quite different from the job of an ordinary teacher. Whereas in school they have a captive audience, as the students are already there, in Proyek Pamong they ought to seek out students who are not in school. They don’t deal with a captive audience. It means, then, that they must be strong in social work, but I would rather use the words “social engineering” because the children would be persuaded better if the community leaders, the parents, and others would also endorse the objective of the supervisors and tutors. These tutors and supervisors ought to make use not only of the present school buildings. They must use resources that are not always for the taking, so to speak. So they need a different kind of leadership quality.**

**Dr Santoso**

**Director-General of the Bureau  
of Primary & Secondary Education,  
Government of Indonesia.**

is supposed to do in the community include soliciting equipment and facilities for the CLC from community resources as well as working alongside ISs in relations with parents: information meetings for new parents, following up if students have been absent for long periods, and talking to parents about their children’s problems and general needs.

During 1976, for reasons of ill health, the Naga REC had to give up traveling daily up and down the valley, and her job was split up among other people. The five school principals, who were not until then part of the Impact team so much as a residual part of the school system, were asked to take on the job in their own barrios of visiting the homes of parents who, it was thought, needed to be reassured about aspects of the project or who had anxieties over their children. This job was given greater importance after the survey of parents in June–August 1976 showed confusion, if not opposition, among many of those questioned. The other jobs of the REC were taken over by the education analyst, Mr Leandro Sanchez, methods expert, whose principal job now is to supervise the ISs and work with them in tackling any new problems they encounter. On a long-term basis, the Naga team foresees the disappearance of the education analyst

position, and the assumption of the leadership functions of the REC by former school principals in a redefined role.

The role of the REC in Solo is briefly stated: to secure the support of district authorities and the village heads for CLC activities, and to encourage community participation in the project. The district coordinator, Dr Widodo, has two village coordinators working in Kebak and Alastuwo, encouraging parents in their role as monitors, recruiting skilled craftsmen, and promoting villagers' participation in the social funds.

Besides working with the village and district authorities, Dr Widodo has certainly found himself being a link between the four schools and the research team based in Solo. But, although he probably travels more around the district than any other member of the team, all the subject specialists plan to visit the schools regularly to get feedback on their work. Their pattern of writing either at night or in the early mornings allows them time for visits in midmorning, which are not possible for the Cebu team of module writers. The Cebu writers used to make regular weekly visits to Naga district to consult with ISs and learn at first hand the reactions of students to particular modules; but in 1976 the pressure on module writers to produce their material on a tight schedule meant they had to abandon this practice of a weekly field visit. Again, in the early months the Naga ISs used to come in to Cebu State College, where the module writers worked. These visits were important in making sure they felt part of the research team, with the initiative to shape the experiment. By 1976 these visits had served their purpose, and ended.

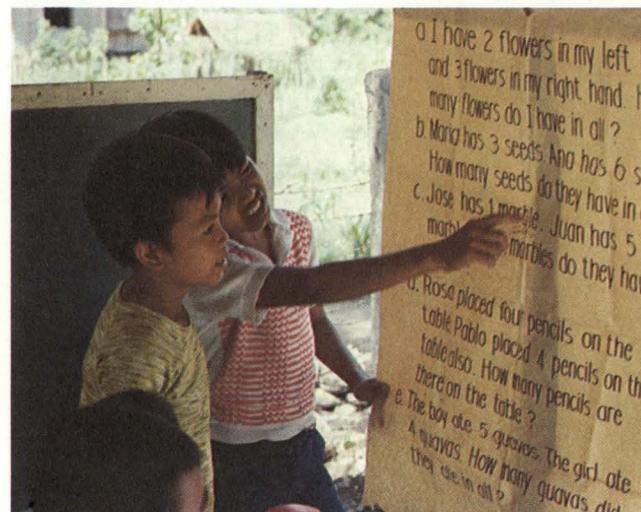
However, Rosetta Mante and Mr Sanchez have been holding meetings every Friday with the five school principals and 10 ISs to discuss the latest problems and achievements. These meetings are held in rotation in the different CLCs, partly to disseminate ideas for changes that the CLC, which happens to be host that week, may have pioneered. Through these meetings, the Cebu/Naga team hopes both to spread ideas along the valley and carry them back to the group of writers.

## PEER TUTORS, HIGH SCHOOL TUTORS, AND PROGRAMED TEACHERS

The reason for dealing with these three groups in one section is because their jobs are all carried out at the CLC. Indeed, in many cases, a peer tutor is also a programed teacher. The home tutors belong in the next section, which deals with learning outside the CLC.

There is more emphasis in Solo than in Naga on peer tutors among Level 4 to 6 students. This is because high school students come to tutor the Naga pupils at the CLC, but don't in Solo. On the other hand, the Solo schools are making a big effort to recruit high school students as home tutors. In Indonesia primary school students are out of school by 1 p.m. (in the Philippines they may stay until 4 or 5 p.m.); so they spend half the daylight hours at home, and home tutors are therefore all the more important.

The job of a *peer tutor* in Indonesian villages of Kebak and Alastuwo is to lead a group of three to five students in



Peer group learning at Naalad

... and programed teaching at Uling . . .



Bekre  
Gumagamit  
Maayos  
Palagi  
Balang

Nasistiplyo  
Malinis  
Binti  
Niyo  
ESTER  
Malinis  
Magasipilyo  
Nilitinis  
Malinis  
Binti  
Umaga  
Mukha  
SINUSOLAY  
Turing

Siyo  
Paa  
Maayos  
Niyo  
Niyang  
Balang  
ESTER  
kamay  
gumagamit  
Buhok  
Tinutuyo  
Niyang  
ESTER  
Sinasuklay  
Palagi  
Lulig  
Balang

Balang  
Paa  
Sinasuklay  
Nilitinis  
Sabon  
Basahan  
Niyo  
Magasipilyo  
Malinis  
Binti  
Niyo  
ESTER  
Malinis  
N

their module work at the CLC. The tutor sits in the middle of the group, or faces the others helping them along. A special task of the tutor is to double-check the post-test results, which have been corrected and marked inside the group by exchanging papers. In the Philippines there is a greater tendency to talk of peer learning, and of having each member of a group or "family" take turns in leading a discussion or in asking and answering questions.

An issue that has not been resolved in the Naga schools is whether the groups, at whatever level from 1 to 6, should be organized by links of friendship or by speed of learning. Sometimes, of course, there is no difference: the brighter students form their own group. Generally, the feeling is that peer groups should be organized according to speed of learning, in accordance with the principle of self-pacing. This can mean that the groups need to be reorganized, when a student has forged ahead of (or else fallen behind) his original group. If they are organized in this way, it means that the tutors and ISs will spend most of their time among the slower groups.

There are three high schools in the Naga district that can provide *high school tutors* during daytime to the five barrio schools. Two of them, at Pangdan and Balirong, are a few yards away from the Impact schools, whereas Naga Provincial High is 2 kilometres away from Naalad. There is no difficulty, therefore, in getting tutors. A monthly roster has been drawn up of high school students living in each of the five villages, and two of these students report as tutors to each school for one day a month. The incentives offered are credits toward the quota of activities that high school students are obliged to do under the Youth Civic Action Program. But some, at least, do the job for its own sake: they say they enjoy it because the students are "encouraged to learn."

The high school tutors tend to concentrate on the Level 4 students, because that is the level at which remediation and extra encouragement has been most necessary. Their job is to help students who ask for help, having found they have done poorly on the self-test after a particular chunk, or

The IS stays in background as Kebak programmed teachers work with groups



perhaps a module post-test. It is not their job to conduct a miniclass through a module (though there may be a temptation to do so), but rather to give an encouraging push to someone's self-learning processes. Nor do they have the job of correcting post-tests, for these are done in Naga by instructional aides; but, if they find particular students having special difficulties, they are expected to report this to the IS.

Now we come to the group with which both the Solo and Cebu teams have had real difficulties: the *programed teachers*. In the early years much importance was placed on their being successful, and so far this success is more of a hope than a reality.

The programed teachers in the Philippines have been drawn from volunteers among Levels 4 to 6, and their job is to teach reading in Cebuano to groups of students in Level 1, reading in Pilipino and English in Levels 2 and 3, as well as writing and basic numeracy. The oldest students, those in Level 6, have been given what is seen as the hardest job, teaching the newcomers in Level 1. Then, because it is thought awkward to have programed teachers working with the next age-group to themselves, Level 4 students teach children in Level 2, and Level 5 teach those in Level 3. In Indonesia the system is similar, although there has been some hesitancy in asking Level 6 students to take on programed teaching responsibilities (especially in the last trimester) because of the importance of their doing well in their own studies for the primary graduation examination.

That is the crux of the problem with programed teachers: the job takes up a large amount of time, which they may well prefer to devote to their own studies. In the Indonesian schools they are teaching for the first 90 minutes in the day; in the Philippines they will teach for at least an hour in the mornings, and they are also expected to spend up to an hour in the late afternoons with the IS while she practices them on the material they are to use the next day. (The Indonesian schools have fewer such sessions.) In all, therefore, it adds two hours to their working day — or, put another way round, takes two hours away from their studying time.

Some results are predictable. In the Solo schools the average gap between the fastest and slowest learners in Level 5 is no more than 15 chunks, or about 3 modules, because they work mainly in peer groups, and also the brighter pupils' own studies have been slowed down by teaching duties. In Naga there is difficulty in enlisting enough regular programed teachers. About 16 to 20 of them are needed in each CLC, and in most cases the IS can only count on 10 or 12. There is even a suggestion that some students in Levels 4 to 6 go more slowly than they need in completing their modules, so as not to be marked out as "a bright one" and be put under pressure to volunteer as a programed teacher. If that is the case, the whole system is being damaged.

Why should it be the job of only the quicker learners to work as programed teachers? At both sites the view is sometimes expressed that a slower learner in Levels 4 to 6 can make a good programed teacher: it is more a matter of having a little self-confidence, and a good deal of patience, than a particularly lively mind. In Alastuwo I was told that the slower learners among Levels 4 and 5 were, in fact, eager to become programed teachers because they would then not feel inferior. The quicker student teachers sometimes took short cuts with the material, because they decided that the lower grades could get through it at greater speed than the module-writers had set. This the slower learners would not do, it was suggested. If that is indeed the case, a solution may be to recruit more slower learners as programed teachers, but on a voluntary basis.

There still remains a question of positive incentives to ensure that programed teachers do their work regularly. The ISs in Naga have been in the habit of handing out incentive cards that can be exchanged at the annual Impact Festival in March for such goods as candy and clothing. Late in 1976 the idea was floated of organizing Saturday trips, perhaps once a month, for the outstanding programed teachers. The bus trip might be to Cebu City or elsewhere, with all costs paid, and be educational as well as fun.

Another possible solution that is being considered during

Josefina Bolo checks comprehension by making pupil point out word just sounded



the project's second phase is to employ primary school graduates, to strengthen the ranks of tutors and programed teachers. Alongside them may be used professional teachers (ones who have not been retrained as ISs) to work with the first and second levels and ensure a solid grounding in the basic skills. It may also be wise for the ISs to play a larger role in teaching the basic skills of reading and writing to the newcomers in Levels 1 and 2, to make sure they have a firm grounding when in Level 3 they begin to make the transition to modularized learning. In doing so, the ISs will be working alongside the young programed teachers who have proved their worth.

Having expressed or reflected these anxieties about programed teachers, it is only fair to end the section on a more positive note. That is not difficult to do for anyone who has visited, say, Kebak or Naalad in the early mornings.

As you approach Kebak III school, past the bamboo trees, you see a line of small girls with feet dangling from a bench, gazing intently at the blackboard hung against a wall and at the word "sepeda" on it, while a Grade 5 student holds up a textbook and takes them through a story about a bicycle. A picture of seriousness and concentration.

Over at Naalad, at the far end of the grounds on a raised platform with one sheltering wall, sit maybe 15 little boys and girls (she always seems to take on more than her share!) while Josefina Bolo practices them in identifying words on her flip chart:

"Good morning, sun.

Good morning, sky.

Good morning, little plants that grow. . ."

A small girl is asked up to point out "sun." She stands on tiptoe, both arms stretched up to embrace the word. "Very good," says Josefina. Smiles all round.

## HOME TUTORS

From the outset, the Solo team has put emphasis on the role of *home tutors* because Indonesian primary schoolchildren spend only half their day at school and have more time

to study at home. In the Philippines a child will usually come home in late afternoon, leaving little time before darkness.

By the end of 1974, while the three schools in Malangaten and Banjarharjo were still part of the Solo project, no fewer than 60 home tutors had been given some training to work with 180 Grade 4 students. Most of them — 37 of the 60, to be precise — were themselves students in secondary or vocational secondary schools, and 44 of them were boys. Some lessons were learned from the experience of that first year, and in recruiting tutors for 1975 for the new Grade 4 classes, the team did their utmost to enlist elder brothers and sisters. It was found that a home tutor performed better at home: neighbours were not as good. For those pupils who did not have an elder brother or sister, the team tried to attach each of them to one classmate who had. They managed to recruit 129 tutors for 209 students, and 76 of these tutors were elder brothers or sisters. They were given a three-day training course and told that their main work was to help the brighter students into the next chunk or module, while sorting out the problems that the slower learners might have had with the morning's work. They were also given a job that they did not appreciate: to administer and correct some of the module post-tests.

In August 1975 the Solo team did a survey by questionnaire of 79 tutors, as well as many of their pupils and 16 teachers, to see how well everyone thought the tutorial system was working. The results made the Solo team think deeply. About one-third of the tutors (mainly, it seems, the ones still in high school) said they lacked time to help their pupils. The same proportion, and maybe the same tutors, said they thought giving and correcting and grading the module tests was time-consuming. Yet another third said they thought the modules were too easy, and their pupils did not need their help; and one-fifth (presumably a different group) felt they themselves had not got a sufficiently strong educational background to be a tutor. Altogether, it was not a very encouraging survey.

However, the Solo team members persevered. They noted that some tutors were being asked to look after four or

five pupils and had complained of the burden of supervision. In 1976, when the project had narrowed to the four schools in Kebak and Alastuwo, they had 191 home tutors on the rolls for 288 pupils in Levels 4 to 6. And they simplified the tutor's job to remediation work and administering the module tests. In the survey, more than 90 percent of the tutors said they expected some reward in the form of vocational training (tailoring, motorcycle servicing, typing, or agricultural training were most commonly cited), and an even greater number thought their tutoring activities would be improved by being given sports equipment! The reaction of the research team has been that it is wise to consider some system of "rewards," but there could be little hope of enlisting home tutors on a permanent basis unless enough motivation could be built in the community to become "a learning society" that embraced everyone.

I asked an IS in Alastuwo, Mr Suparno, what he found hardest in his job. Organizing the 50 home tutors attached to his students, he replied; they were reluctant to come to any meetings he might call. However, they worked well enough if he managed to catch up with them around the village and encourage them, and he was convinced they were an important part of the whole program.

## **PARENTS**

At both sites the active involvement of parents has been considered one of the cornerstones of the project. Their support was needed at the outset, if the project was to be launched at all: hence the first information meetings. But this could not be a one-shot campaign, in which parents nodded their heads once and retreated passively into the background. They had to be consulted continuously; any worries they expressed needed to be cleared up; and their active help needed to be enlisted both in encouraging and monitoring their children's work at home, and in contributing ideas and labour to the CLC.

How has this worked out? Reasonably well, is probably the fairest answer, considering the changes that the parents were being asked to support. But there have been problems.

The Solo team surveyed 32 parents by interview in August 1975 on their job as monitors, and on their hopes for their children. Only five of them said they had too little time, but two-thirds said they had too little educational knowledge for the job. One encouraging point was that only four or five thought either that their children did not want to go to school or that school studies were taking their children away too much from daily work in the fields or at home. Most of the parents wanted the schools to provide more vocational training, particularly in carpentry and tailoring.

What has worried the Solo team members is that many parents have taken a long time to realize that their role is no longer a passive one, as in the traditional system. This change of attitude cannot come overnight, they add. Meanwhile, they see promising signs in the way parents have made arrangements for home tutors to do their work, and have visited the schools to pick up reports and discuss their children's work with the teachers. As for information meetings, in the Indonesian style these are incorporated into the regular village meetings. Proyek Pamong is raised as one item on the agenda of the village meeting, to emphasize that it is a joint effort in educational and community development.

In the Philippines a visitor gains the impression that parents have traditionally been more actively involved in school activities. Cebu island, for instance, has a provincial federation of Parent-Teacher Association Presidents. The PTA president is an important figure in the barrio; and, when Project Impact was launched, he (or she) was at once enlisted as a member of the local steering committee.

On the whole, relations with parents have run smoothly. There was, however, a period in mid-1976 when the confidence of parents in the project was disturbed by a radio broadcast full of criticism. The critic had been one of the early module writers, who had left the project in an angry mood and was now an assistant superintendent of schools. His position, and the authority given to anything heard over radio in rural areas, impressed many listeners.

The Impact staff reacted by organizing a questionnaire

survey of all the parents in the five barrios. Some 587 heads of household were to be asked seven questions, and the analysis that was made in August 1976 covered the answers of 447 of them. (The other 140 were counted out because they had only answered one question). It turned out that 36 percent of the parents said they did not approve of the project, whereas 61 percent positively did. The opposition was most notable in Naalad (44 percent) and Uling (71 percent).

It was a survey that would dispel any complacency from a research team. Explanations could be found. Uling (as explained earlier) is a barrio with a history of setbacks and a skeptical attitude toward innovations. The negative impression left by the assistant superintendent's broadcast was still fresh. Still, nobody was shrugging off these findings.

Analysis of the answers to other questions softened the blow of the first response. Many of those who said they disapproved of Impact went on to list benefits from it: their children had learnt to read well, and to study by themselves. They had voiced fears that their children would not learn so much if taught by nonprofessional teachers, and would not finish primary school in six years if they had to master each module; but these were unsubstantiated fears. Most of those who had disapproved apparently did so for a reason connected more with themselves than with their children: they did not have time to carry out their own role in the project, because they were busy with their survival needs. And only one in seven said they would not be willing to come to meetings at the learning centre when the IS called them, although one-quarter doubted if they would have time.

There was a further ripple of opposition in September 1976, when a petition filed with the provincial federation of PTA presidents, calling (among other things) for the discontinuance of Project Impact, was heard by the Division Superintendent of Schools for Cebu island at a meeting of the PTA federation. The case for discontinuance was put by the same assistant superintendent and one federation member, and focused on arguments that the Impact system, being avowedly low-cost, was degrading to Filipinos and



Housewife by day, student in the evenings: Cristina Canonigo.

that to aim for a student:teacher ratio of 200 to 1 contradicted all established views that the ideal ratio was 25 to 1. There were also allegations that the research staff were "doctoring" records to make the experiment appear a success, and had burnt test papers to destroy evidence of poor results.

Dr Rosetta Mante, the research director, had little difficulty in answering these points, and none of the other 40 PTA presidents there spoke in favour of the petition, which then lapsed. However, the whole incident brought home to Dr Mante the need for the team to intensify its information efforts, to hold more meetings with groups of parents, and to take greater pains to clarify points about which they are hazy or dubious.

These incidents should not obscure the positive relationship that the Impact and Pamong teams have had with many parents. Here are two examples from the Philippines and one from Indonesia:

— One father in Uling, whose daughter Rosita is a programmed teacher there, wrote the first Impact song that was sung at the festival in March 1975; he was killed later that year when part of a coal mine collapsed, but his song is still widely remembered.

— Cristina Canonigo, vice-president of the Balirong PTA, herself dropped out of school after Grade 4 some 26 years ago. Her elder son is now in high school, her younger one reached Grade 5 in 1976. At that stage Mrs Canonigo decided she would keep pace with him, and started doing the modules at home and coming to the CLC for post-tests. She says she finds them easy, and will go on to graduate from Level 6.

— Sugiman left school at Grade 5 in 1958, and his son reached that level at Alastuwo in 1976. He himself came back to a learning post and completed his primary courses that year, and this will help him get a better job in local government.

## COMMUNITY

A good deal has already been said about the relationship between the community and the CLC. Many of the important objectives of Project Impact can, it is true, be accomplished without this relationship altering fundamentally. More students can become (and remain) part of the learning system, and the system itself be made more flexible, without anything more than passive support from the community. However, if the community is itself to become a "learning society," then the relationship does have to change considerably. After three years, both teams are still tentative in their assessment of exactly how this relationship is changing. In the Philippines some members of the community have been drawn in to help the CLCs. In Indonesia the effort has been more to move out of the schools into the community. Let us look briefly at each in turn.

In the Philippines local craftsmen have been responsible for the physical changes in transforming classroom buildings into CLCs and in erecting kiosks. The big changes were made in April 1976 but there is a continuing need for such help, especially if a CLC moves its site, as may happen at Uling. As well, community members with particular skills are sought out to evaluate the work of students who are doing an applied skills module. In social studies also, students head off to interview (maybe on the tape recorders) a health officer, a policeman — or someone who is knowledgeable about the new constitution or the Olympics. In mid-1975 an IS at each school organized a survey of community resources, which is now filed in card index form at each CLC. The idea was not only to have a list of resource people, on whom the students might draw for knowledge and help, but also to broaden their horizons about the many resources — natural as well as human — that existed in their district.

Local craftsmen in the Solo district are also enlisted to help the students in applied skills. Mr Marto, the carpenter, is often to be seen around the Kebak schools, giving the boys practice and advice with his saws and planes. Just across the road from the school is the tailor's shop, and Mr Sugiman

Mr Marto, carpenter at Kebak, helps boys learn to plane



Sukiyo and Sugiman qualified for local government promotion by passing the primary leaving exam



takes a group of girls through their paces with his sewing machines. The module writers produced an instruction module on this subject, but he says he prefers to teach them his own way. Both he and the carpenter are being paid a small stipend for their assistance.

This kind of help from community members is not unusual among the more progressive schools in many countries. What seems a new departure is the initiative in Solo in setting up learning posts and launching a Social Fund.

The *learning posts* were set up in response to what Indonesian authorities see as the problem of out-of-school youth. Perhaps it should be said, in introduction, that the line between out-of-school youth and those said to be attending school is more blurred than strict, even in the traditional system. Attendance is irregular for many who are formally enrolled, either because of the demands of the family for the student to work at home or because of other factors such as sickness. One objective in Proyek Pamong and Project Impact is to blur this line still more, to make reentry into the learning system so simple that one hardly speaks about out-of-school youth any more. (The old phrases linger, nevertheless, both in this booklet and at the research sites, where absent students are noted down as being "on leave".) It was acknowledged, however, that many of those who had been away from school for some time would be loath to "reenter" if it meant having to return to the school itself, with its juvenile paraphernalia. So the idea arose of a learning post in a more adult setting in the village.

There are three such posts in Kebak village and two in Alastuwo. They are, quite simply, a room in someone's house, which the owner has handed over for Pamong purposes. It is likely to have table and chairs and a wardrobe full of modules. The students come and go freely.

The Pamong team was convinced it needed to make such an effort after the staff had taken a census of the out-of-school youth in July 1975. The figures may seem high, for the census included the villages of Malangaten and Banjarharjo, which were then still in the project. They

showed there was a maximum of some 1452 youth who might be attracted to the scheme. More than half had never had any formal education and about half were in the 16 to 24 age-group, which might be less able or less inclined to start studying; again, about one-fifth were already married. Nevertheless, the survey showed that there were hundreds who should be offered an opportunity to reenter the learning system. It also listed some 372 potential tutors, including adults who might be trained as programmed teachers.

This justified the launching of the learning post experiment at the start of 1976. Some 90 students signed up, to come to the posts twice a week. By the year's end, numbers had fallen to 67 or less. One or two had married, or moved away from the villages, but others among those who had "disappeared" turned out to be success stories for the scheme. Wakiyem had finished Grade 5 in 1975 and then decided with a friend not to return for Grade 6 because they were big girls at 14 and had outgrown school. She started attending learning post sessions, however, and soon decided to come back full-time to Kebak school, where she is a peer tutor as well as a home tutor to her young brother.

Among the persevering 67 were 16 who were completing Grade 6 and taking their primary graduation examination in November 1976. These included two grown men, Sukiyo and Sugiman, who were working in local government jobs and would have good chances of promotion if they passed this examination. The Pamong team was eager to make sure this pair was successful, both for their own sakes and for the good advertisement of the system.

How the learning post system will evolve is not yet clear. At present, it is engaging the full-time energies of two instructional supervisors on their motorbikes, to keep in touch with their students and tutor them at convenient times in the posts. If and when numbers increase, other tutors will have to be enlisted from the community. Beyond that, there is talk of a wide literacy program, run through programmed teachers. Malangaten, the village midway between Kebak and Alastuwo, is running literacy classes already, and their appeal reflects the demand that exists in the community. At

**According to our target, in 1979 we will have reached nearly 21 million pupils in the government and Islamic primary schools. So far, it seems that the system can take these extra numbers, but not without special effort. For the next decades, we have to rely on alternatives or innovations. I don't think that the present so-called traditional system could do the job alone. Especially after 1979, when we will have a flood of about 1.8 million graduates from primary schools wanting to enter junior secondary every year. I don't think the present system of the primary and especially the junior secondary schools would ever be able to accommodate the numbers.**

**Then there is the out-of-school education problem. First of all, the numbers of those who are not in school is already big; and we must also consider aspirations. Once someone has had experience in school, however little, he will aspire to get more experience. Because of these two factors, I would assume that in the next decade the issue of out-of-school education will be of paramount importance.**

**There were two things that worried me at the beginning of Proyek Pamong. First, the project was not community-based, but rather school-based. Now it seems the project is actually going to involve as many people as possible, with the employment of community resources. So I am glad to know that the project has shifted from a school-based to a community-based approach. The second worry was that the project almost wanted to create its own objectives in terms of the educational content. Although the intention was good, I think this is not meant by the project, because its objective was to give more primary education to more people with proper economy and through an effective system. So it is encouraging to know that they now do not care so much about a different kind of curriculum objective, but concentrate on the curriculum that has been changed in 1975.**

**In so doing, the project could be of tremendous value, to help design alternatives for the present system. An alternative does not necessarily mean replacement, so much as perhaps a supplement to the present system, to increase the participation rate of primary education. Any new system, however well designed and well experimented, needs time to prove itself and take root. After all, this present system with all its pitfalls has grown without our knowing it and taken root for so many decades. I think it would be unwise and technically impossible, and perhaps also socially unacceptable, to change this overnight; but I believe in a system in which several alternatives or mechanisms can go hand in hand.**

**Dr Santoso**

present, the IS:student ratio in the learning posts is little more than 1:30. Coming years will show whether this will change.

The *Social Fund* (or funds, because there are four separate accounts) was an idea that came from BP3K in Jakarta. The object was to prove to the people of the two villages, including those who had no direct connection with the schools, that Proyek Pamong was concerned with the development of the total community. There was certainly scope for such a fund. A majority of the households in Kebak and Alastuwo possess no farmland, and a number of women make a living by selling food on a meagre, retail basis. They usually face the problem of a lack of any working capital; to get a loan, they used to have to walk several miles to a bank, and then leave some valuables there as security — and pay interest of 5 percent a month.

The Education Development Office (BP3K) decided this was a good point at which to intervene with some capital. So it put 250,000 rupiah (about \$625) into funds linked with each of the four schools. To become a borrower, you have first to join one of the four savings groups and make a minimum contribution of 10 rupiah a month. The savings funds achieved such support from families that, within seven months of their being launched in March 1976, the capital had grown from the BP3K's original 1 million rupiah to a total of 2.7 million rupiah. The family savers are offered one percent a month interest, but usually let that money remain in the fund.

One morning I watched the operation of the credit bank attached to Alastuwo II school. The bank clerk, Sri Sudiarti,

who had graduated from a commercial high school, was keeping the books for 175 savers-borrowers who had enrolled in the scheme. (There are, in all, some 825 households in Alastuwo.) The money was intended as a swiftly revolving fund, with smallish loans being made for a three-month period at 3 percent a month interest. The procedure was very simple: a one-page application form had to be countersigned by the head of the hamlet (Kibuyan) and approved by the village head. The loans were mainly to small vendors: Rp 3000 to a meatball vendor, Rp 8000 to a woman who buys and sells vegetables, Rp 4000 to another woman who runs a small store opposite the school. The vendors came to her every Thursday to pay back a proportion of the loan. Sri Sudiarti said that only Rp 50 000 (or one-fifth of the original capital) was put aside for loans for paying such things as school fees, childbirth expenses, and social matters. The reason why these needs were given secondary importance is apparently because repayment might be less assured than with loans to vendors that produce a quick return.

The loan fund has clearly been useful, in the context of these two villages, in demonstrating the concern of education authorities that the whole community may experience some benefit. However, it is probably not practicable for any government to consider floating a great number of loan funds in areas where the Impact system may be replicated. Some other less costly scheme that can mobilize support for changes and bring benefits to the whole community may be more appropriate elsewhere.

# An Assessment of Results

We would do well to make this assessment in two stages: first, by gauging the learning effectiveness of the Impact system, and by comparing the scores of Impact/Pamong students with students in the traditional schools on tests administered to both; and second, by looking at the costs of implementing and operating an Impact system, compared with the operating costs of the traditional system.

## LEARNING EFFECTIVENESS

(a) The Solo team has carried out several tests to compare the achievement of students in the Pamong schools and traditional schools. In mid-1975 and again in December 1975 the S.O.T. (Standardized Official Test) was given to Grade 4 and 5 students in each system, and the Pamong students showed a significant gain over the others in these tests. In both grades in December 1975, for example, the Pamong students scored marks in five subjects that averaged out at 148 to a score of 100 by non-Pamong students: in other words, they did nearly half as well again.

Boorham Respati, however, prefers to cite figures that do not show such an impressive gain, but that come from a test that was set by an outside agency, the Education Development Office (BP3K) in Jakarta, specifically for the purpose of comparison. The BP3K test was administered in March 1976 to Grades 5 and 6 students in the four Pamong schools in Kebak and Alastuwo, and to a similar number of students in four ordinary schools in the district (two in Waru village, and two in Nangsri). The following table shows the results:

	Grade 5		Grade 6	
	Pamong	non-Pamong	Pamong	non-Pamong
Bahasa				
Indonesia	52.9	48.2	59.1	57.7
Science	45.0	44.3	51.8	48.9
Social Studies	58.6	56.2	82.9	80.9
Mathematics	52.1	50.6	46.3	35.7

Although the achievement is relatively equal, the Pamong students scored consistently higher marks, particularly in mathematics at Level 6. To simplify the above table of marks: if the non-Pamong students in both grades had an overall score of 100, then the Pamong students at Level 5 scored 105 whereas those at Level 6 scored 107.

(b) At Naga the team has done comparisons since 1974 not only of the achievements of Impact and non-Impact students, but also of the advances that each group has made on their own marks during the school year (i.e., by administering a pre-test in June or July, and a post-test the following March). In 1974-75 the Impact students made impressively greater gains during the school year on their base mark in July, and this showed in the comparative results in March 1975 in seven subjects tested. (The tests were a combination of the Philippine Achievement Test for English language and reading, and locally constructed criterion-based tests for the other subjects.) On average, putting all the marks together, an Impact student scored 125 to a non-Impact student's 100.



The following table shows in more detail the comparison of marks on a similar test administered in March 1976 to some 210 Impact students in Levels 4 and 5 and about 205 non-Impact students in the corresponding grades. The individual marks have no consistency between subjects (Science and Mathematics, for example) but they compare across the page. The non-Impact students had shown greater gains than in 1974–75 in between their pre-tests in June 1975 and this post-test, but not sufficient to score higher overall than the Impact students:

	<b>Level 4</b>	
	<b>Impact</b>	<b>non-Impact</b>
Language English	53.2	35.9
Pilipino language	43.4	37.3
Science	57.4	27.6
Mathematics	17.9	11.0
Social Studies	23.5	15.7
Reading English	57.6	51.4
Reading Pilipino	49.9	30.2

	<b>Level 5</b>	
	<b>Impact</b>	<b>non-Impact</b>
Language English	33.7	32.2
Pilipino	28.3	22.8
Science	48.0	52.5
Mathematics	14.4	9.7
Social Studies	16.2	23.7

Again, to simplify this table of marks, if the non-Impact students can be said to have scored 100 marks overall, the Impact students by comparison scored 151 in Level 4 and 106 in Level 5. As the table shows, their marks in Level 5 were pulled down by a poor performance in Social Studies, where the reordering of the syllabus into a three-year continuum that does not closely relate to any existing textbook is thought to have contributed to a low score.

Following this tabulation of test results, three other points should be made.

First, it may be argued that the Impact and Pamong students might be expected to do well in tests, having been

under a good deal of stimulation from being the subject of research. That is true, but counterbalancing the stimulation is the upheaval in their former patterns of learning with which they have had to cope.

Second, beyond any quantifiable test results — which certainly show that the Impact students have, at the very least, not slipped behind those who learn in the traditional classroom setting — there is a less measurable benefit. The Impact students have been learning how to learn. They have taken on new responsibilities, to teach the junior grades and to lead discussion and inquiry among their peers. They have been exposed to the amount of knowledge they can gain around their community, and to a variety of learning techniques. Of course, a good classroom teacher will have tried to impart these ideas and skills in the traditional system; but in the Impact system these are the fundamental ideas and will become ingrained in any student who has gone through five or six years of Impact learning.

Thirdly, the tests give no account of how self-pacing is working. Theoretically, the emphasis upon mastery learning can mean that some of the slower learners take more than the present six years to complete primary school. Some parents have already expressed their anxieties that this will be the case, if automatic promotion is set aside. What seems likelier, especially when a student has been accustomed to the system from Level 1 onwards, is that nobody will have difficulty in completing a year's work on time and a good proportion will complete six year's work in five. At present a few outstanding students are completing three year's work in two, even though they have sometimes had to wait for the next module to be written. Also, it is taking a narrow viewpoint if one speaks only of students completing primary school in five or six years. A major purpose behind Project Impact, we should recall, is to allow students of all ages to reenter the learning system at any time. There will be people, no doubt, who take 10 years under Impact to complete the primary school syllabus; but these are people who would never have completed it under the traditional system, and would have been treated as "dropouts."

## **COST EFFECTIVENESS**

Now, to deal with the costs of implementing and operating an Impact system . . .

It should be said at once that the figures on costing are less precise than those on learning effectiveness. However, Innotech commissioned Dr Edita Tan, of the University of the Philippines, in 1976 to prepare a cost analysis design that over the period 1977–79 should provide information that will be useful to policymakers pondering whether to institute (or continue) an Impact-type system.

Costs should be divided into three phases. First, there are the *initial research costs* that have been incurred for the project at the Solo and Naga sites from 1974 to 1979 and that will not be incurred again elsewhere. Second, there are the *costs of replication*, of adapting what has been achieved in Solo or Naga to another school district, another province, or another country. Costs of replication will vary. At the Lapu-lapu schools site, which is on Mactan Island adjoining Cebu City, the replication costs will be lowest: they can use Cebu's whole set of modules, and their ISs and other staff can visit the Naga site inexpensively for consultation and training. At Sapang Palay, 40 km outside Manila in Bulacan province, costs will be somewhat higher. Some materials written in Cebuano will need to be translated into Tagalog, some other local references changed, and the orientation of staff may involve inter-island visits. For another country — say, Thailand — to adapt the Impact system would entail a higher initial cost in at least one model area, with probably a full team of module writers recruited to produce original modules appropriate to the country's culture, language, and curriculum. But, even there, the costs would be less than at Solo and Naga, because they could build on some of their experience rather than repeat it.

Third, there are the operating costs. It must be emphasized that the figures are preliminary and therefore rough, but the following set of figures from Cebu may indicate the savings that can be expected. The five barrio schools used to employ between 55 and 58 teachers, whose salaries averaged 400 pesos a month. This amounted to a

**We have employed a cost analyst expert from the University of the Philippines, and she has said she feels that, as far as the objectives of the project and its costing are concerned, the project is well on the way to success. We are delighted about this pronouncement. However, she left open until she could get more figures the formulation of some kind of framework within which we can foretell whether the costing, as we have experienced it in the project, would be applicable in a much wider area, if and when the project were adopted on a nationwide scale by any country.**

**How can it be self-financing? That is precisely one of the objectives of the project's extension in Phase 2 to Bulacan province and Lapu-lapu City. The setup in these two sites will be quite different from the setup in Naga and in Solo. We shall gradually withdraw the amount of external assistance, and work within a financial plan in which the resources of the Department of Education in the Philippines already existing will be utilized as much as possible in providing the personnel and materials for the extension sites. What we saved in teaching personnel can be used to top off the salary of the project director, for example, and to give salaries to the curriculum writers. What we save in space in terms of new school buildings, the Philippines Government should agree to use for learning centres and learning posts and kiosks. I really don't see any difficulty if the Government should decide to adopt it on a wider basis. It can be worked out within the financial resources of the Department of Education and Culture.**

### **Dr Soriano in October 1976**

total salaries bill (for 55 teachers) of 264 000 pesos a year. Under the Impact system there would be a need for 12 ISs — two in each of the CLCs and two others moving between the barrios, either to teach special skills or to coordinate particular community resources. The salary bill for these 12 ISs (at 450 pesos a month) would come to 64 800 pesos a year — or less than one-quarter the cost of the teachers' salaries. To this needs to be added the salaries of five instructional aides, along with the major cost of module production. The cost of a 60-page module with a print run of 70 copies was calculated in Cebu at 2 pesos a copy, whereas the larger block-modules would cost twice as much. A print run of 70 copies would be enough for the five CLCs, if you assume (as you apparently can) that four students will need only one block-module between them,

whereas an ordinary module can serve six students in turn. Altogether, the cost of module production may come to about 160 000 pesos a year. Dr Soriano makes a strong case for the government diverting part of the funds now earmarked for textbook production to cover the costs of module production instead. If governments agreed to such a proposal, clearly the operating costs of an Impact system at the local level would be significantly reduced.

Putting the figures in the previous paragraph together, then, the comparative costs between traditional and Impact systems in the five Naga barrio schools look like this:

	<b>TRADITIONAL COSTS</b>	<b>IMPACT COSTS</b>
Salaries of:		
55 teachers	264 000 pesos	12 ISs 64 800 pesos
		5 aides 2 940
Textbooks	?	modules 160 000

There is, at the very least, a saving of about 15 percent in operating costs. It is probably much greater, because we have not added the cost of books to the traditional schools; textbook production costs are part of the national education budget, and the Cebu district office cannot give a precise figure for five schools.

The Solo team has not produced a parallel estimate, but rough calculations can be made on the basis that the four schools in 1977 will have 10 ISs and four registrars between them. (There are two extra ISs to handle the out-of-school students.) The four principals and their aides remain, but will eventually disappear — as will the principals in the Philippines. Instead, therefore, of a staff of 40 to 45, the four Indonesian schools-turned-CLCs will have only 14.

To turn these figures around into ratios of ISs to students, it is realistic to think of an eventual ratio of one professional IS to as many as 140 or 150 students at a CLC. That stage is some distance away. The Solo team has estimated that in 1978 the eight professionals at the CLCs will be handling an average of 82 students each. The ratio of professional staff to students enrolled at learning posts in Indonesia cannot yet be calculated, as it depends entirely on what popular

success this novel approach achieves.

Changing the ratio of one teacher to 35 students into a ratio of one IS to 140 students is not planned as a move to reduce the number of professional staff to one-third or one-quarter of what they were, so much as to progress the other way. The objective is to make it possible to handle, with about the same overall number of professional staff as now, a much larger enrollment of students. That is surely the justification for the project. Maintaining or improving the quality of education, reducing the operating costs per student, are creditable accomplishments in themselves. But they only achieve full significance when they are linked to increased enrollment. The major gain from Project Impact must be the opportunity it offers to many more school-age children and youth to be and remain part of the learning system.

## **SOME OTHER CONCERNS**

### **Displacement of teachers**

One of the first anxieties expressed by teachers at Impact information meetings was that, if this system were broadly adopted, many of them would lose their jobs. From a situation of shortage, where there are not enough teachers for all the children who would want to attend classes, a country could swing into the opposite problem area — having too many teachers for the jobs available in the new role of Instructional Supervisor. Early in 1975 the teacher who was then principal of Naalad school raised the common question: "I have 12 teachers now. What will happen if Impact is fully implemented, and we are reduced to two teachers for 250 students?"

Dr Mante assured him that they would be reassigned within the district, and they might indeed go to work in a school closer to their own homes. (Very few of the Naga teachers, or even the present 10 ISs, live in the same barrio as their school. The Solo team believes it is essential for an IS to be a long-term member of the village where her CLC is, but in Naga the flow of people and communication along the valley is enough for a feeling of kinship between barrios.) In

the two years since the Naalad school head voiced this concern, the process of displacement has gone on in the five CLCs — but without anyone becoming unemployed.

That sort of rearrangement may be accomplished among only 50 or 55 teachers, but what happens if the Impact system is widely applied? Dr Narciso Albarracin concedes that, if Impact were implemented on a nationwide scale, it could cut the numbers of teachers that were needed from the present 400 000 to about 100 000.

"But of course," he adds, "it wouldn't happen like that. The change would come slowly; it wouldn't be abrupt. We would let people retire in due time. We can control the number of new trainee teachers. We keep careful statistics on the numbers of classrooms and textbooks and teachers needed at various times."

And Dr Manuel has affirmed the same view: "I don't think we will lay off teachers. If we saved positions of teachers because of this approach, then we will not ask for additional teaching positions. If instead of needing, let us say, 4000 new teachers, 2000 will be enough one year, that's what we will request — only 2000, rather than laying off 2000 from the teachers who are already employed."

The Indonesian Government's view is similar: changes will never come so quickly that there is danger of major disruption and unemployment among existing teachers. Dr Santoso has made it clear that he does not expect the present system "to change overnight." Rather, he thinks the Pamong system may become a supplement to the present classroom system, helping to cope with the increase in primary and junior secondary school numbers and with the needs of out-of-school students.

### **Student attendance**

Concern has been voiced by some of the staff at Naga that an alarming number of the students are "taking advantage" of the freedom offered by the Impact system and absenting themselves from the schools. One school head was worried during 1976 that, although she had an enrollment of more than 280, only about 200 students were

turning up at the CLC each day. She reacted by putting them inside the old school buildings for the first hours of the morning, while attendance records were compiled, rather than let them use the learning kiosks in the CLC grounds.

Such a reaction is understandable, especially with someone trained in traditional ways. Possibly also a firm show of discipline is needed during the transitional period until the students — and their parents — are accustomed to the freer atmosphere of a CLC, an atmosphere in which the child takes greater responsibility for learning and the parents also take an active role. But, when that transition is past, the question of attendance should become a very secondary concern. The important consideration is achievement, and whether the modules and the learning are done at the CLC, at home, or around the community becomes a detail.

A basic feature of the Impact/Pamong system is its flexibility, so that a student need feel no conflict between his or her duties in the family and the fields, and the time that can be put to modularized learning or performance. Dr Mante likes to quote the case of one boy, Exequiel Sobremonte, who was away from his CLC for a month, looking after the younger members of his family while his parents went across to the island of Negros to help with the harvesting there. When they came back, he returned to the CLC and worked his way through 17 modules in a week in order to catch up. Under the old system, he would have fallen far behind, and might even have dropped out of school altogether. The old concepts of "attendance" and "absence" have to be revised to fit the new relationship of a shared responsibility for learning.

### **Language of instruction**

This is, again, more of a concern in the Philippines than in Indonesia. The two sites were chosen partly because of the fact that most of the children there grow up speaking a language different from what will be their language of instruction by Grade 4. In Solo this means that the children speak Javanese and learn Bahasa Indonesia, a national language that is based more upon Malay than upon the

language of any particular island — even of the most populous, Java. The task of managing these two languages is not very heavy for a child in Solo.

In the central and southern Philippines, on the other hand, they have to tackle not two but three languages. Cebuano is the local tongue of those who live in the Visayas, the group of islands spread across the central Philippines; but the education authorities have been concerned to make sure that both English and Pilipino (based on the northern island language, Tagalog) are added to a child's repertoire in the first years of school. The 1972 Philippines Constitution, lays down a policy of bilingual education in Pilipino and English. Until 1956 English was the language of instruction from Grade 1, but then teaching in the vernacular was introduced. Pilipino was taught as a subject from Grade 1, and English was taught from Grade 3. In 1975 another adjustment was ordered, to teach reading in English from Grade 2.

Having to juggle three languages makes for confusion among many young students — and even among some module-writers! The tests done in 1974 with students who were supposed to be conversant with a Grade 3 English reading list showed that only about 5 percent understood the meaning of the words they were reading, and the Cebu team commented the "English has been taught by omission." This lack of English comprehension has dogged the project, because each new Level 4 group has had to contend with it at the point when they were supposed to be able to learn on their own in English. The best hope is that, when a child has progressed through the Impact system all the way from programed teaching in Level 1, there will be no bumpy moments of transition to learning with English-language modules in Level 4.

In the second set (Set B) of modules produced for the programed teachers who are teaching Levels 1 to 3 in the Naga barrios, English reading is being tackled in translation for part of the time. This means that, from the second semester of Level 1 through the first semester of Level 2, a child will see an English word (on a flip chart, flash card, or in

a book) and will give the Cebuano equivalent. The child will speak something intelligible to himself, but at the same time learn to associate the English word with that meaning. In the second semester of Level 2, the student moves on to reading and sounding out in English, with the assistance of an IS. By then, it is hoped, the Cebuano-speaking student will have crossed the bridge of comprehension into English without faltering.

This same question, of how to prepare a student for work in a foreign language, may face many African and Asian countries if they choose to adopt an Impact-type system of self-instruction. The Cebu experience should be useful in showing one way this can be done.

### **Replication of the project**

Results from the first three years were encouraging enough for everyone involved with the project to make plans during 1976 for replication in other sites during 1977–79. The first two sites agreed upon were in Lapu-lapu City on Mactan Island, close to Cebu City, and in Sapang Palay, a squatter resettlement area in Bulacan province 40 kilometres from Manila. After 16 years of resettlement effort, the Sapang Palay area has mushroomed with scattered communities, and there are now more than 11 500 pupils crowded into 21 schools. Regular bus services to Manila, where most of those employed still find work, have helped stabilize the population at Sapang Palay, and two schools there will join the Impact system during 1977. Lapu-lapu, in contrast, is a long-established town. Dr Albarracin, commenting on the different social and economic backgrounds of these places, said he thought they were good choices as pilot sites for replication after Naga.

In Indonesia, also, there was eagerness to take Proyek Pamong to a second stage, and experiment at other sites. Late in 1976 Dr Santosa said that, although most pilot projects were "potential graveyards" that did no good for anyone but themselves, he did not intend this to happen to Pamong. "From the outset we have given clear directions to the project staff that the measure of success of this pilot

project Pamong is actually the ability to be reproduced, to be disseminated."

But what exactly should be tested at a replication site? Should the new team (say, at Lapu-lapu) who are in the same linguistic area as Naga test all the components of the original project, to see if they get the same results? Should the Sapang Palay team do the same, arguing that this is necessary since they are in a different linguistic area? Or should they both skip considerable ground, and build on the lessons of Naga — and Solo, as well? Do they need to go to the expense of employing a full team of module writers, or is translation or adaptation enough? How can these replication sites be useful as a stepping-stone to establishing a pilot site in a third country?

Most of these questions were answered during the planning of the replication sites at Lapu-lapu and Sapang Palay in late 1976. It was agreed that the Cebu sets of modules should be used at both these sites, although some of the modules would need to be translated into Tagalog and adapted for use at Sapang Palay. At Lapu-lapu the teachers who were to be retrained as ISs could take advantage of their closeness to Cebu to attend training courses with their Naga counterparts. In effect, the decision was made to build as much as possible on the ground already covered, and not to go over the same ground again.

Assuming that the replication teams decide they can build on the Naga/Solo experience, they have a particular function in establishing the costs of replication when these are separated from the initial research costs that Naga could not avoid; and they can give a good indication of what costs of replication would be over a wider area. As for a third stage, Dr Manuel (in the accompanying quotation) suggests it is best to try the system in as many areas as there are administrators with initiative. Dr Albarracin says something similar: "I see it happening with pilot places in every region around the same time, rather than consolidating in a single area, or a few areas. We have 13 administrative regions, ranging from Manila where some people think we are overeducated to West Mindanao. Each area has its own set

of cultural problems to sort out".

A section on replication, and indeed the booklet, should end with a note of restraint. Project Impact has been planned in such a way that it will not disrupt the traditional system. It can spread without a general upheaval. One school, or one school district, can adopt or adapt an Impact-type system while the neighbouring ones continue with the traditional system. Change it certainly offers, but it is controlled change. Dr Santoso said: "I believe in a system in which several alternatives or mechanisms go hand in hand". If Impact evolves into one of those mechanisms by which Third World countries can afford to offer many more children a full primary education, it will be serving its purpose.

#### ***On wide-scale replication:***

**I don't know of any other way of doing this, except perhaps trying it in as many divisions as possible. There are good school administrators who are quite innovative and have a lot of initiative and drive; and usually innovations succeed under these conditions.**

**The best way to do it is to have pilot areas in all regions of the country, rather than trying to consolidate one area first. The more people try it, the more people will discover what perhaps needs to be improved upon. They may know more about the problems that the innovations will face and, if these supervisors and administrators can be involved, we can get feedback from more people.**

**Dr Manuel**

**One thing that ought to be projected is how the community perceived this project from the beginning, and how they participated in understanding and even solving the problems. These are the things that have to be disseminated later on — not the textbooks, not the structure of organizations, not the diagrams and so forth, but the day-to-day handling of the affair such as when they start a committee and what are the problems involved in selecting and maintaining the tutors. Now these problems, which they have solved successfully, are the things that ought to be disseminated, so that when the time comes in other areas to apply this Proyek Pamong — that is, education through a non-school delivery system — they would know how to start and, if there are similar problems, how to solve these problems according to the experience of the project.**

**Dr Santoso**

# Appendix

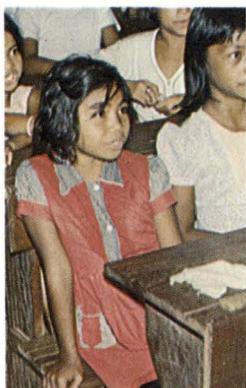
## ENROLLMENT IN THE NAGA CLCs 1976-77\*:

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Total
Naalad	52	30	43	24	28	25	202
Pangdan	80	47	52	45	28	32	284
Lutac	43	27	40	15	17	24	166
Balirong	48	38	49	22	28	17	202
Uling	75	39	34	22	22	19	211
Totals:	298	181	218	128	123	117	1065

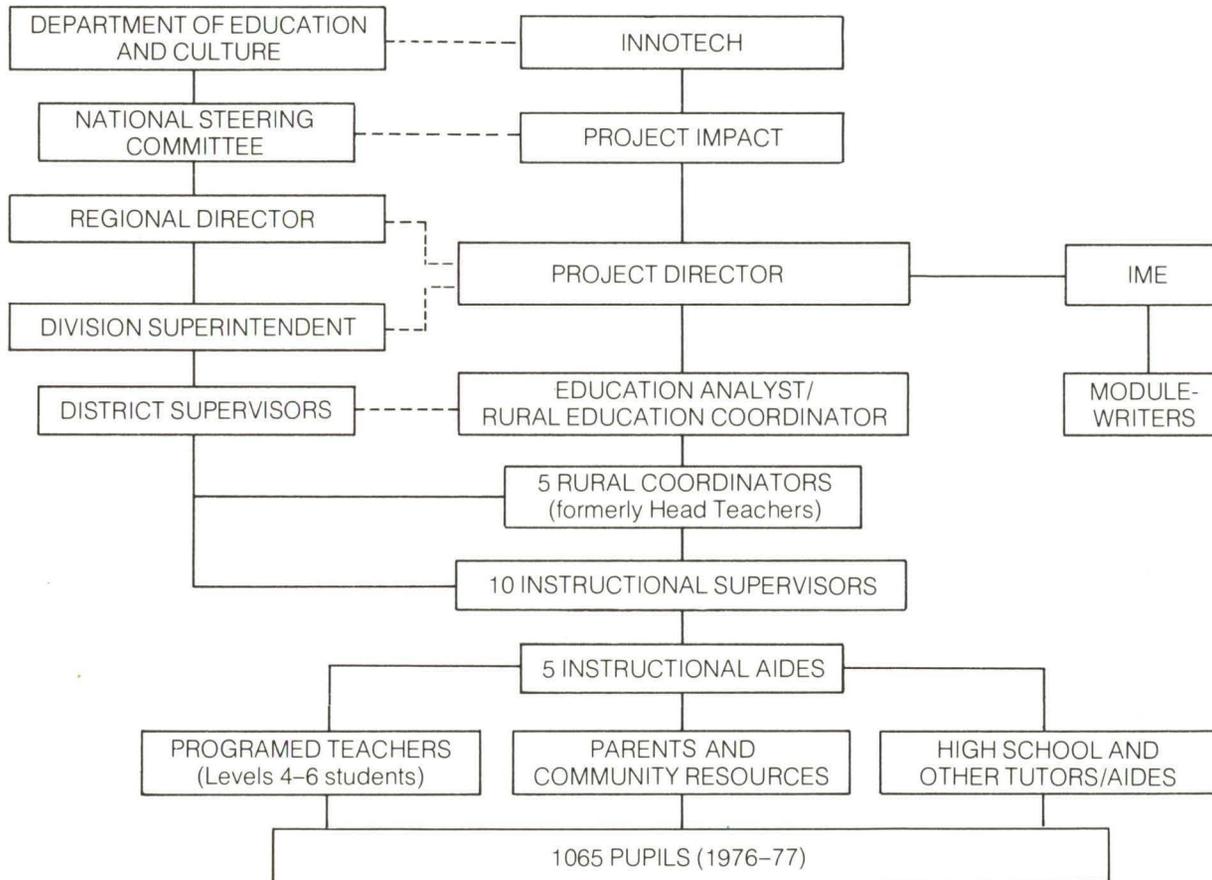
\*Included in these figures are five adults who are enrolled and taking post-tests at the nearest CLC.

## ENROLLMENT IN THE SOLO CLCs 1976:

	Modules:	1-150	151-300	301-450	451-600	601-750	751-900	Total
Kebak 2	{ in school	51	-	-	32	34	26	177
	{ out	-	-	-	8	12	14	
Kebak 3	in school	32	-	-	29	18	14	93
Alastuwo 1	{ in school	25	-	-	34	21	24	137
	{ out	-	-	-	14	11	8	
Alastuwo 2	in school	57	-	-	27	21	14	119
Totals:		165	-	-	144	117	100	526



**LINES OF RELATIONSHIPS OF IMPACT WITH DEPARTMENT OF EDUCATION AND CULTURE, PHILIPPINES**



**Legend:** ——— Line of Authority  
 - - - - - Line of Cooperation and moral support

# A Personal Postscript

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Let me end this book with a confession. I made haste to volunteer for the assignment of writing this booklet, when it was agreed between Dr Soriano and Ruth Zagorin that someone in the Publications Division of the International Development Research Centre should draft it. I did so for two reasons. The first reason is that I'm very conscious that, like most journalists, I've spent far too much time in capital cities chasing after politicians and attending to crises, far too little time in rural areas where the pace of life is less frantic and the very heartbeat of a country seems sounder. The second reason was that I had visited both Naga and Solo very briefly in January 1975 and had made some good friends with whom I had kept in touch.

The return visit in October 1976 was pure joy. The photographs and some of the description in this booklet have, I hope, caught something of the idyllic countryside of Cebu island and central Java. But I suspect that even paradise, devoid of people, would after a while appear flat and empty. Certainly it was the people of Kebak and Alastuwo and of the five Naga barrios who lifted my spirits even more than the beautiful surroundings. In 20 months a large change had taken place. In early 1975 there had been tentative talk, many teachers and pupils seeming unsure of what was happening to them. But now there was a core of confidence that what was happening was good. There was an excitement in being involved in an experiment with so



much promise. At the same time, there is no hiding of problems, and a visitor like myself (who was quite unqualified to give advice) is soon being asked his opinion. You may not solve any problem, but you cease to feel a stranger.

Ever since IDRC began supporting Project Impact early in 1974, its advisers and program officers who were connected with the project — Ruth Zagorin, Don Simpson, Carol Sissons, and latterly, Pedro Flores — have felt a particular engagement with this experiment. It takes little time to learn why. The problems that the project addresses are so urgent in so many countries in the Third World that, if a replicable system is worked out at these sites in the Philippines and Indonesia, it can live up to its name and have a deep impact in Asia, Africa, and beyond.

But this depends on the imaginativeness and hard work of a small band of people. So I end by remembering friends of all ages: Cora and Fred and the Ouano sisters as well as Rosetta and Aida and Mr Sanchez; Suparno and Mathew Soemali as well as Boorham and Dr Soemitro. Juan and the Abangan family, the mayor and the Plaza Boys. And, perhaps most of all, the quiet determination of the students, for whom Florencia Ramirez and Wakiyem stand as symbols. They may never meet, except in these pages, but I believe they have done great things together — and have more still to do.

Clyde Sanger



**Credits:**

*Editor: Jill Stainforth  
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