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ABSTRACT

This document contains ten working papers on educational alternatives, which were presented at a regional conference attended by 24 educational decisionmakers from eight Southeast Asian countries. The papers touch on such topics as the systems approach to alternatives, alternative objectives, the technology of education, alternative teaching methods, curricular alternatives, evaluation of alternatives, in- and out-of-school alternatives, and a regional approach to the development of alternatives. Also included is a report on a simulation held at the conference in which the participants planned an educational system for a fictitious Southeast Asian country. The appendixes include the program schedule, a list of participants, the opening addresses, and a press release about the conference. Summaries of all papers can be found at the beginning of the report. (DN)

SEAMEO

INNOTECH/RP/7

Regional Center for Educational Innovation
and Technology

ALTERNATIVES IN EDUCATION:

A REGIONAL PRACTICUM

24-28 April, 1972

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A summary of these papers has been prepared by the INNOTECH staff for inclusion in this report (see page 3 further). The original versions of the working papers are reproduced without change. Lest the report become too bulky, only a summary of the discussion of each paper is incorporated.

The fourth day of the Practicum was devoted to a simulation exercise. The objective of the simulation was to promote the discussion of ideas presented at the Practicum from a regional rather than a country-specific perspective. The Seminar participants were divided into three groups, and given information concerning the geography, economy, culture, educational system, etc., of a hypothetical country, SEALAND, which combined features of many countries of the SEAMEO region. In addition, they were given a "Preliminary Plan for Educational Development" and a memorandum. Each of the three groups conducted a simulated planning session in which they carried out the directive contained in the memorandum, and prepared a report to be presented in a plenary session on the following day which was the final day of the Practicum. The group reports are included on page 197.

All the plenary sessions were chaired alternately by Mr. Kartomo Wirosuhardjo, the elected chairman of the Practicum, and Dr. Ruth Wong, the elected Vice-chairman of the Practicum. A draft Final Report was prepared and presented to the participants at the last plenary session by Mr. Kum Boo, the elected Rapporteur General of the Practicum. This draft report was later refined and edited by the INNOTECH staff to its present form.

SUMMARY OF PAPERS

presented at the Practicum

1. Systems Approach to Alternatives

The topic was opened for consideration with the presentation by Mr. Kartomo Wirosuhardjo, Head, Office for Educational Development, Ministry of Education and Culture, Indonesia. Mr. Kartomo underscored the important role of systems analysis as a powerful analytical tool particularly for the process of decision making. It helps the decision maker, he explained, to make decisions by considering the complex problem in its broad context, by knowing the whole system and its components as an integrated form.

From this point of view he proposed four stages in the process of systems analysis:

1) The formulation of objectives
2) The collection of data and identification of relationships between the components or units in the systems
3) The analysis and evaluation of every alternative in terms of its contribution to the attainment of objectives and the cost-effectiveness
4) The verification or testing through experimental and pilot projects.

Systems analysis, he said, would provide the decision maker with information on resource implications and effectiveness of alternative solutions, among which he may choose the best course of action on the basis of his judgment. Mr. Kartomo concluded with a recommendation that systems analysis in its simple form be communicated as much as possible to develop understanding of its potentials and limitations among decision makers and planners in education.

2. Technology of Education

As an introductory part of his presentation, Mr Ho Tong Ho, Department Director, Ministry of Education, Khmer Republic, made reference to the growing concern among peoples of Asia, Africa and Latin America about the inefficiency or inadequate output of education, which results from the traditionalism of the educational system and the obsolescence of current educational practices. He also noted the increasing awareness on the part of educational administrators of the important role that technology can play in providing the means for dealing with them. Like most developing countries the Khmer Republic is concerned with modernization of her education with the introduction of new technologies. But, the hasty and improvised manner in which new media were introduced only resulted in an "unhappy mixture that did not reach the children very much."

To avoid this, Mr. Ho Tong Ho suggested, the following conditions should be met:

1) Creation of an organism for research and development
2) Modification of teachers' training programme
3) Organization of a vast campaign for the introduction of these techniques in the teaching circle
4) Changes to be made in physical school facilities
5) Continuous evaluation of the utilisation, the results obtained, the financial resources, the impact produced in the social circles, etc.

In discussing the strategies of technological innovation, Mr. Ho Tong Ho envisaged 3 possible solutions:

- The first solution aims to change everything at the same time.
- The second solution calls for modifying existing situation by the introduction of innovation at the lowest level of the system and carry on from there.
- The third solution involves setting up and developing a new system parallel to the old one and capable of replacing it in a future to be determined.

He advocated the third solution, which he deemed to be most realistic. In addition he proposed several measures to be taken: the training of educational technologists, the inventory of media which are in existence but not yet exploited adequately, the allocation of financial resources to educational projects.

3. Alternative Objectives

In his discussion on the above topic, Dr. Sim Wing Yoi, made reference to the fact that in most developing countries, the pattern of schooling which they had inherited from the past has so far remained unchallenged and that there has been apparent disparity between the curricular objectives and the [illegible] objectives of the developing countries [illegible]. He further added that the developing countries seem to suffer from an ambivalence of objectives which is due, on the one hand, to the strong sense of nationalism pervading all decision-making relative to the orientation of the curricula, and, on the other hand, to the perceptible franticism to follow the footsteps of more advanced countries.

Those remarks, he said, "are intended to underscore the need for greater sophistication, foresight and sensitivity in our efforts to specify educational objectives by seeking, first and foremost, to clarify our objectives for doing so."

He emphasized the need for re-examination of the existing objectives by way of systematic analysis of the sources from which objectives are derived. Such analysis would require a methodological study to secure tangible judgment data which include objectives, personal values, priorities, standards, affective outcome data or summative judgments with which to make rational judgment.

To give an example, he reported the findings of a project recently conducted by IIINOTECH, which attempted to obtain data on "the perceptions and expectations of the primary objectives of primary education."

4. "Alternative Teaching Methods"

With a view to increasing the number of learners, the length of their training, as well as improving quality of instruction, two alternatives have been attempted in Laos, according to Mr. Veo Vanh Homsombath, Director of Teacher Training and Pedagogic Research, Vientiane: first, the adoption of "inexpensive and occasionally technological" methods as substitutes for the teaching techniques which have become outdated; second, the adoption of some "dramatically new approaches" which involve restructuring of the system.

With respect to the first alternative, Mr. Homsombath referred to some of the measures which have been adopted within the Lao traditional school pattern:

1) The internship programme for Normal School teacher trainees
2) The emphasis on extra-curricular activities
3) The use of well-equipped science laboratories
4) The use of foreign language laboratories

In relation to the second alternative which may "strike at the foundation of learning and of the educational system", a number of innovations are deemed to be relevant and feasible. Among these are:

1) The development of semi-programmed learning materials
2) The close circuit television
3) The "Radio Scolaire"
4) The Comprehensive High School Programme

In addition to the above, a few other "alternative teaching methods" are worthy of mention, according to Mr. Homsombath, namely: the development of textbooks in the Lao language for secondary schools, the establishment of a Language or Linguistic Institute, the Student Work Project, the production of learning materials suited to the learner's needs and in the learner's language.

The above alternatives, Mr. Homsombath emphasized, are not necessarily "new". What is important is that they are "new" to Laos and that they help to accomplish the aims of growth and improvement of Lao education.

5. Alternative Curricula

The topic was presented for consideration with a commentary by Dr. A.M. Guerrero, President, Trinity College, from the Republic of the Philippines. He discussed the broad political, social, economic factors which impinge upon educational change in Southeast-Asia. As part of this "educational ferment", the school curricula have been subjected to continuous re-examination. A search for curricular alternatives is being made which will make education relevant to national economic and social development.

Dr. Guerrero referred to a number of curricular alternatives that have been initiated in the West and some Southeast-Asian countries, namely:

1. The continuous progression scheme (the non-graded school)
2. The open classroom
3. The free school movement
4. The Barrio High School movement in the Philippines.

The Barrio High School Plan, he remarked, is one of the significant contributions the Philippines has given to the growing need for curricular alternatives in Asia.

Some of the characteristics of the Barrio High School were described as follows:

a. It follows the essential lines of the prevailing "2-2" plan with the exception that the pre-collegiate stream in the last 2 years has been dropped in favour of a concentration on the vocational stream.

b. Ample time is provided for work programs of the community and of the students, which enables them to earn money for their immatriculation fees and other expenses.

c. More often than not, it uses the physical facilities - and, in most cases the teaching personnel - of the elementary schools.

Dr. Guerrero stressed that, in the search for curricular alternatives, decision makers should see to it that curricula are geared to the revised objectives - the full development of human resources, the realization of national hopes and aspirations, and the satisfaction of the evolving economic, social and cultural needs of the people.

6. Evaluation of Alternatives in Education

While recognizing the important role of alternatives in education, Dr. Ruth H.K. Wong, Principal, Teacher's Training College and Director of Research, Singapore, stressed that, in a manner of speaking, alternatives do not possess significance in and of themselves. Their meaningfulness or otherwise is made clear only by contextual implication. The case for alternatives rests on felt or perceived needs which are embedded in a matrix of social and environmental change.

Common factors promoting change include: the development of mass-media, the fear of being left behind, the need for intellectually sophisticated manpower, human aspirations and demands.

Choice must be made before any change can take place. It carries the prerequisite of a paper assessment of the alternatives to be selected.

The evaluation of alternatives, Dr. Ruth H.K. Wong suggested, is associated with a three-stage process. A brief summary of variables to be considered and rated at these three stages is given in Table I (page 79).

Alternatives certainly have a place in a continuously changing scene, she concluded. But, the question remains: "What is the actual efficacy of the alternatives advocated?" And this, the innovating person or persons would do well to demonstrate.

7. Educational Technology as an Alternative

As a prelude to this part of discussion, Dr. Douglas G. Ellson, INNOTECH Director of Research and Training, referred to the statements made by two authors on Southeast Asian education, which imply that the educational problems of Southeast-Asia are insoluble because of the cost involved, and that the conventional solutions to these problems will not work in the long run or under the Asian conditions. Dr. Ellson's main contention was that educational technology, if properly used, will provide a number of alternative solutions which show promise for solving these problems with less cost. The savings, if any, will be produced by reducing the need for conventionally trained professional teachers, classrooms, equipments and other costly components of the conventional solutions.

The systems analysis provides a means for determining what information is needed about the effectiveness, costs and appropriate functions of educational technology in educational systems. This procedure would require first a clear understanding of problems and objectives. The next step is the consideration of alternatives by way of systematic analysis of effectiveness, feasibility, cost and cost-benefit ratios, followed by tentative choices of one or more alternatives which must be tried and evaluated before they can be finally put into practical use.

8. The Alternative to Schooling

Dr. Ivan Illich, founder of the Center for Inter-Cultural Documentation, Cuernavaca, Mexico, was the special guest speaker at the Practicum. Dr. Ivan Illich was well known through his previous writings for his radically new ideas on education which had stimulated worldwide reactions among educators.

In his presentation at the Practicum, he insisted on the danger inherent in the loss of legitimacy which presently strikes the school: the proposals for new approaches to schooling the reformed classroom, the free school, the worldwide classroom which, according to him, represent three stages in the proposed escalating production of education, only threaten more pervasive social control and accelerate the growth of the "capitalism of knowledge."

Quantifiable education, as it is produced by schools, discourages the incentives for self-instruction and justifies an environment in which only a limited number of people have access to facts and tools which model up their existence.

The educational crisis, he emphasized, can only be resolved by a "dis-establishment" of the school structure. It could be overcome only if the present schools were replaced by new institutions, somewhat similar to libraries and their annexes services, which enable the students to have access to facts, skills and tools necessary for them to learn to make their own choices. This would guarantee an environment so simple, so "transparent" that every one can most of his time have access to everything that is useful for him to take care of himself and of others.

Dr. Ivan Illich demonstrated that these considerations alone suffice to demand a radical reduction of the professional structure that now impedes the mutual relationship between the scientist and the majority of people who want access to science. If this demand were heeded, all men could use yesterday's tools, rendered more effective and durable by modern science, to create to-morrow's world.

9. "In- and Out-of-School Alternatives"

Dr. Ekavidya Nathalang, Director, Elementary Education Division, Department of Elementary and Adult Education, Thailand, initiated discussion on the above topic with his proposal for 7 alternatives which he referred to as "reformatory or remedial measures in elementary education".

With respect to in-school alternatives, the following were proposed:

1. Minimizing wastage in the school system.

   Dr. Ekavidya mentioned two important tasks which, if implemented, would dramatically reduce school failure and drop-out rate in Thailand:

   a. That every child going to school be reasonably well fed, well clothed, and well equipped with learning materials.

   b. That the school be expected to meet the required standards as judged by the Standardized National Norms in terms of its management, instruction, teacher quality, facilities, and community relations.

2. Another style of compulsory education.

   Two alternatives were presented in relation to compulsory education in Thailand:

   a. That the state provide free but not compulsory education to those who finish the 4th grade and wish to continue up the formal stream.

   b. That those who finish the 4th grade and do not wish to go on attending the upper grade be provided with opportunity to attend a specially organized class 60 days a year for 3 consecutive years beyond the 4th grade.

3. Curriculum reform.

Dr. Ekavidya expressed the needs and the crucial points at which to break away from the established curriculum. He did not, however, make any attempt to propose any form of curriculum alternatives.

In harmony with the above in-school alternatives, the following measures were proposed with regard to out-of-school education:

a. Village reading centers.

These centers are intended to provide as extensively as possible reading materials and facilities with a view to keeping the people's literacy skill functioning as a means to enrich thinking and experiences.

b. Functional literacy and family life planning.

c. Mobile trade training programme.

The MTTP is designed to take teachers to the needed areas where adults and out-of-school youths can learn the basic skills required to enable them to secure jobs.

d. Youth leaders training programme.

The YLTP is intended to provide intensive training to youth leaders in the agricultural concepts, techniques, and trade skills, with major emphasis in practice and group process.

10. A Regional Approach to Educational Alternatives

Getting better textbooks, training better teachers, revising the curriculum, providing more relevant educational objectives, etc., all these and other manipulations will have little impact on the world crisis in education, if they are simply implemented within the present system. Such is the summary of Dr. Robert Jacobs's introductory words in his presentation at the Practicum. This is true, he contended, simply because there are not enough resources to meet the requirements for providing formal education for all.

Alternatives do exist, however, which could help the child learn and acquire desired behaviour outside the formal school system. There are alternatives also, which could serve to gradually transform the existing system without destroying it at the outset. Research also suggests that certain kinds of learning can effectively take place without a teacher. The potential of existing educational technology for providing alternatives has already been discovered.

Assuming that change is inevitable due to the economic impossibility of the present system, and given the alternatives which do exist, what can be done on a regional basis - through a regional approach - to bring about change?

Dr. Jacobs indicated certain considerations underlying the establishment of the SEAMEO, which was created to implement the commitment to regional cooperation in bringing about educational change. He also referred to the regional plan of action approved by SEAMEO which involved the establishment of a regional center, INNOTECH, with the establishment and/or identification of national institutions.

The operational procedures as described in the Plan are as follows:

1) Problems to be dealt with by the Center will be determined by the Regional Governing Board.

2) Training and research programmes will be organized to deal with problems identified by the Board.

3) Trainees will undergo an initial orientation programme, covering the systems approach and research methodology and provide familiarization with the general field of educational technology. Beyond this, the training will consist of actual participation in the research or programme to which the trainee is assigned.

4) The product of the research (prototype solutions) will be taken by the trainees who help to create them to their own countries upon completion of training for trial, development, refinement, and, finally, implementation at the national level.

5) There will be a national center in each country, providing a "home" for the returned trainees to carry out trials of prototype solutions and to work with further systematic problem-solving at the national level.

6) The long-term training programme will operate on a one- or two-year cycle. There will also be supporting, short-term training programmes.

Dr. Jacobs ended his presentation with observations on certain problems which INNOTECH still has to solve.

"INNOTECH was created to solve problems", he said. "It is still new... INNOTECH emerges as an instrumentality for successfully implementing a regional approach to the development of alternatives. Its potential is yet to be determined."

WORKING PAPERS

THE SYSTEMS APPROACH TO ALTERNATIVES

by Kartomo Wirosuhardjo
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INTRODUCTION

This Regional Practicum on "Alternatives in Education" will be very useful for the region and is a very well chosen topic. During these last years there have been a growing interest in questioning whether the education being offered to our people has been the right one. Educated unemployment, a growing pressure for more higher education, frustrated youth whose aspiration for a better life after enjoying more education than their parents ever had, have become a phenomenonin our region.

These all go along with the fact that in many parts of the region the demand for basic primary education has not been met adequately. There are even indications that,unless we can cope with the explosion of our population, many countries in the region will have to add to the backlog of those without education.

The setting up of Innotech may be a reflection of these challenges. Looking for alternative solutions to the problems of education in our region in close cooperation with the member countries seems to be one major function of Innotech.

Systems approach means different things to different people. I have attended a few meetings in which systems analysis or sometimes called systems approach has been understood differently. Some people look at systems approach as a systematic approach applying logic. Others look at it as a powerful instrument to solve any kind of problems. For the sake of convenience I will not distinguish systems approach and systems analysis and use it interchangeably and propose a working definition for the purpose of our discussions.

DEFINITION

Before trying to define systems analysis, let us emphasize what systems analysis is not. Systems analysis is not a panacea to the educational problems that we have. It cannot supply the right answer to our problems, but it can help the decision maker make better decisions if properly applied. Systems analysis is not a set of methods or techniques, which can be applied to solve all kinds of problems, but it can be very helpful within certain limits. It is a kind of research strategy to provide information to decision makers faced with complex problems of choice under uncertainty.

> Quade and Boucher define it as follows:
> "Systems analysis is a systematic approach to helping a decision maker choose a course of action by investigating his full problem, searching out objectives and alternatives, and comparing them in the light of their consequences, using an appropriate framework to bring expert judgement and intuition to bear on the problems."*)

Systems analysis deals with the full problem or system. A system may be considered as a whole consisting of interrelated components or subsystems. The first problem is to identify the system we are concerned with, because every system may be seen as a component or a subsystem of a bigger system, with the universe as the ultimate system.

Once the system is defined, we then proceed with the process. But before we go on, when we deal with education we should define what we are interested in. Our system may be the national or provincial, general or technical education, primary, secondary or higher education. But in my opinion we should start with the national system and look at the other things as subsystems or components. This approach will avoid fragmentation of the problem which ends up in piecemeal solutions.

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*) Quade & Boucher, Systems Analysis and Policy Planning Applications in Defence, Elsevier, 1968, page 1.

THE PROCESS OF ANALYSIS

The process of systems goes through successive approximation following these stages*:

> Formulation of objectives, defining the issues concerned, limiting the problem. The variables that are operative to the attainment of the objectives, are identified when the relationships between them are stated. It is the formulation of objectives which is most difficult, because everything will be derived from it. The decision maker, who is in the final analysis responsible, has to make a decision on the objectives, which is a process of judgement rather than anything else.
>
> Once the objectives are determined operationally, the next step is the research phase, i.e. looking for data and relationships. At this stage historical as well as comparative data are important to help in the formulation of alternative programs for action.
>
> An assessment of the situation to identify resources and constraints, cost-effectiveness and expert opinions on numerical data and assumptions are parts of this stage.
>
> The research phase is followed by the analytical phase or evaluation. (Models to predict consequences of each choice of alternatives.) Every alternative should be analysed in terms of its contribution to the attainment of the objectives and the cost effectiveness. All alternatives will then be compared in terms of programs and costs.
>
> The analytical phase will make predictions under a set of assumptions, which will be followed by interpretation or judgmental phase. This phase will use the predictions obtained from the models with the aid of other information or insight to compare alternatives further, derive conclusions about them and indicate a course of action or plan.

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* Quade and Boucher, op. cit., 33 - 35

The last part of the process is verification when conclusion of the analysis will be tested. The testing can be done through experimental or pilot projects. The result of such projects should be made available to the decision maker as a feedback for revision of the plan as is necessary. This verification is also a means to improve the formulation of objectives, if the result of verification is not satisfactory.

WHAT SYSTEMS APPROACH CAN OFFER

Education has been very responsive to social demand for more education. Education and more education has almost been an end in itself. Education has been a hope for salvation from poverty and ignorance, which is true for most people in our developing region. Education has certainly contributed a great deal to the development of the region. Literacy has increased substantially during the last twenty years. People with secondary and higher education are increasing in number, who help overcome the shortage of skilled and high level manpower.

However, as we look at the requirement of development of our countries, education in our countries falls short of the role it has to perform. Our education is oriented to a production technology unfit with the prevailing technology. On the one hand, many of our countries are short of the skilled manpower we need to produce efficiently, and on the other, we have an abundance of unused human resources with certain skills not salable in the market. At the same time we have developed a consumption pattern among our youth in particular beyond our productive capacity. Demonstration effects in towns and cities reveal the irony of affluence in a sea of poverty and sufferings in the rural areas and urban slums.

What can systems analysis do? Systems analysis in the hand of good systems analysts may contribute. Systems analysis can help decision makers to see the whole forest, and not just the trees, by knowing the whole system and its components as an integrated one. It seems true in many countries of the region in which each component in our education system becomes a system in itself, building empires unrelated to the other components. Systems analysts can help develop the awareness of the existence of a system, in which a component plays a part in harmony with others.

Since system analysis is either a method or a technique, and more art rather than science, it is not easy to make one a systems analyst. But if we look at the process of systems analysis, it shows that it is an objective-oriented and not a means-oriented approach, it is a problem solving approach through problem identification and does not start with solutions. It looks at the present programs or action as just one alternative, and not as the only alternative. It helps bureaucrats not to stick to procedures but look at the problem and look for the best solution. It is a way to look for optimum solution rather than an ideal solution. In short, basically it is the application of economic principles aiming at optimum use of resources to attain a certain objective. Methods and techniques can be borrowed from several disciplines.

SOME EXPERIENCE IN SYSTEMS APPROACH

Taking advantage of the work of Innotech at the preparatory as well as interim stage, within the Ministry of Education in Indonesia, effort has been made to explore the potential application of systems analysis. The underlying idea behind the exploration of the application was the fact that after the mismanagement in the first half of the last decade, the whole education was fragmented. The objectives of education were determined by the components of what should be the educational system. Curriculum, personnel, materials, facilities of the fragmented system had no relation whatsoever with one another. In the framework of the refunctioning of the government as an effective organization, in 1969 a reorganization was introduced in the Ministry of Education. This opportunity was used as a means to integrate education within the Ministry of Education dealing with primary, secondary, higher education and community education. The planning agency within the Ministry in the framework of the Five Year Development Plan was assigned to coordinate the planning in the Ministry. It soon was realized that there was not even a clear understanding of the situation.

A seminar on identification of educational problems was organized, mobilizing the educational leaders in the country in early 1964. Based on the problem identification, a national assessment of education was undertaken. The main purpose of the assessment was to provide a clear picture of the whole education system, i.e. the curriculum, personnel, materials, facilities of the components of education. The assessment was also expected to provide data for the improvement of the existing plan, but especially as a preparation for the second development plan.

In the meantime, a program of developing systems analysis as a means to enable an integrated planning of the educational system was organized in the newly established Office of Educational Development. The Office, established by Presidential decree was given the function of coordinating and conducting research, experimentations and planning of education. The national assessment of education became part of this institution. With the functions assigned to the Office and with due support by the Minister of Education, systems analysis became an accepted approach.

Priority was then given to the training of potential people in the Office of Educational Development, in the Directorates as well as the Regions, and by now a few hundreds of the Ministry's key personnel have been directly exposed to the approach.

At the moment, exercise in the application of systems approach to educational objectives, criteria for evaluating innovations, project formulation and education administration are at the final stage of completion. In all these exercises the application of systems approach to alternatives, or the formulation of alternatives through systems analysis, has been the basic approach. In due course the results will become an input to the educational system in Indonesia. It is not impossible that they are of some use to Innotech and others as well.

CONCLUSIONS

Systems analysis properly applied could give an estimate of resource implications and effectiveness of alternative courses of action. The end of systems analysis is to supply the decision maker with the optimum cost-effectiveness out of a number of alternatives. On the basis of his judgement, the decision maker chooses the best alternatives.

For this reason, systems analysis in its simple form should be communicated as much as possible to develop understanding of its potentials and limitations among decision makers and planners in education, but at the same time good systems analysts in education need to be developed to benefit most from it.

SUMMARY OF DISCUSSION

In response to a number of questions Mr. Kartomo clarified his paper as follows.

1. The systems analyst's task is to provide information to the decision-maker who must also consider a variety of other political, economic and social factors. Since decision-makers must be presented with alternatives, we must have agreed-upon objectives. A planner should provide alternatives even though he may propose one as the best. It is up to the decision-maker to decide whether it is going to be accepted or not. However, we must sell the concept to the decision-maker so that he knows its limitations.

2. The link between educational planning and national economic planning is not one-to-one, because education is a longer-term investment (10 to 15 years from now) than economic planning which may give priority to one sector (say, agriculture) for a much shorter period.

3. There are a variety of planning criteria, including social demands, manpower and rate-of-return. The decision as to which criteria is to be used should be made initially before we apply the systems approach to planning. Since we contend that education is not an end in itself, we must be guided politically by the criteria chosen by policy makers.

4. Systems analysis in educational planning is not as yet the science it is in economics. It is more an art to identifying problems and alternative solutions.

5. At the present time data necessary for systems analysis in the SEAMEO region are often defective, particularly if we are attempting to derive cost-benefits; we need to establish educational data banks. Part of the systems approach concerns the collection of data which should be collected within the framework of the system. However, even now, we can do some comparative analyses among countries and within the same country over a period of time.

6. The systems approach is applicable even if the means to achieve objectives are very inadequate. The constraints which make achievements difficult are specified within the framework of the system.

7. In Indonesia we have attempted to integrate planning between regional and central offices by conducting training programmes to develop a common approach and language for planning.

Translation
Original: French

TECHNOLOGY OF EDUCATION

by Ho Tong Ho
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INTRODUCTION

The liberation of the peoples of Asia, Africa, and Latin America, which characterises this second half of the twentieth century, is a socio-political fact of great significance which will have far-reaching consequences. While these peoples have been satisfied as to their political and institutional aspirations, their liberation has confronted them at the same time with responsibilities vis-à-vis the numerous problems which they have to resolve. Among these problems, the awareness of their lagging behind the developed countries, and the desire to launch a rapid socio-economic development seem to be their greatest concern. In their search for the means to implement their national development, they see in education a decisive factor to which large amounts of effort and resources must be devoted. Indeed, the predominant idea is that "non-educated people have neither the ability, nor the taste, nor desire to engage themselves in a development process" and that "the real wealth of the nation lies in its people".

That is why in the course of the last two decades we have witnessed a school explosion everywhere, the developing countries vying with one another in spending enormous parts of their budgets to facilitate that expansion. The hope, nay, the deep faith in education, has roused the enthusiasm of the peoples of the Third World, and has led them to believe that it would suffice to multiply the schools, to train a great many teachers and to educate a great number of children in order to acquire in a short time the human capital that is necessary for the development of the country. After all, is this not a very legitimate ambition and à priori a very logical way of reasoning?

However, after fifteen or twenty years of continued effort, many a country has come to be disillusioned. The results which they have acquired do not measure up to their hopes: neither the massive schooling, nor the production of the required manpower, nor the socio-economic development has found satisfactory solutions. On the contrary, a variety of new problems, such as unemployment, maladjustment to social life, "pedantisme", exodus to urban centers, and so on, have emerged.

The inefficiency, or at least the inadequate output of education, is the result of various causes among which we can mention the traditionalism and conformism of the educational system, the lack of well-defined objectives, the obsolescence of currently used methods and techniques, the shortage of qualified teachers, and poor management. All this is probably the result of a somewhat simplistic view which underestimates the complexity of the problem and the numerous difficulties to be overcome in order to arrive at the desired outcomes. In addition, it is to be noted that the educational systems, which have been preserved up to now, are derived from Western models which no longer meet the problems and needs of the developing countries.

Although this assessment of the situation is rather discouraging, it nevertheless has led educational administrators to revise the objectives, reexamine their educational systems, look for increased efficiency in teaching, using either the systems approach or the systems analysis. Everywhere serious studies and researches have been carried out in the fields of educational reforms and educational innovation and technology. At the same time, opportunities for exchange of ideas, experiences and results have been multiplied. This article will deal only with educational technology, trying more particularly to examine the problems of its insertion into the process of teaching and learning.

THE UNFORTUNATE EXPERIENCE OF THE KHMER REPUBLIC IN RECENT YEARS

The Khmer Republic, like probably most countries of the Third World, was quickly aware of the obsolescence of her educational methods and processes as well as the deficiency of didactic materials used in schools. Being firmly convinced that education plays a very important role in development and progress, that education is a mechanism of social evolution and an investment of great value, the Khmer Republic was primarily concerned with the 'modernization' of her education by the introduction of new technologies such as the projected still and moving pictures and other audio-visual media. But this injection of new media was done in an improvised manner, without a preliminary study of the technicality, the way to use them effectively, and even without knowing exactly why they are used. The teachers were not prepared to operate the more or less complicated machines, which wore them out rapidly, and to integrate these new techniques into their teaching which was still following the traditional patterns. In using the new media, they did not know how to reap the benefit from them, how to conform them to the needs of their teaching, and what outcomes they wanted to achieve. Most of the time, these

media were used out of curiosity, vanity, 'snobbism' or for the pleasure of breaking routine monotony. The users did not even know the role these media must play, nor did they know the functions they themselves as teachers must accomplish. It is not surprising, therefore, that such teaching did not follow any existing or so-called innovated pedagogic models. It was an unhappy mixture that did not teach the children very much, a semblance of teaching which failed to communicate knowledge, achieve the objective or objectives of the subject taught, and which, most of the time, could only distract the students' attention and save them from active, useful and fruitful work. Since the students were unaccustomed to a new atmosphere created by these techniques, engulfed in a world of pictures and sounds of which they did not quite grasp the meaning and importance, they were confused in their learning and considered what they were shown as an entertainment rather than an educational activity.

In addition, the audio-visual materials presented were imported from abroad and could not always be adapted to the curriculum content. Besides, since the teachers were not able to conceive and produce the materials in accordance with their needs, the meager stocks of materials available were soon exhausted, for want of new supplies. Finally, a time would soon come when the equipment and machines, already more or less in bad shape or completely out of order, were shelved in cupboards from which they would rarely, if ever, reappear, and 'modernized education' would have given way to traditional education of which we know the forms, methods and results.

What has happened to these audio-visual materials has also happened to language laboratories equipped with more delicate and expensive taperecorders. The same fate was reserved to other teaching techniques, even those that are simpler and easier to handle.

The experiences described above prove that, in the field of education, improvisation and haste are dangerous, because the communication of instruction and the learning process are complicated and delicate operations in which take part numerous factors, external as well as internal.

Moreover, the failures which have resulted from such improvisation and haste will have deep and adverse effects on the teachers who, generally speaking, are already reluctant to make use of things which upset their old habits and current practices.

However, would these be sufficient reasons for not bringing changes and innovations to our educational methods and techniques? In this new world where radical transformations are interfering in the way of thinking and communicating, in the way of life, in the field of knowledges and human activities, is it possible to preserve unchanged a system which does not meet the present and future needs? More particularly in Asia, the educational problems are so important, so urgent and so complex that the traditional methods are completely out of date. The question we have to answer is not to know whether or not we should innovate, but to know how to innovate with efficiency.

EVOLUTION OF EDUCATIONAL TECHNOLOGY

During this second half of the century, we have witnessed the appearance of a host of new technologies in the fields of sciences, information, publicity, communication, industry... (reprography, cinema, radio, television, taperecorders, computers, communication satellite...) But these technologies have only been introduced to schools very slowly and long after they had proved their efficiency. At first, they were used sporadically and timidly by progressist teachers, as marginal addenda to the traditional methods. They were used to illustrate lessons in geography, sciences, arts, or to simulate some realities in the classroom, or to improve language lessons, etc. In all these cases, the idea was to make teaching more concrete, less verbal, less theoretical and less formal. There was no attempt to develop a completely new type of teaching; rather, the aim was merely to remedy the deficiencies or insufficiencies of habitual practices. Since media utilization was mainly due to isolated efforts of devoted teachers who were anxious to improve the quality of their own teaching, it did not allow, in these conditions, for the development of any methods capable of insuring an effective expansion of teaching. What is more, the school administrative authorities only paid lip service to these new technologies and a rational organisation for the use of these technologies was entirely lacking.

Thus, the first period of educational technology was characterized by this marginal, disparate, and amateurish point of view, which could not lead to a restructuring of pedagogic materials and methods which would ultimately bring about significant changes in the old educational system. This explains why a good number of hardware and software has not been used effectively or has been left idle most of the time, which has resulted in substantial wastage. We might ask whether it would not have been preferable to begin

with simpler media and techniques, the flannelboard, for example, without having immediate recourse to complicated and expensive devices and machines which necessitate some preparatory work, and call for changes of the existing structure and organisation to begin with.

This first technological phase, however, was not useless. As a matter of fact, it has allowed educators who have an idea of the great possibilities that these media can offer, to change some of their attitudes, to rethink and recognize their teaching, and, in brief, to be prepared to go forward in the gradual improvement of education. It has also created a new atmosphere in the classroom, and built up new interests on the part of the students with regard to the acquisition of knowledge. It has also opened the door to a more intensive and rational utilisation of technological devices which characterizes the period that follows.

During the 1960's, education had to face numerous problems: the quantitative expansion which became more rapid owing to demographic growth, the education of the masses, the explosion of knowledge and social changes, the need for qualified manpower for national development, the necessity of modernizing education to solve present and future problems... Facing these many complex problems, one is convinced that the classical means so far used will no longer suffice to solve them, and that it is necessary to look for more advanced techniques. Thus, in the developed countries, the application of more scientific and technical methods has been on the rise, these methods ranging from complicated audio-visual systems (disc/filmstrip systems, slide/tape systems) to very complex devices and machines (VTR Systems, EVR Systems, CCTV Systems, CAI, etc.). With regard to the developing countries where educational problems are more numerous and difficult, and where at the same time the resources, educational structures and pedagogic methods are clearly behindhand, great efforts have been made to introduce new technologies. Thus, in India, for example, a system of correspondence courses is being finalized; in Indonesia, the BPP (Badan Pengembangan Pendidikan) is conducting serious studies and researches on educational innovation, and experimenting on several promising projects; in the Philippines and Singapore, ETV has had a good start with encouraging results; in Malaysia, the Study and Research Centers are actively working on the elaboration of new methods and techniques as well as the production of new teaching materials; in Korea, a model for 'perfect' learning has been launched in the middle schools; and in many other countries which we apologize for not mentioning, those responsible for education are not sparing their efforts in the field of educational innovation and technology.

TECHNOLOGY IN SERVICE OF EDUCATION

The problems that stand in the way of educational development, such as the shortage of qualified teachers, the antiquated structures and curricula, the inadequate output of existing systems, the unequal distribution of educational opportunities, and illiteracy, have aroused in the developing countries a stronger and stronger desire to look for more efficient technologies.

On the other hand, the development of new media of information, communication, analysis, organisation and control, which have proved their worth in other fields, is urging educational specialists and school authorities to introduce them to the service of education. As a matter of fact, one cannot deny the effect and impact of these media on the human society of today. Their potentialities, if well exploited, are immense. The experiments tried out in several of these countries have shown that their use in education has made teaching and learning far more efficient than the classical pedagogic methods. In other respects, a great number of planners and economists have denounced 'the strange and pernicious paradox that leads one to insist that education should change the world without admitting that education itself must be changed and continuously changed.' It is also advisable to ask oneself whether the introduction of these new technologies would not allow the countries of the Third World to extricate their schools from the models inherited from the advanced countries, when there is still time, and to rationalize and optimize the educational systems by improving the processes of learning, of memorization, and of knowledge communication. Isn't it most likely that a combination of human capabilities and pioneer technologies would make it possible to teach better, more rapidly, to more individuals and at less cost? It is in this porspective that UNESCO has lent its assistance to many countries "to reduce the deadly desequilibrium between the accelerated evolution of technologies and the stability of pedagogic concepts that characterize educational development today."

To have an idea of what educational technology is, let us borrow this definition from Mr. SETH SPAULDING "a real technology of education covers all the aspects of the process of defining objectives, continuous up-dating of curricula, experimenting on new methods and materials, evaluating the whole system and modifying the objectives in accordance with the results obtained ... However, educational technology is often identified with various devices and equipment which can register, store, process, track down, transmit and present data, information and printed or photographic documents with a speed and efficacy which would be unthinkable only 10 years ago."

Let us examine briefly some of these new technologies by presenting them with their advantages and possibilities.

The flannelboard

The flannelboard is not a new equipment. The Cambodian teachers have known it for a long time. But its use in our classrooms is not widespread yet.

Because of its numerous qualities and great possibilities, the flannelboard deserves a particular attention on the part of the teachers. As a matter of fact, they can derive real advantages from it to make their teaching more profitable. Let us examine the reasons that favour the use of the flannelboard in our schools.

Qualities of flannelboard

By virtue of its numerous qualities, the flannelboard is an ideal equipment which perfectly meets the needs of active teaching:

a) it is simple, because it consists only of a screen of flannel and a collection of figurines.

b) it is suitable to all teachers from the point of view of price and use.

c) it is collective, because it is visible by the entire class.

d) it is attractive, because it is a cinema in miniature.

e) it is lasting because, contrary to some materials (things, plants), it can serve a long time.

f) it is practical, because the teacher can use it at any time.

Possibilities of flannelboard

If the flannelboard has many qualities, it also offers many possibilities:

a) it is a polyvalent equipment, which can be used in all classes, from kindergarten up to the 7th grade and further on, and which lends itself to the teaching of all subjects: languages, mathematics, sciences, geography, history, etc.

b) it is a dynamic equipment, which allows the teacher to create a variety of situations necessary for his teaching: all it takes is to move the figurines around or change them when needed.

c) it is a rich equipment, because the teacher can easily enlarge his collection of figurines with drawings, pictures, illustrations cut out from magazines, prospectuses, etc.

d) it is an equipment which is both instructive and educative, because it shows, proves, concretizes, and enlists students' participation and invites them to discover and express themselves.

The figurines

The Department of Pedagogic Services is preparing a series of figurines likely to be used in all primary school classes. In the meanwhile, however, the teacher can obtain what he needs by drawing figurines himself, or by gleaning here and there the pictures, prints, photographs which he has cut from old magazines...

. The projectors for transparencies and slides are simple devices, easy to handle, requiring only a short-term training of the users. Still-picture projection does not require long preparation, special arrangements or complicated technical know-how. It shows pictures of good quality and can adequately illustrate or concretize the lessons. It is docile in the hands of the teacher who can keep a picture as long as he wishes, or go back to a picture already shown, contrarily to the cinematographic projection which shows the pictures we cannot stop. Combined with the teacher's verbal explanations or comments, still-picture projection is a flexible process which lends itself very well to classroom teaching and even teaching in larger rooms. Besides, it is not very expensive and many teachers can afford it.

As for the supply of transparencies and slides, we can rely on the study and production of a research center. Teachers who are well-versed in photography can also produce these materials for their own use. The only inconvenience is that most of the rural schools in developing countries do not have electricity.

. The overhead projectors can project, by means of transparencies a variety of sketches, plans, charts, or cartoons prepared in advance or drawn by the teacher as he goes along. Texts, written with a dark pencil, can also be projected. These devices offer the possibility of presenting a verbal course with a structural supplement constituted by a plan, a sketch or a chart which will help to retain the main ideas. We maintain that the students understand and remember better when they see the thematic or schematic structure of a lesson.

. The opaque projectors project photographies, drawings, illustrations and written or printed texts by a reflexion system. Thus, they save the teacher from the work of production, and allow him to show on the screen a variety of documents which he only needs to know how to exploit.

. The tape-recorders are remarkable sound-recording devices which can reproduce or repeat lessons with all the required fidelity. They lend themselves admirably to the teaching of languages, songs, music and diction. The tapes can be rewound to repeat a passage, or have silent pauses to let the listener repeat what he has heard or answer questions. This is a device which can be used individually as well as collectively. It can also be used in training teachers when student-teachers wish "to hear themselves" teaching.

. The cinema offers greater possibilities by the fact that it can project the moving pictures with accompanying sounds. With this equipment, we can introduce in the classroom concrete realities ranging from things, facts, events to the most complex phenomena and activities. Thus, it can do many things that the teacher cannot do. However, the use of cinema is expensive and does not always suit the teachers. It requires the teacher to choose the appropriate film and examine it in advance, to set up the projector in the classroom which generally is not fit for this purpose, and then to remove the equipment afterwards. It also assumes the creation of a film-library with films which suit the curriculum.

In passing, mention should be made of cassette films which are easier to handle, and the film loops of which Mr. DENIS SEGALLER has made a detailed study.

. The radio is per se a powerful medium to reach the masses without distinction of sex or age. It practically removes distances and transportation: its system of sound transmission and reception eliminates almost all the obstacles of communication.

Thus, it can offer priceless services to education, inside as well as outside schools. We can, for example, use it to:

. broadcast quality programmes as a remedy to the inadequacy and inefficiency derived from poor teaching provided by non-qualified or inexperienced teachers,

. recycle the existing teachers especially those who work in remote areas and are short of information materials,

- demonstrate or popularize the new teaching practices which have already been tried out,
- provide remedial courses to students who need them,
- contribute to the illiteracy campaign as well as to continuing education, etc.

• The television is a marvellous device of mass communication which combines almost all other audio-visual media. The prestige it enjoys, the magic charm it radiates, and the impact it produces, are factors that build up motivation for learning. Since it can broadcast sound and moving pictures at the same time, TV is about the best medium to supplement the teacher. As stated by NORMAN MACKENZIE, TV's pedagogic possibilities are enormous and spread in 3 directions: (a) it can show the things which, without it, would be incommunicable owing to their successive dimensions, their distance, and complexity; (b) it can transcend the limits of space and time; (c) it can be used for critical examination of a performance (thus, a sportsman, an actor, or a professor can be recorded in the course of his activities and these can be shown again on the screen...) LEO H. LARKIN, S.J., discovers the following special pedagogic advantages of TV: diffusion of quality education, modernization of the curricula, in-service training of teachers, and promotion of audio-visual aids. To this, he adds that "it can offer, at least in part, the solutions to various problems: shortage of qualified teachers and specialists, teachers' overload, scarcity of textbooks, outdated curricula, lack of instructional materials, high teacher-student ratios, and high dropout rates. Finally, one may recognize the fact that "capital investment and operating costs are small in relation to the great number of students who benefit from them."

I apologize for not being able, within the framework of this modest article, to dwell on other leading media and techniques which more authoritative specialists have dealt with elsewhere.

CONDITIONS FOR THE EFFECTIVENESS OF NEW TECHNOLOGIES

We have seen above the potentialities and capabilities of modern media and techniques of information and communication. We have also recognized the necessity for bringing changes to our teaching methods and practices to make our educational systems more efficient in order to solve the many complex problems of education. But does it all mean that we must rush to these media and techniques to adopt them straight off and to introduce them in our schools

without delay? A good many experiences of the past must put us on our guard against those innovations which are hastily adopted, ill-conceived, ill-prepared, effected without proper studies, researches, experimentations and evaluations, because the processes of teaching and learning are ensembles in which numerous factors come into play: physical and pedagogic facilities of the schools, administrative organisation, objectives, curricula and methods, instructional staff, training, financial resources, students' learning habits, etc.

Thus, we should avoid improvisation and take all necessary steps and measures to obtain "a system of gears that fit." Among the conditions to be met, the following are deemed pertinent:

a) Creation of an organism for research and development whose role is:

- to assemble and analyze the data of the educational situation of the country with a view to evaluating their capabilities and the output their use can yield,
- to conduct exploratory studies on modern media and techniques with a view to evaluating their capacities and the output their use in schools can yield,
- to try them out at pilot schools until the best ways to use them have been established and their efficiency ascertained,
- to complete the work on: instructions concerning their use, a programme of popularization, a method of evaluation and feedback or a system of liaison with teachers,
- to produce, with the assistance of technicians and specialists concerned, materials and documents necessary for teachers.

b) Modification of teachers' training programmes with a view to making the teachers interested in the new techniques and capable of using them correctly.

c) Organization of a vast campaign for the introduction of these techniques in the teaching circle, and of courses for recycling of existing teachers.

d) Changes to be made in physical school facilities, in existing curricula and teaching methods, especially with regard to the processes of teaching and learning, i.e., the role and functions of the teacher and the taught on the one hand, and those of the equipment and machines on the other.

e) Continuous evaluation of the utilisation, the results obtained, and the various incidences affecting the whole educational system, the financial resources, and the impact produced in social circles. As we can see, a technological innovation, if it is to be rational, is not simple 'graft' on the existing context, nor a simple 'replastering' of a system in force.

A work undertaken by UNESCO has shown the necessity "gradually to move away from thinking about technology IN education, i.e. thinking essentially oriented toward the problems of equipment, the elaboration of ad hoc messages and the incorporation of technology into traditional pedagogic activities -- to thinking about the technology OF education, which focussed on a systematic application of communication and information to the learning of each individual under the control of the teacher" (puero centrism).

In other words, " to look for an increased pedagogic efficiency is not to try and replace man with mechanical processes, but rather to develop new configuration which would combine man and technology, so that teaching could be better provided, to a greater number of students and cheaply."

STRATEGY OF TECHNOLOGICAL INNOVATION

It remains for us now to know how to conceive an overall plan for the introduction of the modern technology in the traditional system of education. On this subject, the specialists envisage 3 possible solutions:

-- the first solution aims to change everything at the same time, thus doing away with everything existing and considering "the establishment" as a great obstacle to all the conversion.

-- the second solution calls for modifying existing situation by the introduction of innovation at the lowest level of the system, and carrying on from there, step by step, the new system pushing the old one in front of it.

— the third solution involves setting up and developing a new system parallel to the old one and capable of replacing it in a future to be determined.

In our opinion, the third solution seems the most realistic, owing to the fact that it calls for a fruitful competition between the old and the new system on the one hand, and on the other, that it makes integral conversion easier. The essential point is to create and maintain a dynamic atmosphere, and set up a sizable group of "innovators."

Special attention should be given to the organization of Research and Development Centers which are the brains of innovation and whose functions have been enumerated in the preceding paragraph. These Research and Development Centers will be devoted to advanced studies of existing data and infrastructures for the purpose of developing methodologic packages and producing new teaching materials.

Equally deserving our special attention is the training of a body of educational technologists composed of specialists in curriculum revision, specialists in communication, specialists in school administration, and so on.

Also, an inventory should be made of the media which are in existence but not yet exploited in a rational and efficient manner (radio, television...), and a study should be conducted as to the possibilities of using them in a profitable manner within the framework of the developing countries.

Finally, it is advisable to define the programme of technological innovation in accordance with the general policy adapted for educational reforms, because one of the conditions for success will certainly be the financial resources allocated to different projects.

CONCLUSION

If the developing countries find in education an investment of great value, a mechanism of social evolution, an investment of scientific and technological progress, and by extension, a process of economic development, they must without delay consider a drastic revision of their teaching methods and techniques within the framework of the reforms and innovation of their educational systems.

It is unquestionable that the traditional pedagogic methods and practices cannot solve the educational problems whose magnitude and complexity we all know. But this does not imply the idea of rushing recklessly to risky adventures which might result in bitter failures. The conditions, the state of mind and the old habits that prevail in the developing countries, require a great deal of prudence, a good method of approach and a progressive plan of action, which, while tackling the problems at the roots, will avoid turning everything upside down.

If there is an intermediate educational technology, without complicated and expensive machines and devices, but suitable and efficient enough, that, in our opinion, is where we must begin, because we have learnt from experience that if we forced the pace too much, we might run the risk of not arriving at all.

SUMMARY OF DISCUSSION

In response to a number of questions, Mr. Ho Tong Ho clarified his paper as follows:

1. The purpose of his paper is to show the real educational situation in the Khmer Republic: A great number of children are not in school, the qualify of education is low, and the large number of teachers are unqualified.

2. Modern technology such as radio and television could be effectively used as an alternative to reach a greater number of students, teachers and adult populations.

3. When a new educational technology is introduced, the teachers in particular and the people in general are caught unprepared. So there is a need for some kind of campaign to prepare people for new methods and techniques.

4. In a poor country like Khmer Republic it would be desirable to introduce only simple and inexpensive forms of educational technology.

5. It is unfortunate that most Khmer educational administrators are rather indifferent to the introduction of new techniques.

6. The new teachers, who have favorable attitudes towards new educational technologies, have little chance to demonstrate their skills because they are absorbed by the majority of conventional teachers. One of the ways to encourage those teachers is to form a specific group which is committed to educational innovation and give them the prestige and recognition they deserve.

ALTERNATIVE OBJECTIVES

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OBJECTIVES FOR OBJECTIVES

"Would you tell me, please, which way I ought to go from here?"
"That depends a good deal on where you want to get to," said the Cat.
"I don't much care where --" said Alice.
"Then it doesn't matter which way you go," said the Cat.
"-- so long as I get somewhere," Alice added as an explanation.
"Oh, you're sure to do that," said the Cat, "if you only walk long enough." (Carroll, 1916).

Unless we are in Wonderland, few, if any, of us would deny that in all rational human endeavours it is imperative to know where we are heading and when we may be said to have arrived. Even a child would very frequently demand specific and unambiguous answers to questions like "Where are we going?" and "Are we there yet?" The clarification and specification of ends before the investigation and selection of alternative means is what the proponents of behavioural objectives have advocated and insisted upon. And yet, despite the appearance of taxonomies of educational objectives (Bloom et al., 1956; Krathwohl et al., 1964; Simpson, 1967), of exhaustive compilations of objectives for different subject areas (e.g., Norris et al., 1970; Flanagan et al., 1971), including a data bank of instructional objectives at the University of California, Los Angeles, and of numerous books, articles and monographs on the subject, the impact of the behavioural outcomes approach in terms of its interpenetration into the whole fabric of educational planning and classroom instruction has been rather insignificant. What seems to have gone wrong, and what are the issues which are being raised by voices of dissent? (e.g. Jackson, 1966; Eisner, 1967; Kliebard, 1968; Atkin, 1968).

The problem is that very often people who have committed themselves to stipulating objectives, whether behavioural or not, seem to be afflicted by naiveté, myopia or downright insensitivity. These are, admittedly, harsh terms, but they are not meant to be derogatory nor offending. Rather, the intention is to caution against a widespread syndrome which is symptomatic of the uncritical application

of new knowledge and technology. Thus, it would be naive to assume that the state of the art is so advanced that all objectives are readily expressible in behavioural terms and that those objectives which are not amenable to such expression are probably not worth looking at, or else to expend inordinate amounts of time, energy and resources in trying to express all objectives in behavioural terms, while curtailing attention to other equally, if not more, essential activities and functions. Unfortunately, the influential programmed booklet by Mager (1962) might have given the impression that behavioural objectives are usually trivial, for he deals exclusively with cognitive objectives which can only be relegated to the lowest levels of Bloom's taxonomy. His follow-up booklet (Mager, 1968), which focusses on "affect analysis," does little to repair the over-simplistic conception of behavioural objectives, for a naive reader is likely to form the impression that important affective behaviours are reducible to either approach or avoidance behaviours only. These criticisms are offered not as an attempt to denigrate Mager's significant contribution, for his lucid and compelling explanations of the importance of spelling out not only behaviours (student does what?) but also conditions (given what?) and performance criteria (how well?) are indeed commendable and necessary. As a matter of fact, wherever feasible, in addition to these three criteria it would also be highly desirable to be clear in our minds regarding who the learner is, what type of learning is involved, and why the intended behaviour is important for the learner. The last-mentioned criterion concerns the crucial question of what are our objectives for selecting the desired objectives, for we need to ask ourselves constantly whether or not each objective is realistic and relevant to the learner and, indirectly, to society.

It is therefore apparent that specificity and precision in formulating objectives are necessary, though not sufficient, conditions, for, in view of our current limitations, we are perforce required to adopt alternative strategies for dealing with objectives which are recalcitrant to behavioural or operational definition. One way is to identify "expressive objectives" (Eisner, 1969) for which it would be more profitable to delineate the educational encounters than to specify the learning outcomes as is required for "instructional objectives." Another is to adopt an iterative procedure of making a rough draft, testing the performance called for by the objective and revising and refining the objectives. Such a procedure has been suggested by Rahmlow (1968) who advocates the repeated use of the four successive steps of drafting the objective, writing the sample test item, identifying the principal performance,

and specifying learning activities in the selection, implementation and assessment of objectives. Of course, both of these procedures could be combined in moving closer to the ultimate ideal of expressing all objectives in behavioural terms.

Educational planners who treat the formulation of objectives as a separate exercise divorced from the totality of educational, as well as social, economic, political and cultural, programmes may be regarded as myopic. They are considered short-sighted if they merely go through the ritualistic motions of preparing educational objectives without attempting to correlate each objective with the corresponding set of activities in the educational enterprise, while taking cognisance of the associated social, economic, political, ethical and cultural objectives. The disfunction between educational goals and educational practices is very evident when we compare the avowed objectives with what goes on in our schools. In the UNESCO-NIER comparative study of curriculum development in 15 participating Asian countries (1970), it was observed that a "common trend is the emphasis on a well-balanced development of the whole personality of individuals." Aside from the vagueness of this kind of "word-magic," as Dyer (1966) calls it, a cursory appraisal of the way in which the curriculum is compartmentalised both horizontally and vertically in most, if not all, of these countries would suggest that it is indeed difficult to conceive how a "well-balanced development" (whatever that means) could be fostered, let alone the question of how individual differences can be, or are being catered for in the type of mass education that prevails in most Asian countries.

Foster (1969) noted another kind of unrealistic statement of objectives in that schools are often expected to prepare children for a variety of disparate and potentially conflicting objectives, such as, for example, the stress on preserving cultural heritage while, at the same time, producing scientifically oriented students who would be willing to discard practices based on superstitions or myths. "In short," according to Foster, "the schools are expected to pursue a range of objectives that are probably beyond their capacity while attempting to pursue them simultaneously." Hence, if we fail to clarify and justify our objectives for specifying objectives or if we fail to realise that the formulation of objectives is but one essential step in effective and efficient planning, it would be difficult to elude accusations of not being able to look beyond our noses.

In most developing countries, the pattern of schooling which we have adopted as a result of our cultural heritage has so far remained relatively unchallenged. The number and types of subjects, the rationale and orders of priority for the inclusion of various topics, the amounts of time to be devoted to instruction, the length of time a child ought to spend in school each day, each week, each year or throughout his schooling, and so on, have remained unquestioned. It is true of course that most countries in this region are currently investing in curriculum reform, but, typically, these efforts have tended to be piecemeal, with not only the subjects going their separate ways but also different levels of a given subject being revised by separate committees, and generally with each revision, addition, but seldom omission, of topics occurs, or else, some foreign curriculum becomes transplanted without prior consideration of their acceptability by those directly involved, namely the pupils, teachers and parents. In a study by Taylor et al. (1969), it was found that the attitudes to teaching among many science teachers in Britain tend to be functionally at odds with the teacher orientations implicit in the new curricula, such as Nuffield Science. If research evidence suggests that even for a country which originated some of the so-called new curricula, change is by no means an easy process, what more in the case of developing countries that are adopting (even though with the pious hope of adapting) these curricula? Kerr (1969) has questioned the nature of British aid in developing countries on the basis of "findings that many of our school practices, although suitable for home consumption, are not for export." Citing a study by Beevers (1968), which attempted to assess the orders of priority accorded some 40 goals by over 500 experienced educationists from 53 developing countries, Kerr pointed out that although such goals as: "to develop national unity", "to help pupils acquire an education particularly suited to their needs and capabilities in a rural society", to develop cultural understanding between differing groups within the community", and "the improvement of health and sanitation in the community" are given high orders of priority, they are certainly not given the same orders of importance in Britain where, in contrast, the stress would be on the individual and his personal achievement rather than on community life. In the U.S.A., on the other hand, we observe a swing from one emphasis to another. Thus, over the past five decades or so, the shift has been from society-centred to child-centred, then to discipline-centred and now back again to society-centred curricula. It is therefore apparent that there is a need for greater sensitivity in examining either local or imported curricula in their entirety, both horizontally and vertically, to see the extent to which there is a mis-match between the curricular objectives and the manifest objectives of the developing countries concerned.

Insensitivity may also arise from failing to solicit the views of the public-at-large regarding their educational aspirations and expectations. Even if token representation of selected lay people in ad hoc committees is practised, as Dyer (1966) has cautioned, "it should not be one of trying to convince the public of what it ought to want from its schools but of helping the public to discover what it really wants, and among the public I include those who will be in charge in the next 15 years or so -- namely, the pupils themselves, as well as their teachers, their parents, their prospective employers, and behind all these the school boards and legislators who make the decisions." Of course, it does not follow that involving the people should necessarily imply that their wants should always be complied with, for it is possible, if not probable, that they lack the experience or the expertise to envisage not only their own needs but also the development of education proper as well as the overall socio-economic planning. Should a discrepancy exist between "What people want" and "What people need", it is anticipated that some change would be brought about by modifying either the people's or the government's aspirations and expectations, or both. In any case, a dichotomy between the determiners of educational objectives and the practitioners and consumers of educational objectives is rather unhealthy and should be resolved by the genuine involvement, either directly or indirectly, of all parties concerned.

To summarise, the foregoing remarks are intended to underscore the need for greater sophistication, foresight and sensitivity in our efforts to specify educational objectives by seeking, first and foremost, to clarify our objectives for doing so. Failure to do so may result in costly mistakes which developing countries can ill-afford.

OBJECTIVES FOR ALTERNATIVE OBJECTIVES

Typically, developing countries seem to suffer from an ambivalence of objectives. On the one hand, with the attainment of independence by many developing countries, a strong sense of nationalism pervades all decision-making concerning the orientation of curricula. Oftentimes, in our preoccupation with eschewing practices reminiscent of the colonial era and replacing with those which are supposed to reflect national ideology, we may even be throwing out the baby with the bath water. On the other hand, in order not to be left behind in the tide of technological advances, there is a perceptible franticism to follow the footsteps of the more advanced countries, even though in some instances the latter are considering retracing some of their steps. Sooner or later,

with rising school enrolments brought about partly by the unquestioned subscription to the doctrine of providing universal primary education and the consequent financial strain on our slender economic resources, we will have to face the question of priorities squarely and decide whether to channel most of our resources, economic as well as human, mainly in one direction or to spread our resources thin over several diverging directions.

Without having to engage in sophisticated futurological studies, or crystal-ball gazing to use the common metaphor, it should be obvious that the single most potent accelerator of change would be the impact of modern technology and the sooner we re-align our objectives to accommodate both anticipated and unanticipated changes in the wake of technological innovations, the sounder will be the basis of our educational planning. In other words, it would be safer in the long run for developing countries to bet their money on deliberate planning for imminent technological changes than to adhere tenaciously to sentimentalities. Of course, overnight change is quite inconceivable, but a systematic and progressive change in the right direction is entirely within our means if only we are prepared to re-orientate our objectives towards more realistic priorities.

At this juncture, I would like to pose four main implications of advancing technology, bearing in mind that the countries in the region are likely to move at differential rates — for some technology has already "arrived" although the multifarious manifestations of its full-blown impact have yet to be felt, while for others the beginnings of wide-spread application of technology are barely perceptible. In the first place, it may be noted that while machines are not likely to replace human beings except in the most routine and repetitive operations, the blue collar worker, in particular, is likely to be re-placed in the sense that he will have to perform a monitorial function which requires an intelligent overview and a flexible choice of alternatives. Realising then that technical knowledge and skills will become obsolete within each person's working life, it follows that training in basic skills, such as the 3 R's and inquiry skills, together with recurring education in specific skills required by the occupational sector would be preferred to training in specialised vocational skills which are presumably expected to have life-time durability. While increasingly delayed emphasis ought to be placed on specialisation, it is important to stress the applicative uses of science and its allied disciplines as early as possible. Ironically, developing countries which can hardly afford the luxury of side-stepping the

utilitarian aspects of science frequently treat the study of science for its own sake in a highly theoretical manner. It is therefore important to plan for a progressive shift in objectives from the acquisition of fixed and life-long knowledge towards certain fundamental skills, especially in learning to learn, as well as certain crucial attitudes, such as willingness to be flexible and tolerant in the face of an uncertain environment. The implication for teaching is summed up neatly by Mead (1958) when she said that:

"If we can't teach every student ... something we don't know in some form, we haven't a hope of educating the next generation, because what they are going to need is what we don't know."

Technological progress will also continue to exert pressure on the disciplines not only for us to constantly review the priorities of concepts and principles to be included in, or discarded from, the curriculum, but also to radically re-think the rigid classifications of the various disciplines themselves. Technologies and sciences are so closely wedded together that in many cases frontiers between pure science, applied science, and technology can no longer be clearly discerned. Technology is no longer limited to its traditional role of applying scientific discoveries; it now provokes and solicits them, and uses phenomena even before they have been fully understood. As a result, not only has there been considerable fission among the sciences, but new fusions have emerged. There have been new crossroads, such as crystallography, bionics, low temperatures and space, where various branches meet, interact one with another, and often even find new directions to take. The impact of technology on the other disciplines may be slower but is certain to bring about a melting pot of new disciplines. If we fail to take into account these stirring events, mere up-dating of content material within each discipline for each level of schooling will not be sufficient to prepare the future generation to maximally capitalise upon what technology has to offer. Alternatively, in the re-examination of the total curricula, it might be desirable and entirely feasible to formulate overall objectives and re-shuffle the components of each discipline to comply with these objectives. I (Sim, 1970) have, for example, attempted to stipulate objectives which have a one-to-one correspondence to the five ends contained within Malaysia's Rukunegara (or national ideology), namely that we strive towards a united, democratic, just, liberal and progressive society, and then suggested new corresponding subjects, namely communication studies, social studies, vocational studies, appreciation studies and technological studies, within an integrated framework.

Accompanying the growing technology is the impact of mass media which will increase communications not only within but also among countries. Communication satellites can, for example, make an increasing number of people more vividly aware of world events than ever before and will of course make the masses in developing countries increasingly conscious of the gaps in living standards, which in turn will give rise to social revolutionary movements. To an overwhelming extent then, the world of tomorrow will be a world of internationalism and the earlier we prepare our young to develop such an outlook the more ready will they be able to participate meaningfully in the international, or at least regional, scene.

Technology is of course not without its hazards. Environmental pollution caused by waste products from industrial factories and motor vehicles are in the process of destroying air and water. The ruthless exploitation of natural resources will impoverish future generations unless drastic restrictive measures are taken promptly. It is likely that leisure will be enhanced by all sorts of technical time-saving devices. At the same time, the question of how leisure can be fruitfully employed towards better self-realisation will take on greater urgency. With increasing comfort and stepped-up tempo of life, the risk of obesity and cardiovascular diseases will also become greater unless due attention is paid to health and physical education. In some affluent countries, the youth are already rejecting the puritan ethic of the hard-working man under whose auspices their parents "made it." Indeed the functions of the family as an institution is fast changing in industrialised and urbanised societies, for with smaller families and fewer common functions, the extended family is giving way to the nuclear family and family solidarity is becoming an anachronism.

Notwithstanding the fact that many other factors would have to be considered in ascertaining the need for alternative objectives, technology has been singled out merely to illustrate the intricate network of questions inherent in any attempt to change for the better. As we attempt to forecast the future of society we will invariably have to re-examine the existing objectives to see if they are realistic and relevant to the changing society, to the learner who is expected to shape or be shaped by the future society, and to the changing subject matter. The foremost criterion for deciding upon which alternative objectives to choose must be whether or not they are crucial to the people's needs and wants. Whether or not they are easy to formulate in behavioural terms or to assess in terms of performance is but secondary.

ALTERNATIVE SOURCES OF OBJECTIVES

It has often been convenient for people to blame politicians for making irrational decisions which have had serious repercussions throughout the educational system. The truth of the matter is that they are seldom provided with tangible judgment data, which include objectives, personal values, priorities, standards, affective outcome data and summative judgments (Stake, 1970), with which to make rational judgments. As Stake further points out, "Judgment data enter into decision processes as inputs, not as outputs." (Stake, 1970). In fact, based on their limited objective winning votes from their electorates, they haven't done too badly, even though in terms of long-term educational objectives the policies they introduce may be rather disturbing. Hence, if we would like the policy decisions to be as a-political as possible, it is necessary to conduct continual evaluation in order to solicit judgmental responses which cannot easily be brushed aside by politicians.

So far we have been considering objectives mostly at the policy level. There is need to stipulate not only the various levels of specificity but also whether or not the outcomes are intended or anticipated. Berlak (1970) has suggested a useful classification scheme whereby the array of outcomes are represented in a matrix with the realms of outcomes (whether public policy or programmatic) and the types of outcomes (whether the outcomes are intended or unintended, and in the latter case whether the outcomes are anticipated or unanticipated). It should also be possible to split the intended outcomes into anticipated and unanticipated ones, for there are situations where various intended outcomes are possible arising from a rich encounter, but the precise outcomes cannot be anticipated -- the "expressive objectives" would fall into this category. Instead of just two realms of outcomes we could consider more levels, such as the three levels delineated by Dave (1970) as follows:-

"(a) Educational goals that give overall purposes of education,
(b) Educational aims that enunciate stagewise purposes, and
(c) Instructional objectives that are subjectwise specific purposes."

The revised schema would therefore be as shown in Table 1 below.

Table 1. Matrix of outcomes

	Intended Outcomes		Unintended Outcomes	
	Anticipated	Unanticipated	Anticipated	Unanticipated
Educational goals				
Educational aims				
Instructional objectives				

Thus, in the collection of judgment data, it is important not only to be clear about the level of objectives but also to be alert for objectives that have unintended and/or unanticipated outcomes.

Judgment data may be obtained from at least three sources. Documents, such as syllabuses, textbooks, public examination questions, public addresses, reports of special commissions, of planning seminars, etc., may be content analysed for the value commitments made in producing them. Special meetings or seminars convened specifically to discuss and perhaps formulate objectives are also useful sources. At these meetings standardised instruments may be administered, such as questionnaires, check lists, Q sorts, semantic differentials, etc. Otherwise a team of evaluators could conduct a survey, make field visits or interview important decision makers, including Ministers.

Besides these deliberate attempts to solicit judgment data, especially in terms of popular expectations, there is urgent need for coordinated research to secure data on virtually all aspects of the educational enterprise, for we cannot continue to depend on the research findings in western contexts to make inferences concerning socio-psychological behaviours in our respective countries. As a case in point, I have been applying a set of Piagetian tests devised by Smedslund in some Malaysian schools and have consistently found that there is a lag in the performance of

my subjects as compared with those in western studies, except for one item involving the reversibility of spatial relations. Recently, a colleague of mine (Khoo, 1972) has not only confirmed my findings but has been able to demonstrate that it is possible to train his subjects in a relatively brief period of time not only in attaining levels of performance compatible with those of western children but also that the training was transferable to certain tasks in mathematics. The need for more psychological and pedagogical studies of this kind in our countries, as well as for various comparative, development and sociological studies to illumine the appraisal and selection of alternative objectives cannot be over-emphasised.

At the INNOTECH Center, the survey part of a project which attempts to obtain data on the "perceptions and expectations of the primary objectives of primary education" had just been completed barely a month ago. In line with one of the top priority recommendations of the SEAMEO Regional Educational Planning Seminar (1971), namely that a five-year study be conducted aimed at the "development of operational educational objectives for primary education which are relevant to individual, community and national needs, and evaluative procedures for measuring the objectives," the present project is conceived of in terms of a preliminary feasibility study in part of one country only, in order to test out various instruments, namely (a) interview versus questionnaire administration, and (b) open-ended-followed-by-structured versus structured-followed-by-open-ended questions, for different types of respondents. Besides checking the feasibility of applying the different instruments to different people who are more directly involved with primary education against certain explicit criteria, it is hoped that some tentative perceptions and expectations of objectives may be derived, for it is hoped to construct some appropriate evaluation instruments and try them out with another sample of primary school children.

At the moment of writing, the bulk of the data have been transcribed onto coding sheets for purposes of keypunching and data processing. Although it would be premature to make inferences before examining the computer output, it may perhaps serve to convey something of what we are looking for in the study by considering the responses to the first item. In this item, respondents were asked to place in order of importance a number of objectives (or "reasons") for primary education, namely:-

A. for continuing secondary education (for studies in secondary school).
B. for citizenship (for becoming a good citizen).
C. for future occupations (for future jobs).
D. for leisure activities (for better use of free time).
E. for social transactions and interactions (for everyday living and social dealings).

The statements within brackets refer to the more simplified version which was presented to pupils and their parents. For the purpose of this paper, a simple, though tedious, head-count of the aggregate responses should serve to illustrate the kinds of patterns that are likely to emerge, even though the ultimate analysis would be much more complex, involving statistical comparisons along certain stratifications such as rural or urban, primary or secondary, medium of school, sex, ethnicity and social class. In Table 2 below are shown the mean ratings and orders of priority for our sample of about 300 pupils, 250 parents, 150 teachers and 20 principals. In addition, data from the INNOTECH National Seminar in Malaysia were collected from a mixed group of senior educators, comprising administrators, teacher trainers, inspectors, principals and teachers.

Table 2. Results of ranking 5 objectives

Alternative Objectives	Mean Ratings					Orders of Priority				
	P	R	T	H	E	P	R	T	H	E*
A	2.2	1.9	2.2	2.8	2.5	2	1	1	1	1
B	2.1	2.2	2.4	3.2	3.4	1	2	2	2.5	3
C	2.9	3.2	3.1	4.3	4.1	3	3	4	4	4
D	3.3	3.7	3.7	5.3	5.1	4	4	5	5	5
E	3.5	3.8	2.6	3.2	3.2	5	5	3	2.5	2

*P = Pupils, R = paRents, T = Teachers,
H = Heads of schools, E = senior Educators.

At first blush, the interpretation of the results seem rather straightforward. One might, for instance, conclude as follows:-

1. Pupils and Parents are rather similar in their rank-ordering of the objectives, especially in ranking E as the last. Hence, Pupils and their Parents seem to have similar expectations of the objectives of primary education.

2. Teachers, Heads of schools and Senior educators seem to form another group who have similar rankings for objectives, with the last two sub-groups of people being almost identical in their responses. In contrast to the other group, the present group has given E a rank comparable to that of B, while D is relegated to the last place. This group of implementers of education are therefore similar in their perception of the relative importance of the five objectives, with Heads of schools and Senior educators having practically identical responses.

3. On the whole then, A and B seem to receive the highest rankings, with A being considered the most important. Thus, the respondents seem to regard the preparation "for continuing secondary education" as the most important reason for primary education, with the preparation "for citizenship" being a close second.

4. On the whole, C and D seems to be low in priority, with D being considered the least important. Hence, the respondents seem to consider the preparation for "leisure activities" as the least important feature of primary education, with the preparation "for future occupations" being next lowest in importance.

5. In respect of E, an interaction in the responses seems evident, with the consumers of education (i.e. Pupils and Parents) ranking it as least important while the implementers of education ranking it no lower than the third in order of importance. Thus, whereas the consumers of education seem to regard the preparation "for social transactions and interactions" as least important, the implementers of education seem to consider such an objective as fairly high in order of importance.

Now, let me try to demolish my own strawman, albeit tentative, conclusions as follows:-

1. While the aggregate data might show that the pattern of responses for Pupils and Parents are on the whole similar, it is non sequitur that they have similar expectations of the objectives of primary education. Perhaps the pair-wise comparisons between the responses of Pupils and their Parents may throw light on whether or not there is a significant correlation in the views of these respondents.

2. The above remarks apply equally well to the conclusion that Teachers, Heads of schools and Senior educators are similar in their responses. Additionally, it may be noted that merely comparing means is inadequate, for within each group there may be considerable variation. Statistically speaking, we have to compare the between or among variance with the within variance. Thus, the conclusions may be warranted only if there are no statistical differences in the comparisons of these responses.

3. A and B are rather traditional responses and it is difficult to say if the respondents are being polite by picking traditional answers which they think are the "correct" answers or if they are fully aware of alternative objectives but genuinely regard the preparation "for continuing secondary education" as the most crucial objective of primary education. Further studies which include probings in greater depth might be called for, which therefore has implications for the larger study being envisaged as involving all eight SEAMEO countries.

4. In contrast, C and D are traditionally seldom stipulated as avowed aims of primary education in Malaysia. The same remarks as for E, but in reverse, would therefore be applicable here. In addition, it is quite possible that "better use of free time" may conjure up different meanings for different Pupils and Parents, for some might equate it with "leisure activities" while others might be thinking of free time in between lessons. In any case, further studies incorporating in-depth probings might be justified.

5. The possibility of semantic differences arising from using two different versions might have accounted for the interactions in the responses to E, for preparation "for social transactions and interactions" may have an entirely different connotation from preparation "for everyday living and social dealings." Perhaps a careful comparison with the responses to other questions where only one version has been adopted might throw light on the plausible interpretation of the results.

It can therefore be seen that we need to exercise extreme care and caution in interpreting judgment data of this kind. We would be naive if we subscribed to the earlier set of conclusions. We would be myopic if we rely too heavily on the set of results obtained without delineating further follow-up studies. And we would be insensitive if we do not take into account the variety of responses, together with the results of different types of analyses, including impressionistic accounts of interviewers and observers. It is, of

course, anticipated, although not entirely intended, that interpretations of the responses to the other questions, especially in the case of open-ended questions, and particularly when we take into consideration the different stratifications of people of concern in this study, would be infinitely more intricate. While it is true that analysis of judgment data can be extremely complex, difficult and messy, nonetheless, if we are committed to providing an education that is realistic and relevant, he should be equally committed to conduct evaluation studies of this kind in order to ascertain popular expectations. As Stake (1970) remarked, "Evaluation audiences do believe that to understand education one needs to understand what people expect from education. As long as that is true, evaluators have an obligation to make a careful search for objectives, standards and other judgment data."

In closing, let me cite a piece of conversation between Charlie Brown and Lucy for your reflection:

Charlie Brown: "Did the little boy who sits in front of you at your school cry again today?"

Lucy: "He cries every day! He has all the simple childhood fears ... fear of being late for schoo, fear of his teacher and fear of the principal ..."

"fear of not knowing what room to go to after recess, fear of forgetting his lunch, fear of bigger kids, fear of being asked to recite ..."

"fear of missing the school bus, fear of not knowing where to get off the school bus, fear of ..."

Charlie Brown: (looking dismayed and perplexed) "Good grief!"

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SUMMARY OF DISCUSSION

Several questions in the discussion of Dr. Sim's paper centered around felt versus unfelt needs, desired versus desirable objectives, the will of the people versus that of the educational planners, implying that a dichotomy does exist which the research that has been carried out by Dr. Sim may not have taken account of.

The answer was that the research design had originally been meant to be a lot more complicated, probing a lot more deeply into the different aspects of popular expectations. However, due to the constraints of time, professional manpower and finance, the whole research design had to be scaled down to what it is.

Dr. Sim agreed that the dichotomy between "wants" and "needs", or between what is "desired" and what is "desirable", what is "felt" and what is "unfelt", must be considered by educational planners. He also made it clear that the present research work was only a preliminary study, and that it will take a lot more probings to arrive at relevant answers as to popular expectations and perceptions of primary education.

Translation
Original : French

ALTERNATIVES TEACHING METHODS

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In Education, it seems to me, we should always be concerned with that major "alternative" to teaching: Learning. To be sure, teaching and learning are corollaries, rather than alternatives. But we seem to talk much about teaching, leaving learning as the unspoken assumption. We should stop taking learning for granted. Modern psychology and current educational research lead us to greater awareness that the best teaching method is a learning experience; that the best teacher performance is one that helps a student change his behavior.

In Laos we want to increase the number of learners, to increase the length of their learning, and to improve its quality. We are trying to do this in two ways: irst, by adopting "alternative" methods to those teaching techniques which have become outdated. These alternatives are not expensive and only occasionally technological; and they are not necessarily "new". What is important is that they are "new" to Laos, and that they help us to accomplish our aims of increase and improvement; Second, by adopting some dramatically new approaches which involve restructuring of the system and which fit Henri Dieuseide's designation: technology of education, rather than technology in education.

Within our traditional school pattern, we are doing some "alternative" things in Laos. Mainly, we are breaking away from years of straight teacher lecture and copy books. The bulk of our teacher training institutions are secondary schools. Primary school teachers are trained in first cycle normal schools at grade levels seven through ten; cur first cycle teachers are trained in upper secondary, grades eleven through thirteen. We have introduced into the curriculum of these schools significant segments of practice teaching.

I view this immersion of the student in a real situation, away from text and teacher, as a learning experience which is "alternative" to teaching. Our normal school teacher trainees do their interning in a variety of settings: in the application school on campus, in "groupes scolaires" in the city; and most importantly in village

schools where they live in the community for the length of their practice teaching assignment. The internship is not part time; it lasts for long periods and involves the trainee in a total school experience so that he gets the feel of being a teacher, not just the knowledge.

In addition to these "stage" experiences, teacher trainees engage in numerous field trips -- a whole series which take them to see the actual operation of factories, of hospitals, of commercial establishments, of public utilities, of experimental farms, and so forth. Field trips and "stage" are, for Laos, new learning experiences, without significant expense, without breaking too sharply the conventional school mold.

Another "alternative" -- a learning device which we are only just encouraging in Laos -- is the extra-curricular activity. We support student clubs and associations; the activities of these groups are, in their planning and organization as well as in their performance and execution, educational experiences, we think, of great importance. Just a few weeks ago, girls in our dormitories wrote, acted, directed, and produced, with limited help from their dormitory counsellors, a play which depicted current Lao domestic situations related to war and education. Here was highly motivated, self-directed learning, surely as valuable as a classroom exercise. We hope in the future to increase student activities -- co-curricular and extra-curricular -- and to supplement the academic program with a student guidance and counselling program.

A learning method which, in Laos, is still restricted to small sections of our school system and small numbers of students, is the independent project. By this device, common in overseas graduate schools, undergraduate students may also select a problem which they investigate on their own, either by library research or by actual field survey, and which they then develop in a report or project. Classroom hours are cut to a minimum; teacher supervision and guidance are there when needed. Mainly the student is refining his own questions, clarifying his objectives, and collecting data for solution on his own in a variety of ways that shift the focus from "teaching" to "learning."

Well-equipped science laboratories in which students "inquire" and "discover" for themselves by performing experiments are relatively new to Laos. This is an alternative for us who have been used to dictation and rote memorization. The self-investigation method where students form the hypotheses, gather the data, and draw their own conclusions is, for us, a development of the last five years which has been worth its expense.

As for language laboratories, increasingly students can work there on their own, at their own pace, on their own difficulties, in pursuit of facility with a foreign language -- French or English. Increased sophistication of this equipment and improved methods of directing the labs will make them more useful in the future. We are currently making arrangements to send our first group of people for Audio-Visual training. Perhaps in this area, the facilities of INNOTECH will be helpful to us.

These are innovations for us, despite their familiarity elsewhere and their wide acceptance in generally conventional teaching/learning situations. We are also planning some alternatives of the "non-traditional" variety which strike at the foundations of learning and of our educational system.

The first is the development of semi-programmed learning materials. The Lao government has contracted with the United Nations Development Project for a team of experts who will, first of all, be developing "fiches" for use in the upper levels of our secondary school system -- levels of instruction which are themselves only now beginning.

Five men constitute our production team, one each in Physics/Chemistry, Biology, and Mathematics. Each works with another member, a psychopedagogist, to prepare materials from which students can learn by themselves. These materials are designed to motivate students to want to learn, to generate interest in learning. They require less than the traditional classroom in trained "teaching power."

Coordinated laboratory experiments encourage students in discovery and inquiry. The materials are being tested at the 11th and 12th years of several schools. Truly "alternative" to techniques of the traditional variety, these materials imply a new approach to teacher training and to teacher supply. They offer the possibility of expanding learning to more people in more locations; they offer the prospect of improving the quality of learning.

Part of the UN project, in addition to the programmed materials and their work in developing our upper level curriculum in the College of Education, will also be to help us develop uses of closed circuit television. We are not sure at the moment how or how much equipment will be used; our association with INNOTECH may well yield ideas for our guidance. Again, we would like to use TV with an emphasis on learning. We can, perhaps, use it to improve the learning of our teacher trainees at the College level; but certainly we do not want to perpetuate, with expensive technology, the traditional direction

of teaching. With television, we might experiment on forms of teaching -- master classes, for example -- which might improve its quality while saving on recruiting and training of large numbers of people over long and expensive periods of time.

We have done a little work in Laos with Radio Scolaire but we cannot claim success. We think there are great advantages for education by radio, especially in a country where television is not yet widespread, and especially in subjects like foreign languages. But we are, here, [illegible], in need of advice from colleagues in INNOTECH to help us develop a good programme. As beginners, we need to know what mistakes have already been made, what pitfalls to avoid.

The major restructuring of the educational system in Laos is being accomplished by our Comprehensive Secondary School Programme. Begun in 1966, the Fa Ngum School project is under the direction of a University of Hawaii contract team. We now have comprehensive schools in three communities outside of Vientiane; the Vientiane school will next year begin its sixth year (12th grade) class.

Our comprehensive schools have opened up the idea of practical learning. Students may elect programmes in commercial subjects, industrial arts, agriculture, and home economics, suiting their study to their own abilities and needs, suiting their studies, likewise, to the needs of the country. But, most importantly, the Comprehensive Secondary School Project fosters instruction in the national language. All subjects -- except, of course, foreign languages -- are taught in Lao. Consequently, our primary efforts are directed toward the production of teaching/learning materials.

A discussion of "alternative teaching methods" in Laos must still focus on one of the oldest and most widely accepted instruments of learning, the books. We have few books in Laos, in the Lao language, for secondary schools. We have few people free to write them. We have had little need of them when secondary education was conducted in foreign languages. Translations are slow and only moderately successful, unless the material is culturally re-oriented. It is in this area of native text production in a wide range of subjects, that the Fa Ngum Project exerts its influence on all of Lao education. The UN project dovetails its efforts. And we hope we can supplement with additional creative approaches.

We are in the process of exploring the feasibility of a Language or Linguistic Institute. Such an agency, based at our College of Education, would work, perhaps, in cooperation with the Royal Academy. It would be able to direct the growth of our national language, build and standardize the vocabulary, do grammatical analysis which would simplify the teaching of the language, facilitate translations and original works. We envision such a center working as an adjunct of a Curriculum Research Laboratory and we envision, as a result, large quantities of Lao learning materials for an improved Lao education system.

A final programme in which we have engaged for several summers in Laos is, I believe, worthy of mention as a learning technique: The Student Work Project. It is especially suited to Laos, a rural country whose greatest educational needs are among village people. It is difficult to say if the greater advantage is to the villagers who receive assistance, or to these young people who go into the villages to learn about existing problems and then work to improve conditions of daily life. The expansion of this practical work concept, perhaps as part of the regular school programme, would give us a new look in education, and new prospects for national development.

If in Laos our alternatives are not always "new" or innovative, they should at least be relevant and feasible. To bring better education to more people, we have chosen to focus on the final product, the learner. We are therefore emphasizing the production of learning materials -- programmed or traditional -- suited to the learner's needs and in the learner's language. We hope to create an educational system that is indigenous and healthy.

SUMMARY OF DISCUSSION

In response to a number of questions, Dr. Veovanh Homsombath clarified his paper as follows:

A. Language Laboratories

1. The advantages of having language laboratories for teaching foreign languages are quite obvious. They are costly, but the cost can be justified on the grounds that teachers cannot be utilized to the same extent as the language laboratories. The language laboratories can be used for some 16 hours per day consecutively morning, afternoon and evening.

2. The importance of teaching and learning foreign languages does not necessarily undermine the importance of fostering and creating a new National Language. Everything in Laos is taught in the national language, but it is necessary to teach a foreign language also, e.g. English.

The delegates from Thailand, Malaysia and Singapore made the following comments:

a) Thailand has used language laboratories very effectively. Recently only listening laboratories were used. This reduced the cost considerably.

b) The Technical Teachers College in Malaysia developed a very simple listening language laboratory at low cost. There is a need to develop those types of apparatus necessary for various school subjects in which local materials could be utilised for improving innovation in education.

c) Dr. Ruth Wong, Singapore, stressed the importance of language laboratories because nowadays "our teachers are not native speakers of English."

B. Group-scolaire

Teacher training institutions give students only general knowledge. Once the students have mastered this general knowledge, they are put into a "group scolaire" to practise as classroom teachers, under supervision.

"Group scolaire" is a particular type of school which differs from the other types because here you have two levels of Primary education together, comprising 6 grades.

Primary education in Laos is structured into two cycles. The first cycle comprising three years and the second another three years. After each cycle you have to take an examination to go from the first to the second cycle, and at the end of the second cycle, you take an examination to go to the secondary level.

C. The Teaching - learning process

1. Laos is now trying to teach the students to learn by themselves, outside the classroom because the magnitude of knowledge can no longer be imparted to the students within the given limited time.

2. Semi-Programmed instruction means that the programmed material is given to the teacher; it is not self-instructional material, nor is it devised to be used with a machine. To prepare this semi-programmed instruction the teachers are concerned to define the content and determine the objectives of the particular programmed instruction. At present, this type of instruction is still at an experimental stage and is being introduced in the higher levels of secondary school. It is not expanded to the whole of the country yet.

   The extra-curricular activities may be considered as an alternative to teaching. These activities are organised by the authorities in the form of workcamps for peasants and especially for refugees. An example of such activities is a play that was written and put on stage by the students themselves with very limited help from the camp counsellors.

4. The role of the teacher is not only to impart knowledge, but also good citizenship. The effectiveness of the teaching and learning process depends on the reactions of the students to what they have learned from their teacher. The learners could be regarded as a kind of raw material which the teacher would shape.

CURRICULAR ALTERNATIVES : A COMMENTARY

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Never before, in the history of Southeast Asia, has there been so much educational ferment as in the last two or three decades. Countries of the region have created agencies and task forces to study continually their respective educational systems -- aims and objectives, structures, and curricular contents and methods -- in the light of changing social, economic, and cultural conditions. In the Philippines, for instance, the President of the country created in 1969 the Presidential Commission to survey Philippine Education and, after submission of the survey report, formed a task force to conduct in-depth feasibility studies of recommended projects.

This ferment has been due to a number of factors, some of which are (1) liberation of the countries and their subsequent search for their identities; (2) industrial and technological growth; (3) increasing population; (4) greater cultural interaction with themselves and with western countries; and (5) new values which have replaced or have threatened the existing ones. This activity has been partly nourished, so to speak, by organizations like the UNESCO and the SEAMEO and their subsidiary agencies and by the greater technical and other forms of assistance which in some instances have provided funds and expertise.

As part of this activity, the curricula of schools in the various countries of the region, especially the pre-collegiate, have been subjected to continuous reexamination. Old and traditional, they are being scrutinized -- especially for their viability -- in the light of the quantitative expansion already generally achieved all over the region and of the needs of developing countries in these modern times. Since the existing curricula are in a number of instances centuries-old, and since they are apparently irrelevant to the fast-changing conditions and, in some ways, found unsatisfactory, alternatives for them are being sought. A search for curricular alternatives is being made which will make education relevant to national economic and social development, which will provide the population with access to education at all levels, and which will demonstrate a high degree of efficiency in the achievement of goals and objectives.

Curricular alternatives are innovations and, in the past, the implementation of some innovations bared some dangers which led to the abandonment or phasing out of the innovations. As reported some time ago, for instance, David Rockefeller, President of New York's Chase Manhattan Bank said that his experience in a "progressive" school was interesting but he "never learned how to spell." 1/ This report reveals one of the basic weaknesses of the progressive education movement.

It is always desirable, therefore, that educators know everything possible about alternatives so that this knowledge may provide them guidelines for the adoption or adaption of some plan to be borrowed or the formulation of something new. For this purpose, this paper will deal with some significant or major curricular alternatives introduced or popularized in the immediate past and comment on their various aspects.

RECENT CURRICULAR ALTERNATIVES

In the last two or three decades, a number of curricular alternatives have been initiated or have grown into prominence in the West, especially in England and the United States, and in some Southeast Asian countries. "The last decade has seen," says Paul R. Klohr, "alternative curriculum designs which are beginning to push up through the many hard-rock traditions of curriculum development reflected in the so-called conventional wisdom of the field, like flowers pushing up through a concrete pavement." 2/

A few of these alternatives will be dealt with in the following pages.

Continuous Progression Scheme

Probably one of the earliest schemes which came into prominence, especially in the attention of Southeast Asian educators, is continuous progression, a curricular plan in nongraded elementary schools. It is not a new concept or theory. Its basic idea dates back to the American Civil War and, off and on, some American educators have adopted it.3/ After the second world war, Goodlad

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1/ UNESCO Regional Office for Education in Asia, "Preface," Bulletin, v. 6, no. 1 (September, 1971), p. 6.
2/ Paul R. Klohr, "The Greening of the Curriculum," Educational Leadership, Vol. 28, No. 5 (February, 1971), p. 455.
3/ A.M. Guerrero, "Continuous Progression in Elementary Schools," Curriculum Journal, Vol. 2, No. 2 (December, 1971), p. 42.

and Anderson* popularized it through their book 4/ which first came out in 1959. UNESCO took cognizance of it and had it discussed in the 1970 International Conference on Education.

Under this curricular alternative in the elementary school, the child is assisted to grow continuously toward his maximum potential. The school is nongraded and each child advances at his own rate. There are no pupil retentions, failures or repetitions of grades.

Briefly, the other more important aspects of this alternative to the traditional graded structure are the following:

a. The elementary school is nongraded.
b. There is provision for both fast and slow learners as the daily learning programme of a child starts where he has left off on the preceding school day.
c. The traditional subject or disciplinary division is maintained.5/

The nongraded scheme has been conceived partly in order to obviate pupil repetitions and failures -- or, in some cases, drop-outs, -- because of their adverse psychological effect on the child and of the unnecessary wastage of time, effort and money.

This alternative poses a number of implications for the school. First, there must be considerable instructional materials in the classroom due to the varying learning stages of the pupils in a class. Second, the teacher must be well-trained and knowledgeable in the use of evaluative tools so that she can determine, as precisely as possible, the stage of learning of the individual pupil. Third, this scheme facilitates the stay of the child in the educational system. Fourth, it may prevent wastage of national funds as there will be no pupil failures nor repetitions of grades. And, fifth, it maximizes the learning potentialities of a child.

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4/ R.I. Goodlad and R.H. Anderson, The Nongraded School (N.Y.: Harcourt, Brace & World, Inc., 1959).

5/ Guerrero, op. cit. p. 44-45.

The scheme is very attractive. It takes care of the individual differences of pupils and gives some assurance that education will be more effective -- and, therefore, lead to the better achievement of goals -- than the traditional graded scheme. However, rushing into the adoption of this scheme may lead the system into some pitfalls: (1) it will in the long run be more expensive, due in part to instructional materials, even if the wastage on failures and repetitions is minimized or obliterated; (2) it demands much more on the teachers and the majority of the teachers in the Southeast region may not be equal to the challenge; and (3) the expected learning results may, in the last analysis, be inferior to that of the traditional.

The Open Classroom

This curricular alternative has been known under various names.* Started in England after World War II, one of the earliest places in which it was introduced was at Westfield Infant School in Leicestershire. This is the reason why it is also called the Leicestershire Method.

An open classroom is characterized by the following:

1. A general atmosphere of excitement prevails in the room.
2. There is no formal arrangement of seats and teacher's desk.
3. The room is divided into activity areas, where plenty of materials for various activities are available.
4. Integration occurs in the interpenetration of the various subjects and skills.
5. The emphasis is on learning rather than on teaching and the focus is first, on the children's thinking and problem-solving processess and, second, on his ability to communicate with others.
6. Freedom and responsibility on the part of the child is given many opportunities for expression in the classroom procedure.6/

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* Some of these are: "Leicestershire Method," "British Infant School," "Integrated Day," "Open Classroom," "Open School," "Free School," "Open-space plan," and "Free day." (I. Ezra Staples, "The 'Open-Space' Plan in Education," Educational Leadership, Vol. 28, No. 5 (February 1971) p. 458. Also, Beatrice and Ronald Gross, "A Little Bit of Chaos," Saturday Review, May 16, 1970, p. 71).

6/ Beatrice and Ronald Gross, "A Little Bit of Chaos," Saturday Review, May 16, 1970, p. 70-71.

At the start of the class, the teacher calls a meeting and focuses the attention of the children to an experiment, a news item, or others which seem relevant to the stage of learning the children have reached on the basis of a core curriculum. She points out where some children are deficient in some necessary learning experiences and these children are told to work with her. The rest then choose their own activity and start working. Each child keeps a diary of his or her work. After all these, the teacher recedes into the background until, in her observation, there is need to stimulate a child or group of children in the activity.7/ In short, the teacher is a stage setter and stimulator; she encourages and guides but does not direct.8/

This curricular alternative is largely based on the work of Jean Piaget, who is best known for his finding that intelligence, adaptive thinking and action develop in sequence and are related to age. However, "the ages at which children can understand different concepts vary from child to child, depending on his native endowment and on the quality of the physical and social environments in which he is reared." 9/

As in the case of continuous progression, classroom procedure in the case of the open classroom places much responsibility on the shoulders of the teacher. In this case, she not only should have a good mastery of subject matter but must also be knowledgeable in the psychology of the child. In addition, she must be trained in guidance so that, in the various activities of the child, she can guide the child towards the accomplishment of a learning objective in an unobtrusive way. This kind of classroom plan and implementation of the curriculum carries great implications for teacher-training.

Also, because of the varied activities in the classrooms, the provision of necessary instructional materials may be difficult. It may not be feasible in countries of Southeast Asia where the efforts to provide funds for education are outdistanced by the rate of increase in the number of children to be educated, especially at the pre-college levels. At least one writer reports that at the start, the "open classroom" plan is more expensive to implement than the traditional. As a matter of fact, in the United States it has been found that it costs $36 more to educate a child under this scheme.10/

7/ Ibid., p. 71.
8/ Vincent R. Rogers, "English and American Schools," Phi Delta Kappan, Vol. 51, No. 2 (October, 1969), p. 71.
9/ Gross, op. cit., p. 84.
10/ Joseph Featherstone, "How Children Learn," New Republic, Vol. 157, No. 10 (September 2, 1967), p. 17.

This curricular plan, however, may brighten the horizon for rural areas, especially in Southeast Asia. It is supposed to provide effective learning experiences for children of diverse backgrounds -- for urban and slum areas, the suburbs and the rural areas. 11/

In many respects, this plan is similar to the curricular plan which came out of the Progressive School Movement in the United States sparked by John Dewey. It is integrative; but unlike the progressive classroom, it does not break down the traditional subject lines. The achievement of the child in the open classroom is slightly lower than that of the traditional in the case of subjects which can be evaluated with present methods. Much is laid on the shoulders of the teacher especially with reference to guidance. And it is here where a pitfall lies: the introduction of the plan without the careful attention to the requisites -- teacher-training, logistics, etc. -- may make it suffer the fate of the Progressive Education Movement: the slow abandonment of the curricular scheme.

It may be heartening to know, however, that, according to the Plowden Report, about one-third of the elementary schools in England changed to open classrooms. 12/

The open classroom seems to be in harmony with the trend of the times: it encourages the development of freedom of the child. But herein lies another pitfall: the freedom that the children imbibe in the classroom may develop into some unlimited freedom or license or, at least, a distorted concept of freedom. The permissive concept spawned in the United States by the Progressive School Movement has sometimes been blamed for the objectionable unruly behavior of youngsters and poor learning in progressive schools.*

The open classroom is based on such concepts as individual differences, varying individual interest, learning by doing, freedom, integration of subject matter and creative learning.

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* In this connection, something should be said of John Dewey and the ills of the progressive schools. When Dewey launched the concept and gave it life in the elementary laboratory school of the University of Chicago, he emphasized the importance of guidance in the progressive method. Either through unwarranted misunderstanding, sheer negligence or criminal incompetence, however, the later adoption of the method in many other institutions degenerated into laissez-faire.

11/ I. Ezra Staples, "The 'Open Space' Plan in Education, "Educational Leadership, Vol. 28, No. 5 (February, 1971), p. 459.

12/ Gross, op. cit. p. 73.

The "Free" School Movement

The "open classroom" plan was brought to the attention of American educators by Mrs. Lore Rasmussen, who developed the concept independently of the British model. But it started becoming popular in the United States due to the efforts of Lilian Weber of New York City who observed the operation of British Infant Schools. 13/ After Weber, many more American educators and writers crossed the Atlantic to observe and then to write about the schools. This led to the establishment of many "free" schools, as an alternative to the public school plan with which many parents were dissatisfied. 14/

Many schools follow this free school movement. Varied in many respects, they reflect two things which make them quite similar to the open classrooms: (1) the idea of freedom for youngsters and (2) a humane education. 15/

This type of curricular plan is committed to the ideal of individualization of instruction and is the antithesis of the type of classroom in which the teacher stands before the class, dominates the lesson, and the pupils seated before him are exposed to the same learning experience at the same time.

As in the British infant school or the Leicestershire method, the classroom is "open" and is characterized by approachability, relaxed and informal control, ease of communication, mutual supportiveness between teacher and student, and stimulating environment. The pupils even go out of the classroom and are free to do what they want to work with, on the basis of each child's own experience and current interest. "The fluidity of the room makes it possible for children to do what is natural for them: to work together and to teach one another." 16/

An example of this type of school in the United States is Philadelphia's Parkway Program. In this plan, only a limited number

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13/ Ibid.
14/ Joshua L. Smith, "Free Schools: Pandora's Box," Educational Leadership, Vol. 28, No. 5 (February, 1971), p. 465.
15/ Bonnie B. Stretch, "The Rise of 'Free Schools,'" Saturday Review, Vol. 53, No. 25 (June 20, 1970), p. 76.
16/ Staples, op. cit., p. 458.

of students are enrolled and they are divided into "communities." The outstanding characteristics of the programme, which had earned for the school the name "school without walls," is that the students take institutional courses which call for working in institutions like libraries and museums in the vicinity of the school and the students are encouraged to participate in work programmes of their own choices in the community. 17/

The students define the content, value, and details of their activity; there are no grades or requirements; no strict authority figure to enforce discipline and to limit freedom; and the school is dedicated to help the children grow up and live in the world as represented by the community. Obviously, the school does not use any evaluation method for appraising student's work. 18/

The Santa Barbara Community School, another of the "free" schools, is patterned after the Leicestershire model and bears its characteristics. As the head of the school puts it, "The idea is that freedom is a supreme good, that people, including young people, have a right to freedom, and that people who are free will in general be more open, more humane, more intelligent than people who are directed, manipulated, ordered about." 19/ It subscribes to Piaget's idea that "play is the serious business of childhood" and the child may as well spend his time in the sandbox as in the reading center.20/

Another curricular alternative of the "free" school type is the IPI (Individualized Prescribed Instruction). It is similar to the nongraded school in one aspect: a day's lesson is built on another before it. The curriculum consists of a detailed listing of behaviorally stated instructional objectives.21/

Like the "open classroom," the "free" schools emphasize the development of freedom and responsibility. In a region where many countries just had independence and freedom as in Southeast Asia, they may be attractive. Some of these may not be expensive to implement and may be easily translatable on Asian soil. This is especially true of the Parkway Program which includes a work programme right on the job site. The danger in this case, however, is that the quality of education, which is now the deep concern of educational authorities in Asia, may be impaired.

17/ J.D. Greenberg & R.E. Roush "A Visit to the School without Walls: Two Impressions," Phi Delta Kappan, Vol. 51, No. 9 (May, 1970), p. 482.
18/ Ibid.
19/ Stretch, op. cit., pp. 76-77.
20/ Ibid., p. 77.
21/ Carl C. Fehrle, "A Look at IPI," Educational Leadership, Vol, 28, No. 5 (February 1971), p. 480.

In some of the free schools, teachers need not have specialized training beyond the usual and the traditional. The great freedom given to the students and pupils is reminiscent of the "progressive" schools and, like them, some of the "free" schools are closing or are slowly reverting to the traditional structured curriculum.

The Barrio High School Movement of the Philippines

One contribution the Philippines has given to the growing need for curricular alternatives in Asia is the barrio high school plan. It is a scheme which promises to help the quantitative expansion of education in the country.

The name of the movement derives from barrio, the name of a political, largely rural subdivision of a town or city. The curriculum follows the traditional general education curriculum but contains a big dose of vocational education and paid actual work programmes. In this manner, it is similar to the Parkway Program described above.22/

The barrio high school curriculum follows the essential lines of the prevailing "2-2" Plan* of the present secondary school system, with the exception that the pre-collegiate stream in the last two years has been dropped in favor of a concentration on the vocational stream. Ample time is provided for work programmes of the community or of the students which enable them to earn money for their matriculation fees and other expenses.

The Barrio High School Movement has helped the quantitative expansion of the Philippine Educational system, giving the students access to the secondary level. With the passage of the Barrio High School Act, which provides, among other things, some form of financing for the barrio high schools, more quantitative expansion, -- and probably, qualitative improvement -- is bound to occur. "In a short period of six years, since 1964," wrote Dr. Pedro T. Orata, the founder of the movement, it has been possible to provide ... education to 160,000 children and youth /in 1,600 barrios and towns/23/

* This is the present high school curriculum consisting of two years of general education and a two-stream (pre-collegiate and vocational) last two years.

22/ Supra, p. 10.

23/ Pedro T. Orata, Curriculum Innovations, /1972/ Typescript, p. 2.

Established largely in barrios, the barrio high school hardly has a building of its own. More often than not, it uses the physical facilities -- and, in most cases, also the teaching personnel -- of the elementary schools after they have closed for the day. This is the reason why the financial demands of the operation of the barrio high school is very negligible indeed, as far as the government is concerned. And, necessarily, the expense per student is very minimal.

A great problem faces the barrio high schools: the quality of instruction. Many educational observers have claimed that, in the light of the circumstances of the schools, the quality of instruction leaves much to be desired. But this does not bother the founder: he thinks that the barrio high schools are for a two-pronged purpose and they achieve this well enough; that is, to provide literacy and general education better than what the elementary schools have accomplished and to initiate the high school students into the realm of work. And these two achievements of the schools in turn contribute to the welfare of the country -- in citizenship training and manpower development.

CONCLUDING COMMENTS

During the First Educational Development Decade in Asia, the 60's, the primary concern was the quantitative development of educational systems. Considerable success has been achieved in that direction and so the second or followind decade, the 70's, has been earmarked largely for quality improvement.

The improvement of the quality of education, on the other hand, rests heavily on the curriculum and its implementation. If the curriculum has been closely geared to updated goals and objectives and if it has been implemented to the highest degree of efficiency possible, then a high quality of education inevitably follows. The first desideratum, therefore, is to see to it that curricula in the various educational systems are geared to the revised desirable objectives -- first, the full development of human resources and the realization of the hopes and aspirations of the people, especially of the youth; and, second, the satisfaction of the evolving economic, social and cultural needs of the people.24/

24/ UNESCO Regional Office for Education in Asia, "Exploring New Approaches and Methods in Asia," Bulletin, Vol. 6, No. 1 (September, 1971), p. 10.

To achieve this -- the gearing of the curricula to the new objectives -- a quest for new alternatives to the traditional curricula, which have been found to be unsatisfactory, must be started and soon. If a curricular plan or scheme has to be borrowed from the outside, it must be adapted and tailored to the circumstances of the borrowing country. In any case, the alternatives open should be well thought-out, tested and evaluated. Incidentally, it is a sad commentary on education in Southeast Asia that most of the recent curricular alternatives have been developed in the West when the East has been considered a seat of wisdom.

Moreover, they should be anchored on certain accepted concepts which have been known to contribute to quality education, concepts like individual differences, freedom and responsibility. And, lastly, provisions should be made for the proper training of those who will implement the curricular alternative or plan, for the instructional materials needed, and for the funding necessary.

The improvement of the quality of education in Southeast Asia is indeed an important and complex problem and its achievement is a function of curricular alternatives adopted and their implementation. But without the proper support of government officials concerned and the dedication of educational authorities, any curricular alternative or plan, however good and well-planned, will just go to waste.

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SUMMARY OF DISCUSSION

In response to a number of questions and comments, Dr. Guerrero further clarified his paper as follows:

1. There is a need to look at the educational system and potential alternatives at the same time. We should look at the history and needs of our own people in order to plan for the future. An old Philippine saying (translated) says, "One cannot get to where he wants to go unless he looks back every now and then to where he came from." Alternatives from other countries should be adapted not adopted.

2. Alternatives come from a variety of sources. The open-classroom came from teachers primarily; non-graded schools from professional researchs; and the barrio school from a retired educationist.

3. Elementary schools probably are sufficient for literacy training but a slightly higher level of education is needed for vocational and citizenship education. The barrio school attempts to provide for this higher level need. Funding, in the past, has been sparse, but if the Barrio High-School Act is passed we should have the necessary funds for the improvement of quality of instruction.

Within the context of this discussion, Prof. Rashid made these comments:

1. In his paper Dr. Guerrero quoted the following statement, "the idea is that freedom is a supreme good, that people, including young people have a right to freedom, and that people who are free will in general be more open, more humane, more intelligent than the people who are directly manipulated, ordered about." But what is freedom? Freedom from what? Freedom from whom? This has not been decided yet.

2. In groping for new systems to replace the unsatisfactory, non-functional patterns that we inherited, there is a tendency to go from one extreme of finding faults in the entire existing system to the other of looking for patterns developed to suit the advanced countries.

3. Our countries try to implement the following objectives:

   a. Equalisation of opportunities
   b. Removal of disparities between rural and urban sectors
   c. Introduction of modern technology, if possible a secular system so that young people who come out of school are outward looking.

But we are facing the big problems of very large numbers of people with a per capita income of less than US$100. The poor countries are trying to do so much with so little. How do they go about it? What are the "evolving economic, social and cultural needs of the people" and how are they to meet these needs?

4. The educational planner on the one hand, has to give his advice based on rationality He wants maximum efficiency of the educational system, and he has to ensure that the objectives laid down by the politicians are implemented. On the other hand, the politician has a rationality of his own. He has to satisfy the large numbers of people, the thousands of grownup university students who are unable to find job and are explosive material for political agitation. Therefore, the rationality of the politician cannot be ignored.

5. Education should be for the people, not for the elite. My message, therefore, is that we must be rooted in our own countries, and we should make sure that we do not borrow without qualification. Dr. Guerrero rightly said that "it is a sad commentary on education in Southeast Asia that most of the recent curricular alternatives have been developed in the West when the East has been the seat of wisdom."

Illich made these comments:

1. Present education is a ritual which, like every good ritual, hides from its participants the contradiction between the great liberal myth which the society serves and the real effect which this ritual has on society. The ritual (which is supposed to provide equal opportunity) makes sure that an elite claims an inordinate amount of public funds. For example, a university student in Bolivia consumes 1350 times the public resources consumed by an elementary student. This ritual creates a class structure of inferiority/superiority.

2. The idea that education is necessary comes from a very particular type of religious development and alchemy. The words that participants here have been using are derived from concepts of alchemy.

3. In the 12th and 13th centuries in Europe, nobody could be considered a member of society until he had been baptised because of the concept of original sin. This concept evolved to educational rituals through which people must go because of "original stupidity." I am very worried, therefore, about a system which discriminates against many more people than it privileges. All people are equally stupid in front of a small elite which has gotten 2000 times the median amount.

EVALUATION OF ALTERNATIVES IN EDUCATION

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In preparing a paper on a topic of this nature, one is acutely aware of a serious limiting constraint, namely, an insufficient first-hand experience of an adequate proportion of the universe of alternatives, most of which, for developing countries at least, are still the products of theoretical considerations.

ALTERNATIVES PER SE

In a manner of speaking, alternatives do not possess significance in and of themselves. Their meaningfulness or otherwise is made clear only by contextual implication. The case for alternatives in education rests on felt or perceived needs which are embedded in a matrix of social and environmental change. Education, as a subsystem of the changing social system, cannot remain unchanging.

COMMON FACTORS PROMOTING CHANGE

Contemporary educational change can be discerned as being promoted generally in all countries by certain common factors. First, the development of mass media has influenced greatly the processes and rate of educational innovation by stimulating the desire for change. What happens elsewhere is heard and seen in loco through the radio and the T.V. where the success story is well-rehearsed, the "copying" effort tends to follow fast. The rapid progress of technology which under-girds mass media brings in its wake many new methods and many new ways of doing things.

Next, there is the pressure that comes from the fear of being left behind in the race to change. This is as true between countries as between institutions. The attempt to introduce universal education in the blind faith that education pursued for its own sake is a good thing and must ultimately produce countrywide benefits is a case in point. Then we have, currently, programmed instruction, mini-courses, modules, and the like eagerly welcomed in almost every developing country, whatever its state of progress. To a large extent, UNESCO has played an important role as a promoting agent in this respect.

As technological change continues to gather momentum at a pace, described by Toffler(1) as a "racing rate of change that makes reality seem, sometimes, like a kaleidoscope run wild", the need for intellectually sophisticated manpower also increases. Questions such as "What for education?" and "Education for what?" make it necessary perforce to re-examine the objectives and the content of education. At the same time knowledge production develops to such unprecedented proportions that it is no longer humanly possible to manage all of knowledge within a life-span, much less a school-span, or to comprehend all of its aspects. While this has meant assigning an increasing volume of knowledge for machine storage, it also implies an urgent need to examine how the individual may be taught to handle information and retrieve what is pertinent to his particular needs at any given time.

Lastly, there is that much-cited example of a change-force, human aspiration and demand. Inability to cope with the impact of this force has given rise to the current search for alternatives to schooling.

ALTERNATIVES IMPLY CHOICE AND CHANGE

From the foregoing discussion, it is clear that alternatives bespeak change. Change, however, does not imply that something new has to be found to displace the old. Sometimes, some forgotten method returns to challenge what, by comparison, is more recent practice as, for example, non-graded teaching, which is a re-vitalised form of practice in the one-room schoolhouse of a century ago. Sometimes, the adoption of an alternative is the result of the consideration of two or more practices or objects or products commonly accepted, but by their co-existence overstresses one part of the total system and renders it disfunctional. Is it necessary, for example, in a newly developing country with limited material and manpower resources to have all the forms of auto-instructional aids and materials simultaneously -- tapes, programmed instruction, the E.T.V. and so on? Each form of aid requires imaginative and creative persons to produce the software which will optimise the use of the hardware. Too often, such persons are in such short supply that they are available only at a premium. Besides, the question of cost may be too formidable. It is more important under the circumstances to make a priority choice in terms of the coordinate variables of cost, suitability, adequacy and resource availability. Otherwise, the

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(1) Toffler A., Future Shock, Pan Books Ltd., London 1971, p. 19.

situation which results may invit judgment that the "latter end is worse than the beginning." Too many demanding and equally feasible alternatives when taken together may work against the system. Choice, therefore, must come before change.

Choice, in its turn, carries the prerequisite of a proper assessment of the alternative to be selected. However, even after an alternative has been selected, its case is not thereby established. "There's many a slip twist the cup and the lip," so the old adage goes. The alternative is put through a trial stage during which the methods for its use are tested. Only after the pilot testing can it really be ready for adoption. Again, adoption does not necessarily ensure success. Further evaluation serves as a check on the effects and outcomes. In this way, there is continuous feedback into the system for modification and improvement.

EVALUATION OF ALTERNATIVES, A THREE-STAGE PROCESS

As I see it, then, the evaluation of alternatives is associated with a three-stage process. Evaluation itself will include both theoretical and statistical analyses, the exercise of value judgments based on agreed societal or professional criteria as the case may be, and other technical methods more commonly used in psycho-social studies for the measurement of effects. A brief summary of variables to be considered and rated at each of the three stages is given in the specifications Table I. Between each two stages there is decision-making followed by action. Choice follows the first stage evaluation; feedback data on trial strategies and methods help to modify and improve the nature of the alternative. At the third-stage full-scale implementation, the evaluation, feedback, modification cycle is maintained so long as the alternative continues to be acceptable for the system. From another point of view, evaluation at the first stage is a matching exercise of a proposed alternative or alternatives to an existing system or practice. It may also be a matching between alternatives so that the most appropriate under the circumstances may be identified. Evaluation at the second stage (generally experimental) is a match between the pilot project to other subsystems of the total system. The final stage emphasises the match between outcomes and stated objectives.

Table I Stages in the Evaluation of Alternatives

VARIABLES TO BE EVALUATED	STAGES		
	1. Proposal	2. Preparation for Implementation	3. Adoption
	a) Objectives identified using value judgments	a) Strategies for action measured for congruence with objectives	a) Test effects in terms of (i) achievement (ii) attitude change (iii) actual multiplier results (iv) actual economics through cost reduction and enhanced production
	b) Means & methods measured against resource availability	b) Test communication effectiveness and its diffusion rate of information	
	c) Relevance in terms of need and demands which should be first analysed	c) Test effectiveness of resource, utilisation and control	
	d) Cost measured in terms of financial inputs, expected economics if any, multiplier effects expected	d) Test soundness of methods for positive manipulation of context	
	e) Feasibility in terms of social readiness	e) Test extent of commitment of the target system	
Overall method of Evaluation	Match the proposed alternative to existing system or practice and to other alternatives	Match pilot implementation project to other subsystems of the total system	Match outcomes to stated objectives and quality of inputs
		CHOICE	FEEDBACK MODIFICATION ADOPTION
			FEEDBACK & MODIFICATIO

SOME POINTS TO NOTE ABOUT THE EVALUATION OF EDUCATIONAL ALTERNATIVES

1. In so far as educational innovation goes as alternative to something which is decried, there has never been, as yet, sufficient planning of proposal or strategies for action, much less a systematic evaluation procedure to embrace all three stages. Robinson(2) has pointed out that

"Data are plentiful to document either the position that changes in the schools are sufficient or that they are not. Our finding will largely depend which schools we examine and which data we select from those schools. The same facts are theoretically available to all, yet we tend to see the facts that support our emotional predilections, our optimism or pessimism, liberalism or conservatism, support of or opposition to the public schools as we know them."

Or, turn to other evidence of the lack of established merit for educational alternatives(3):

" . . . it was never really decided whether a multimillion-dollar programme of teacher education was worth the money and effort (his reference here was to the Arkansas State teacher education project); and that reading instruction has not really been influenced by research findings for the past thirty years. In the absence of evaluatory evidence, substitute bases for judgment are used, such as educational ideology, sentiment or persuasive claims by advocates or salesmen. Most educational decisions appear to be made in an intuitive, prudential manner. Sometimes the merits of an innovation are said to be "self-evident"; for example, the various positions on methods of teaching reading seem to have antedated the advent of research to test them. More frequently, the opinions of users and clients are invoked. Informal student reactions and teacher responses are assessed; perceived student boredom is taken as an indicator of lack of learning and the extra enthusiasm of teachers and students usually found in a new programme (with its additional encouragement, recognition, and shared wishes for goal accomplishment) is mistaken for the success of the innovation. Yet no hard data have been collected, and decisions to terminate or continue the innovation are founded on sand."

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(2) Robinson D.W., "Alternative Schools: Is the Old Order Really Changing", in Curricular Concerns in a Revolutionary Era, (R.R. Leeper, Ed.) ASCD, 1971, p. 241.

(3) Miles M.B., Innovation in Education, Teachers College Press, N.Y., pp. 657-8.

These statements may sound harsh: yet they have a ring of truth in them.

2. In general, two kinds of change attend the introduction of an educational alternative -- physical change (with reference to the system or process) and psychic change (with reference to persons within the target system). The degree to which the pace of these two changes is matched determines the strength of the impact of the resultant change. In many contemporary societies, psychic change tends to lag behind physical change. For example, a more flexible curriculum may be introduced into a school system and yet, because teachers have never had any other mode of teaching except for regular periods of time, the full potential of flexibility remains unexploited. The middle stage of an innovative venture, namely the stage at which strategies are planned and used should always be carefully assessed.

3. Personal predilection should never be allowed to override subjectively the considerations about social readiness. The extent of commitment of the target system can affect the adoptive success or failure of the innovative effort. Suppose an open-school plan were introduced into Singapore: it can be anticipated that the private tuition system will flourish more strongly than ever, as parents tend to view any attempt to allow pupils some independent initiative as a ploy to neglect instruction.

4. Resistance to evaluative research findings is a durable feature of treatment-oriented organisations(4). The enthusiasm of innovators too often takes on a self-justifying strength that brooks no suggestion that anything can be wrong. I saw this in a certain country I visited not so long ago. The people were hardly out of a stone-age setting. Yet modern mathematics was being taught to their children with great fervour by teachers who had been trained to mouth certain so-called mathematical statements. The teachers themselves obviously did not comprehend. It was no surprise, therefore, to meet at the post office a young clerk, primary school graduate of a modern curriculum, having to add on his pad the cost of 7, 5-cent stamps by the process of successive addition. When I related this to the leaders of the innovation the immediate retort was that children were meant to enjoy themselves in primary school; modern mathematics gave more insights and enjoyment. Why was I so worried? The age of the computer was upon us and desk calculators

(4) Demonstrated by Eaton J.W. in an ingenious experiment, "Symbolic and substantive evaluative research", Admin Sc Qtrly, 1962, 6, pp. 421-442.

and computers would soon be taking over such tasks. But to me they were brave statements, as the local newspapers daily deplored the poverty of the country. The long queues at post-office and banks could presage either a highly successful breakthrough or a bankrupt prospect for the economy.

CONCLUSION

I have not so much eschewed or justified innovations in education. Alternatives certainly have a place in a continuously changing scene. But the question remains: "What is the actual efficacy of the alternatives advocated"? And this, the innovating person or persons would do well to demonstrate.

SUMMARY OF DISCUSSION

In response to questions from Practicum participants, Dr. Wong clarified her paper as follows:

1. Experiments in "free time-tabling" (flexible scheduling) and "centers of interest" (integration of curriculum) are being conducted in Singapore by the Pilot Project Program and the model school groups. In the more traditional Chinese stream schools, the change toward trying-out innovative concepts is a slow process.

2. The process of evaluation is subjective. To a large degree, it depends upon the person performing the evaluation and his preconceived views toward certain things. In addition, many evaluators "expect" their experiments to succeed and bias is created. It was therefore suggested that in order to evaluate the evaluation process, one must first evaluate the evaluator.

3. When assessing education, continual ongoing evaluation is critical. It is necessary to evaluate both the end-product (in terms of initial objectives) and the day-to-day operational activities.

4. It is extremely difficult to design a systematic evaluation scheme for the Southeast Asian region because:

   A. Evaluation is rarely, it lacks controls and is fraught with the presence of confounding variables:

   B. Evaluation is "piecemeal" -- it often occurs at opportunistic moments, i.e., when the decision-maker requires an evaluation.

5. To assess pilot programs, one alternative might be the selection of "critical indicators" to evaluate, rather than structuring an elaborate, time-consuming evaluation plan. However, it is very difficult to decide which indicators are critical; it often turns out that the most critical indicator was, initially, considered to be the least critical.

EDUCATIONAL TECHNOLOGY AS AN ALTERNATIVE

by Dr. Douglas G. Ellson
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The Problems

It is often said, nowadays, that the educational problems of the developing countries, or of Asia, or of Southeast Asia, are insoluble. For example, one author wrote, referring to Southeast Asia: "it is simply impossible to build the schools, train the teachers, print the text books, install the shops, equip the laboratories, and hire the administrators in the number required to meet the basic needs of all sectors of education effort." Another writer has said even more dramatically, "The developing countries, by seeking to multiply indefinite existing forms of education based on the historic models of the West, are heading rapidly for economic disaster and social bankruptcy."

It should be said that both of these statements, which seem to conclude that the educational problems of this region are insoluble, are taken out of context. Actually, the authors of both statements go on to imply that it is the conventional solutions to educational problems that will not work in the long run or under Asian conditions. Both statements were made to emphasize the need for alternatives to the conventional solutions, and both authors suggest the proper use of educational technology as a possible alternative. The aim of this paper is to elaborate on these statements, first by examining some of the consequences of conventional solutions to two problems common to most of the educational systems of SEAMEO countries and second, by examining some of the characteristics of the educational technologies which promise to contribute to alternative solutions.

We shall examine two basic educational problems, one quantitative, one qualitative. There are not enough schools, teachers, textbooks, equipment and other facilities to accommodate all of the children of school age who live in many of the SEA countries even now. And the populations of these countries are growing rapidly, which increases the number of children to be educated in the years to come. This is the quantitative problem.

As professional educators, most of us are dissatisfied with the quality of education that we provide, and our dissatisfaction is shared by much of the general public. This is the problem of quality. This problem has two aspects. The first involves the question of what we teach. Are we teaching what is most needed for the development of our respective countries and the benefit of the people in them? Does what we teach satisfy our educational objectives and are they the most appropriate objectives? The question of objectives and whether we are teaching what is most likely to satisfy them is of tremendous importance in the success of any educational system, but answering these questions is not our primary concern here. In this paper we are concerned only with the second aspect of the problem of quality, that is, how well are we teaching whatever we choose to teach?

The Cost of the Conventional Solutions

Most of the conventional solutions to the quantitative problem were listed in the first quotation given above: build more schools, train more teachers, print more textbooks, install more shops, equip more laboratories, hire more administrators. The conventional solutions to the qualitative problem as we have defined it may be derived from these proposals by substituting the word "better" for "more" in each of them. The most important of these, of course, is to train better teachers or to train teachers better.

The conventional solutions seem so obvious that many people are not aware that alternatives exist and if they are aware, they seldom give the alternatives serious consideration. But it is exactly these conventional solutions which were described in our first quotation as "impossible" and in the second as leading to "economic disaster and social bankruptcy."

Some of the basis for these pessimistic conclusions may be found in two quotations from the Asian Model for Educational Development, a document which provides a mathematical model or technique for calculating the cost of solutions to educational problems. The first says, "... educational costs would increase from about $2.9 billion in 1964 to $9.4 billion by 1980." For the Asian countries represented, this statement implies that on the average 1964 educational budgets must be multiplied by a factor of three and a quarter by 1980. Elsewhere in the same document is the statement that "in the decades ahead, the number of educational institutions and personnel will increase about fourfold."

If these estimates seem excessive it may be pointed out that per pupil expenditures for primary education in the United Kingdom were approximately $210 (US) in 1964. In the United States the corresponding figure was $460 in 1968. These are roughly 10 and 20 times the 1968 projections for the more prosperous countries in Asia (the group C countries, which include Malaysia, Philippines, Singapore and Thailand).

These figures, based on the Asian Model for Educational Development and the 1970 edition of the UNESCO Statistical Yearbook are averages for Asia as a whole. In Table 1 we have shown the results of some similar calculations for all of the SEAMEO countries for which the necessary data were available in the Statistical Yearbook. Because of the emphasis assigned to primary education in the final recommendations of the SEAMEO Regional Educational Planning Seminar, these calculations are limited to the cost of conventional solutions in the primary system alone. No changes in expenditures for secondary and higher level education are represented.

Column a shows the base year for the calculations. This is simply the latest year for which necessary data was available in the 1970 Statistical Yearbook. The figures in the remaining columns are multipliers, that is, the numbers by which costs in the base year must be multiplied to solve a given problem, using conventional solutions. Column b shows the multipliers required to solve the quantitative problem by 1980. Column c shows the multipliers for solving the qualitative problem alone. Column d shows the multipliers required to solve both problems by 1980. Looking at some of the figures in this column -- multipliers of 4, 7, 8, 13 -- we may well ask whether all Asian countries can afford the conventional solutions to their problems if they require budget increases of this magnitude.

The Technologies as Alternative Solutions

The second thesis of this paper is that the teaching technologies offer two major advantages over the conventional solutions to both the quantitative and the qualitative problems. First, the manpower requirements of teaching technologies provide a better match than conventional solutions to the manpower now available in Asia. Second, they offer the possibility of reducing some of the major costs of education at the same time that quality is increased.

Table 1

Some Projected Costs of Conventional
Solutions to Problems of Primary Education

Country	Base Budget year	Primary Level Cost Multipliers		
		100% Enrollment 1980	Quality Improved	100% Enrollment Quality Improved
	(a)	(b)	(c)	(d)
Khmer	1967	1.8	4.4	7.9
Laos	1968	3.2	4.3	13.4
West Malaysia	1968	1.7	1.0	1.7
Sabah	1967	1.5	5.8	8.7
Sarawak	1968	1.7	1.4	2.4
Singapore	1968	1.5	0.8	1.2
Thailand	1967	1.9	2.2	4.2
Vietnam	1968	1.6	1.4	2.2

Apart from the problems of financing education in most Asian countries is the shortage of trained teachers. To increase the quality and quantity of schooling in conventional ways will still further increase the need for trained teachers. Ideally, this means graduate teachers, those with 16 or more years of schooling, including several years of professional training. In most SEAMEO countries less than 1% of the population are college graduates, and they are in great demand for professions and positions of leadership in fields other than education. Because of the competition for highly qualified people, well-trained teachers must be paid high salaries. This contributes to the problem of cost in a major way, since teachers' salaries are always the largest single item in educational budgets. Insofar as the educational technologies reduce the demand for graduate teachers they can reduce the cost of education.

They do so first by substituting technicians for professionally trained teachers, using them to increase the efficiency of the teacher. These technicians do not require 16 years of schooling. They are specialists who can be trained to perform a few tasks well after only eight, six or even fewer years of schooling. The pool of people with this amount of schooling is not 1%, it is 10% or more in most Asian countries, and the proportion is growing rapidly. The cost of training such technicians and the cost of paying them once they are trained are considerably less than the corresponding costs for adequately trained professional teachers.

The teaching technologies can contribute most obviously to solution of the quantitative problem, whether this problem is expressed in terms of the number of graduate teachers required or the cost of training and paying them. But they can also contribute to solution of the qualitative problem. It is clear that technologies such as audio-visual aids and educational television, to say nothing of blackboards and books, which are also forms of technology, can improve the quality of teaching when they are used as supplements to the work of the professional teacher. It is less generally known that the quality of teaching produced by the technologies alone, that is, used in the absence of professional teachers, frequently equals and sometimes exceeds the quality of teaching produced by professional teachers, including graduate teachers. The evidence is available in many reports of experimental evaluations of both the physical technologies -- books, audio-visual equipment, broadcasting -- and the psychotechnologies -- programed learning and programed teaching.

Not only can the teaching technologies reduce the number of highly trained teachers who are needed, they can reduce costs in other ways. They provide the means of teaching without textbooks, without school buildings and without other costly elements of conventional education. For those who have been misled by the term "technology", it should be added that many of them, especially the psychotechnologies, can teach without machines.

The Seven Teaching Technologies

There are seven teaching technologies. There are other educational technologies such as measurement and evaluation and scientific planning and management, but here we are concerned chiefly with those educational technologies which are directly aimed at improving the effiency and quality of teaching.

Table 2 lists the seven types of teaching technology. Historically, the first of these is Audio-visual Aids. Long before computers, television, programed instruction or even books were invented, teachers drew pictures in the sand with their finger or a stick. Then came the blackboard and more recently the various recording and projection systems. Audio-visual materials may be used as a substitute for textbooks and its use is not limited to school buildings. A blackboard or, for that matter, a moving picture projector will work as well under a tree or in a village courtyard or community center as it does in a school building.

Chronologically, books, based on the technology of printing, come next. For those who could read, books provided one of the first forms of self instruction. They can be used without teachers, and they also do not require school buildings.

Educational radio probably comes next. It has been used for many years in Australia to teach children who live where there are neither school buildings nor teachers. Educational radio utilizes teachers at the microphone, of course, but it can use them very economically compared with conventional classroom teaching.

Table 2

The Teaching Technologies

1. Audio Visual Aids
2. Books
3. Educational Radio
4. Educational Te[illegible]ion
5. Computer Assisted Instruction
6. Programed Learning
7. Programed Teaching

The remaining four teaching technologies are all relatively recent inventions. SESAME street, perhaps the best known example of educational television, is sometimes used to teach in schools. But does it require a graduate teacher to sit with the pupils in front of the television receiver? The production of ETV programs makes use of highly qualified teachers, but very few of them. Many of the people that appear on the screen are not teachers, they are actors. From the point of view of the teaching profession actors in front of the camera are no less technicians than are the camera men behind it.

Computer Assisted Instruction is a new form of teaching technology still in the early stages of development. It may be considered as an elaborate and highly mechanized form of programed instruction. So far, little information is available concerning its effectiveness or its cost. At the moment it does not appear to be a feasible solution to educational problems in Asia.

The remaining teaching technologies on the list are two quite different forms of programed instruction. The first, Programed Learning, is a self-instructional technique. It does not require school buildings and it produces learning without teachers except for the few who may be involved in the development of programs. In practice, it is most commonly used as a replacement for textbooks, for people who can read but not well enough to teach themselves from books.

Programed Learning is often assumed to be inseparable from teaching machines, but this conception is changing. For most purposes, teaching machines are being replaced by the far less expensive programed texts. These are simply books with a format and content organization especially designed to facilitate learning. The development of programed texts has served to emphasize something which is often forgotten when educational technology is mentioned. It is the software, that is, the program, rather than the hardware which does the teaching.

Except perhaps for Computer Assisted Instruction, Programed Teaching is the newest of the teaching technologies. It is a psychotechnology rather than a physical technology -- an application of the science of psychology, not physics. For our purposes it may be considered simply as an efficient way of training and using people -- teaching technicians with very limited qualifications -- to do very effective teaching. There is evidence that for attaining certain educational objectives these technicians can be more effective than graduate teachers trained in the traditional ways.

Programed teaching is a form of programed instruction -- like programed learning it utilizes programs carefully engineered in terms of psychological and pedagogical principles to maximize learning. But the two techniques differ in significant ways. Programed teaching is not a self-instructional technique. It programs teaching technicians -- people, not machines -- to teach. And unlike most programed learning techniques, it does not depend upon the pupil's ability to read, which is an important consideration when we are concerned with teaching at the primary level.

All of the teaching technologies have one feature in common which is the basis for their potential value as alternatives to the conventional solutions to educational problems. All of them reduce the need for highly trained professional teachers by increasing their efficiency -- by multiplying the number of pupils one teacher can reach or by delegating some of the teachers' less demanding or less professional functions to books, machines or technicians. This feature is important at all levels of education since the salaries of professional teachers is the largest single item in educational budgets. It is an especially important factor at the primary level.

In spite of potential advantages, the technologies have not been widely adopted, which suggests that there are disadvantages and other factors to be considered. They have their limitations and their failures. Misused they may do little more than add to the cost of education. They are innovations which imply changes in the present ways of doing things. And whatever the inadequacies of the present schools, they are successful in the sense that schools highly correlated with the acquisition of material things personal freedom and power. For this reason, adoption of the teaching technologies is often opposed most strongly by those who could benefit most from them.

One critical factor is the shortage of information concerning them. Most of the teaching technologies are relatively new and their use is not widespread, so that we know relatively little about them. We know even less about their use under Asian conditions. Most of the available programs and the ways of using them in educational systems are essentially first attempts. We have had little opportunity to experiment, to repeatedly try out and refine preliminary forms and to compare a variety of forms under a variety of conditions. We have little solid information about their costs. Most reports of educational technology projects

emphasize their theoretical advantages and give some indication of their effectiveness as teaching devices, but few say anything about the cost of development, the cost of administration and especially the cost of the infra-structure necessary to maintain them in full scale working educational systems rather than as isolated experimental miniatures. We know that development costs are high but in most cases we can not estimate these costs accurately.

The Teaching Technologies in Educational Systems

There are three basic ways in which the teaching technologies may be used as components of educational systems. One is to superimpose them on present school systems as supplements to the functions of the professional teacher. This is the way teaching technologies have been used most frequently in prosperous countries, where cost is not a major consideration and success depends primarily on their effectiveness in improving quality. In less prosperous countries they have also been used this way, usually on a small scale with external funding. In such pilot studies they are often successful, but it is a notorious fact that once outside support is withdrawn most such projects disappear. Used as supplements to a conventional system, teaching technologies may significantly add to the cost, and in underfinanced educational systems cost is a primary consideration.

A second way of utilizing the teaching technologies is to use them not as supplements but to replace unnecessarily expensive elements. For example, much of the teaching of reading, writing and arithmetic at the beginning level involves many repetitions of relatively simple operations. It does not require a graduate teacher with 16 or even 12 years of education to carry out these operations successfully. Most such operations can be performed successfully by technicians and some of them by machines. Given a teaching program carefully engineered by a team of experts, a teaching technician or a teaching machine can often produce better results than the graduate teacher, who has been trained not to engineer but to improvise the details of her teaching operations from moment to moment.

One example of such a syster utilized older pupils as teaching technicians, thus combining modern teaching technology with the monitor system, which was originally developed in India some 170 years ago. Early applications of the monitor system in some instances achieved a pupil-teacher ratio of 250. Eventually it failed, primarily because of the inadequacy of the monitors as teachers. Although they were not professional teachers they were given the responsibilities of professionals with little or no training and with inadequate support in the form of teaching materials. Today we have the means to eliminate the causes of this early failure.

Another example: in the Western range area of the United States the population is very sparse, so that the total number of pupils living within 50 miles of a secondary school may be less than 100. To provide the variety of curriculum which Americans have come to expect would require far more teachers than such a small school can afford. A school of this size can not justify the teaching staff required to provide four years of mathematics, three years of two or three foreign languages, several sciences, advanced courses in history and literature, to say nothing of physical education and vocational subjects which are taken for granted in larger high schools. This problem has been solved by providing a teaching staff for a few core subjects and utilizing programed instruction for teaching special topics or advanced subjects which are requested by only a few pupils each year. There are other examples in which the mass media have similarly been used to extend the curriculum.

A third way of utilizing the educational technologies effectively is to incorporate them into entirely new systems, such as those proposed by Dr. Illich and some of his colleagues. Although this group has not given much emphasis to the possibility of utilizing educational technology in tho systems they have proposed, there is reason to consider such a combination.

Some quite radical systems may be well suited to Asian conditions. For example, the conventional school system might be confined to the teaching of the basic tool subjects, reading, writing and arithmetic. Further education would be made available primarily through the mass media and the provision of libraries and other self-instructional facilities. It would probably be necessary to supplement these facilities by studios, shops and laboratories supervised by qualified professional teachers supported by teaching technicians. In such a system much of the

teaching of art could be done by artists, wood working by carpenters and cabinet makers, metal working by mechanics and machinists, agriculture by farmers, and so on. Most of these artists and craftsman would be trained not as professional teachers but as teaching technicians. The basic idea here is not really new -- it is simply an extension of the British Open University to the primary level.

Another possible system is the inverse of the one just described. Suppose for example, that the teaching of reading, writing and arithmetic was abolished in the public schools. Proficiency in the three R's would become not a product of the public school system, but an entrance requirement. Schooling, academic or technical, could begin at what we now call the fourth, sixth or tenth grade levels, with appropriate performance in the three R's required for admission.

The teaching of reading, writing and arithmetic would be done outside of schools entirely. The necessary instruction might be providedby mass media or teaching machines in combination with teaching technicians from the private sector. The latter might be parents, otherwise unemployed housewives moving on one-man private schools. One can visualize an over-the-shoulder school, an education-hawker with paper and pencils on one end of a shoulder yoke, books at the other, ready to set up shop anywhere, even in a school building. These specialist technicians might well be trained and equipped by Ministries of Education but paid by their pupils in cash or kind or community-provided educational credits. They might be paid on small-scale performance contracts, not for time expended but for results achieved, as measured by their pupils' performance on examinations, by their admission to the public schools, or by their employment.

Even this system, radical as it may appear, is not entirely new. It is simply a modernized form of the present system of using tutors to prepare students to pass critical examinations, improved, perhaps by substituting teaching technicians for tutors of unknown qualifications. The present tutoring system is most widely used when the public schools are quantitatively or qualitatively inadequate. These, of course, are the two problems with which we began.

What Needs to be Done?

We have suggested seven teaching technologies and three general ways in which they could be used as alternatives to conventional solutions to basic educational problems. Every member of this audience could suggest other promising ways of using the technologies to solve problems. Proposing alternatives is the most pleasant and the easiest part of the task. But what else needs to be done before we reach the more difficult task of deciding which among many alternatives should be implemented?

First it is necessary to examine problems at a very basic level, not asking what difficulties we are having in administering the present system, but rather, what are the needs of society and which of them is the present system failing to satisfy?

The shortage of trained teachers, for example, is a problem formulated at the administrative level. This formulation implies its own solution, i.e., train more teachers. But proposal [illegible] this conventional [illegible]tion autom[illegible]lly elimina[illegible] alterna[illegible] solutions [illegible] consi[illegible]red. [illegible] more basic [illegible]mulation [illegible] inadequate quantity and quality of education [illegible] consideration of many alternative solutions. [illegible]lems must also [illegible] considered in [illegible] of objectives — for an educational system these are the needs of the larger society within which it functions. If, for example, the objectives of rural schools were restricted to vocational training, then poor teaching of certain academic subjects would be no problem at all.

Given a clear understanding of problems and objectives, the next step is the consideration of alternatives, which we are doing at this meeting. Then comes the major task of deciding among them. This requires much analysis of effectiveness, feasibility, cost and cost-benefit ratios, followed by tentative choices of one or more alternatives which must be tried and evaluated, first on a small scale, then rejected or revised and evaluated again. This cycle may be repeated many times and on an increasing scale before a final decision is made. Only then is the innovation put into practical full-scale use.

Since the teaching technologies are relatively new and untried, especially in Asia, this decision-making process must be carried out in several stages, first to provide information about the technologies themselves and later to evaluate the educational systems in which they may function as components.

The name of this procedure is the systems approach. And this, of course, is what INNOTECH is all about.

SUMMARY OF DISCUSSION

1. The speaker supported and expanded on a questioner's suggestion that the use of programmed instruction to broaden the currirular offering in small secondary schools in sparsely populated areas of the American desert was applicable to Asian islands with a similar problem.

2. In response to a question concerning the cost of training teaching technicians, the speaker indicated that needed information was not now available and further stressed that major savings could be expected to result from the difference in the salaries of technicians and fully trained professionals.

3. The remainder of the discussion centered on the roles of teachers and teaching technicians. The following points were made.

   a. That the traditional functions of the teacher included two roles:

      1) As a counsellor, a wise man, an individual with knowledge far beyond that taught in the schools, providing advice to individuals and to the community.

      2) As a representative of society via the institutionalized school, delegated to teach what is prescribed by the community.

   b. That both functions were important and needed, but that the kind of person required for the first function was not available or could not be used for mass education at the lower levels.

   c. That a few properly trained professionals capable of performing the first function could serve both functions and also supervise many teaching technicians capable of the second.

   d. That the performance of teaching technicians should not be evaluated by comparing it with that of the ideal teacher, but with that of the average professional teacher. Poor performance of the latter is one of Asia's problems.

   e. That the systematization of education, i.e. emphasis on the second function, is a natural consequence of the use of public money for education.

THE ALTERNATIVE TO SCHOOLING

by Ivan Illich
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THE TRIPLE ILLEGITIMACY

For generations we have tried to make the world a better place by providing more and more schooling, but so far the endeavor has failed. What we have learned instead is 1) that forcing all children to climb an open ended education ladder cannot enhance quality but must favor the individual who starts out earlier, healthier, or better prepared; 2) that enforced instruction deadens for most people the will for independent learning; 3) and that knowledge treated as a commodity, delivered in packages, and accepted as private property once it is acquired, must always be scarce.

NEW WAYS OF "PRODUCING" EDUCATION

In response, critics of the educational system are now proposing strong and unorthodox remedies that range from the voucher plan, which would enable each person to buy the education of his choice on an open market, to shifting the responsibility for education from the school to the media and to apprenticeship on the job. Some individuals foresee that the school will have to be disestablished just as the church was disestablished all over the world during the last two centuries. Other reformers propose to replace the universal school with various new systems that would, they claim, better prepare everybody for life in modern society. These proposals for new educational institutions fall into three broad categories: 1) the reformation of the classroom within the school system; 2) the dispersal of free schools throughout society; 3) and the transformation of all society into one huge classroom. But these three approaches -- the reformed classroom, the free school, and the worldwide classroom -- represent three stages in a proposed escalating production of education in which each step threatens more subtle and more pervasive social control than the one it replaces.

THE FUTILITY OF "UNIVERSAL" EDUCATION

I believe that the disestablishment of the school has become inevitable and that this end of an illusion should fill us with hope. But I also believe that the end of the "age of schooling" could usher in the epoch of the global school-house that would be distinguishable only in name from a global madhouse or global prison in which education, correction, and adjustment become synonymous. I therefore believe that the breakdown of the school forces us to look beyond its imminent demise and to face fundamental alternatives in education. Either we can work for fearsome and potent new educational devices that fit all men into a world which progressively becomes more opaque and forbidding for man, or we can set the conditions for a new era in which technology would be used to make society more simple and transparent so that all men can once again know the facts and use the tools that shape their lives. In short, we can disestablish schools or we can deschool culture.

THE HIDDEN CURRICULUM OF SCHOOLING

In order to see clearly the alternatives we face, we must first distinguish education from schooling, which means separating the humanistic intent of the teacher from the impact of the invariant structure of the school. This hidden structure constitutes a course of instruction that stays forever beyond the control of the teacher or of his school board. It conveys indelibly the message that only through schooling can an individual prepare himself for adulthood in society, that what is not taught in school is of little value, and that what is learned outside of school is not worth knowing. I call it the hidden curriculum of schooling, because it constitutes the unalterable framework of the system within which all changes in the curriculum are made.

The hidden curriculum is always the same regardless of school or place. It requires all children of a certain age to assemble in groups of about thirty, under the authority of a certified teacher, for some 500 to 1,000 or more hours each year. It doesn't matter whether the curriculum is designed to teach the principles of fascism, liberalism, Catholicism, or socialism; or whether the purpose of the school is to produce Soviet or United States citizens, mechanics, or doctors. It makes no difference whether the teacher is authoritarian or permissive, whether he imposes his own creed or teaches students to think for themselves. What is important is that students learn that education is valuable when it is acquired in the school through a graded process of consumption; that the degree of success the individual will enjoy in society depends on the amount of

learning he consumes; and that learning about the world is more valuable than learning from the world.

It must be clearly understood that the hidden curriculum translates learning from an activity into a commodity -- for which the school monopolizes the market. In all countries knowledge is regarded as the first necessity for survival, but also as a form of currency more liquid than rubles or dollars. We have become accustomed, through Karl Marx's writings, to speak about the alienation of the worker from his working class society. We must now recognize the estrangement of man from his learning when it becomes the product of a service profession and he becomes the consumer.

The more learning an individual consumes, the more "knowledge stock" he acquires. The hidden curriculum therefore defines a new class structure for society within which the large consumers of knowledge -- those who have acquired large quantities of knowledge stock -- enjoy special privileges, high income, and access to the more powerful tools of production. This kind of knowledge-capitalism has been accepted in all industrialized societies and establishes a rationale for the distribution of jobs and income. (This point is especially important in the light of the lack of correspondence between schooling and occupational competence established in studies such as Ivar Berg's Education and Jobs: The Great Training Roberry.)

"EDUCATION" AS A RECENT, WESTERN INVENTION

The endeavor to put all men through successive stages of enlightenment is rooted deeply in alchemy, the Great Art of the waning Middle Ages. John Armos Comenius, a Moravian bishop, self-styled Pansophist, and pedagogue, is rightly considered one of the founders of the modern schools. He was among the first to propose seven or twelve grades of compulsory learning. In his Magna Didactica, he described schools as devices to "teach everybody everything" and outlined a blueprint for the assembly-line production of knowledge, which according to his method would make education cheaper and better and make growth into full humanity possible for all. But Comenius was not only an early efficiency expert, he was an alchemist who adopted the technical language of his craft to describe the art of rearing children. The alchemist sought to "refine" based elements "by leading their distilled spirits through seven or twelve "stages" of successive "enlightenment", so that "for their own and all the world's benefit" they might be

"transmuted" into gold. Of course, alchemists failed no matter how often they tried, but each time their "science" yielded new reasons for their failure, and they tried again.

Pedagogy opened a new chapter in the history of Ars Magna. Education became the search for an alchemic process that would bring forth a new type of man, who would fit into an environment created by scientific magic. But, no matter how much each generation spent on its schools, it always turned out that the majority of people were unfit for enlightenment by this process and had to be discarded as unprepared for life in a man-made world.

Educational reformers who accept the idea that schools have failed fall into three groups. The most respectable are certainly the great masters of alchemy who promise better schools. The most seductive are popular magicians, who promise to make every kitchen into an alchemic lab.

1ST FUTILE PROPOSAL: ALTERNATIVE CURRICULA

The most sinister are the new Masons of the Universe, who want to transform the entire world into one huge temple of learning. Notable among today's masters of alchemy are certain research directors employed or sponsored by the large foundations who believe that schools, if they could somehow be improved, could also become economically more feasible than those that are now in trouble, and simultaneously could sell a larger package of services. Those who are concerned primarily with the curriculum claim that it is outdated or irrelevant. So the curriculum is filled with new packaged courses on African Culture, North American Imperialism, Women's Lib, Pollution, or the Consumer Society. Passive learning is wrong -- it is indeed -- so we graciously allow students to decide what and how they want to be taught. Schools are prison houses. Therefore, principals are authorized to approve teach-outs, moving the school desks to a roped-off Harlem street. Sensitivity training becomes fashionable. So, we import group therapy into classroom. School, which was supposed to teach everybody everything now becomes all things to all children.

Other critics emphasize that schools make inefficient use of modern science. Some would administer drugs to make it easier for the instructor to change the child's behavior. Others would transform school into a stadium for educational gaming. Still others would electrify the classroom. If they are simplistic disciples of McLuhan they replace blackboards and textbooks with multimedia happenings; if they follow Skinner, they claim to be able to modify behavior more efficiently than old-fashioned classroom practitioners can.

Most of these changes have, of course, some good effects. The experimental schools have fewer truants. Parents do have a greater feeling of participation in a decentralized district. Pupils, assigned by their teacher to an apprenticeship, do often turn out more competent than those who stay in the classroom. Some children do improve their knowledge of Spanish in the language lab because they prefer playing with the knobs of a tape recorder to conversations with their Puerto Rican peers. Yet all these improvements operate within predictably narrow limits, since they leave the hidden curriculum of school intact.

2ND FUTILE PROPOSAL: FREE SCHOOLS

Some reformers would like to shake loose from the hidden curriculum, but they rarely succeed. Free schools that lead to further free schools produce a mirage of freedom, even though the chain of attendance is frequently interrupted by long stretches of loafing. Attendance through seduction inculcates the need for educational treatment more persuasively than the reluctant attendance enforced by a truant officer. Permissive teachers in a padded classroom can easily render their pupils impotent to survive once they leave.

Learning in these schools often remains nothing more than the acquisition of socially valued skills defined, in this instance, by the consensus of a commune rather than by the decree of a school board. New presbyter is but old priest writ large.

Free schools, to be truly free, must meet two conditions: First, they must be run in a way to prevent the reintroduction of the hidden curriculum of graded attendance and certified students studying at the feet of certified teachers. And, more importantly, they must provide a framework in which all participants -- staff and pupils -- can free themselves from the hidden foundations of a schooled society. The first condition is frequently incorporated in the stated aims of a free school. The second condition is only rarely recognized, and is difficult to state as the goal of a free school.

It is useful to distinguish between the hidden curriculum, which I have described, and the occult foundations of schooling. The hidden curriculum is a ritual that can be considered the official initiation into modern society, institutionally established through the school. It is the purpose of this ritual to hide from its participants the contradictions between the myth of an egalitarian society and the class-conscious reality it certifies. Once they are recognized as such

rituals lose their power, and this is what is now beginning to happen to schooling. But there are certain fundamental assumptions about growing up -- the occult foundations -- which now find their expression in the ceremonial of schooling, and which could easily be reinforced by what free schools do.

Among these assumptions is what Peter Schrag calls the "immigration syndrome," which impels us to treat all people as if they were newcomers who must go through a naturalization process. Only certified consumers of knowledge are admitted to citizenship. Men are not born equal, but are made equal through gestation by Alma Mater.

The rhetoric of all schools states that they form a man for the future, but they do not release him for his task before he has developed a high level of tolerance to the ways of his elders: education for life rather than in everyday life. Few free schools can avoid doing precisely this. Nevertheless they are among the most important centers from which a new life-style radiates, not because of the effect their graduates will have but, rather, because elders who choose to bring up their children without the benefit of properly ordained teachers frequently belong to a radical minority and because their preoccupation with the rearing of their children sustains them in their new style.

3RD FUTILE PROPOSAL: NEW TECHNOLOGY

The most dangerous category of educational reformer is one who argues that knowledge can be produced and sold much more effectively on an open market than on one controlled by school. These people argue that most skills can be easily acquired from skill-models if the learner is truly interested in their acquisition; that individual entitlements can provide a more equal purchasing power for education. They demand a careful separation of the process by which knowledge is acquired from the process by which it is measured and certified. These seem to me obvious statements. But it would a fallacy to believe that the establishment of a free market for knowledge would constitute a radical alternative in education.

KNOWLEDGE - CAPITALISM

The establishment of a free market would indeed abolish what I have previously called the hidden curriculum of present schooling -- its age-specific attendance at a graded curriculum. Equally, a free market would at first give the appearance of counteracting

what I have called the occult foundations of a schooled society: the "immigration syndrome," the institutional monopoly of teaching, and the ritual of linear initiation. But at the same time a free market in education would provide the alchemist with innumerable hidden hands to fit each man into the multiple tight little niches a more complex technocracy can provide.

Many decades of reliance on schooling has turned knowledge into a commodity, a marketable staple of a special kind. Knowledge is now regarded simultaneously as a first necessity and also as society's most previous currency. (The transformation of knowledge into a commodity is reflected in a corresponding transformation of language. Words that formerly functioned as verbs are becoming nouns that designate possessions. Until recently dwelling and learning and even healing designated activities. They are now usually conceived as commodities or services to be delivered. We talk about the manufacture of housing or the delivery of medical care. Men are no longer regarded fit to house or heal themselves. In such a society people come to believe that professional services are more valuable than personal care. Instead of learning how to nurse grandmother, the teen-ager learns to picket the hospital that does not admit her.) This attitude could easily survive the disestablishment of school, just as affiliation with a church remained a condition for office long after the adoption of the First Amendment. It is even more evident that test batteries measuring complex knowledge-packages could easily survive the disestablishment of school -- and with this would go the compulsion to obligate everybody to acquire a minimum package in the knowledge stock. The scientific measurement of each man's worth and the alchemic dream of each man's "educability to his full humanity" would finally coincide. Under the appearance of a "free" market, the global village would turn into an environmental womb where pedagogic therapists control the complex navel by which each man is nourished.

At present schools limit the teacher's competence to the classroom. They prevent him from claiming man's whole life as his domain. The demise of school will remove this restriction and give a semblance of legitimacy to the life-long pedagogical invasion of everybody's privacy. It will open the way for a scramble for "knowledge" on a free market, which would lead us toward the paradox of a vulgar, albeit seemingly egalitarian, meritocracy. Unless the concept of knowledge is transformed, the disestablishment of school will lead to a wedding between a growing meritocratic system that separates learning from certification and a society committed to provide therapy for each man until he is ripe for the gilded age.

PRESENT REFORM TENDS TO TIGHTEN TECHNOCRACY

For those who subscribe to the technocratic ethos, whatever is technically possible must be made available at least to a few whether they want it or not. Neither the privation nor the frustration of the majority counts. If cobalt treatment is possible, then the city of Tegucigalpa needs one apparatus in each of its two major hospitals, at a cost that would free an important part of the population of Honduras from parasites. If supersonic speeds are possible, then it must speed the travel of some. If the flight to Mars can be conceived, then a rationale must be found to make it appear a necessity. In the technocratic ethos poverty is modernized: Not only are old alternatives closed off by new monopolies, but the lack of necessities is also compounded by a growing spread between those services that are technologically feasible and those that are in fact available to the majority.

PEDAGOGICAL HYBRIS

A teacher turns "educator" when he adopts this technocratic ethos. He then acts as if education were a technological enterprise designed to make man fit into whatever environment the "progress" of science creates. He seems blind to the evidence that constant obsolescence of all commodities comes at a high price: the mounting cost of training people to know about them. He seems to forget that the rising cost of tools is purchased at a high price in education: They decrease the labor intensity of the economy, make learning on the job impossible or, at best, a privilege for a few. All over the world the cost of educating men for society rises faster than the productivity of the entire economy, and fewer people have a sense of intelligent participation in the commonwealth.

NOT NEW EDUCATION BUT A NEW SET OF PAEDAGOGICAL DESIGN CRITERIA FOR TECHNOLOGY

RECOVER THE POWER TO LEARN

A revolution against those forms of privilege and power, which are based on claims to professional knowledge, must start with a transformation of consciousness about the nature of learning. This means, above all, a shift of responsibility for teaching and learning. Knowledge can be defined as a commodity only as long as it is viewed as the result of institutional enterprise or as the fulfillment of institutional objectives. Only when a man recovers the sense of personal responsibility for what he learns and teaches can this spell be broken and the alienation of learning from living be overcome.

The recovery of the power to learn or to teach means that the teacher who takes the risk of interfering in somebody else's private affairs also assumes responsibility for the results. Similarly, the student who exposes himself to the influence of a teacher must take responsibility for his own education. For such purposes educational institutions -- if they are at all needed -- ideally take the form of facility centers where one can get a roof of the right size over his head, access to a piano or a kiln, and to records, books, or slides. Schools, TV stations, theaters, and the like are designed primarily for use by professionals. Deschooling society means above all the denial of professional status for the second-oldest profession, namely teaching. The certification of teachers now constitutes an undue restriction of the right to free speech: the corporate structure and professional pretensions of journalism an undue restriction on the right to free press. Compulsory attendance rules interfere with free assembly. The deschooling of society is nothing less than a cultural mutation by which a people recovers the effective use of its Constitutional freedoms: learning and teaching by men who know that they are born free rather than treated to freedom. Most people learn most of the time when they do whatever they enjoy; most people are curious and want to give meaning to whatever they come in contact with; and most people are capable of personal intimate intercourse with others unless they are stupefied by inhuman work or turned off by schooling.

The fact that people in rich countries do not learn much on their own constitutes no proof to the contrary. Rather it is a consequence of life in an environment from which, paradoxically, they cannot learn much, precisely because it is so highly programed. They are constantly frustrated by the structure of contemporary society in which the facts on which decisions can be made have become elusive. They live in an environment in which tools that can be used for creative purposes have become luxuries, an environment in which channels of communication serve a few to talk to many.

A modern myth would make us believe that the sense of impotence with which most men live today is a consequence of technology that cannot but create huge systems. But it is not technology that makes systems huge, tools immensely powerful, channels of communication one-directional. Quite the contrary: Properly controlled, technology could provide each man with the ability to understand his environment better, to shape it powerfully with his own hands, and to permit him full intercommunication to a degree never before possible. Such an alternative use of technology constitutes the central alternative in education.

ACCESS TO THINGS

If a person is to grow up he needs, first of all, access to things, to places and to processes, to events and to records. He needs to see, to touch, to tinker with, to grasp whatever there is in a meaningful setting. This access is now largely denied. When knowledge became a commodity, it acquired the protections of private property, and thus a principle designed to guard personal intimacy became a rationale for declaring facts off limits for people without the proper credentials. In schools teachers keep knowledge to themselves unless it fits into the day's program. The media inform, but exclude those things they regard as unfit to print. Information is locked into special languages, and specialized teachers live off its retranslation. Patents are protected by corporations, secrets are guarded by bureaucracies, and the power to keep others out of private preserves -- be they cockpits, law offices, junkyards, or clinics -- is jealously guarded by professions, institutions, and nations. Neither the political nor the professional structure of our societies, East and West, could withstand the elimination of the power to keep entire classes of people from facts that could serve them. The access to facts that I advocate goes far beyond truth in labeling. Access must be built into reality, while all we ask from advertising is a guarantee that it does not mislead. Access to reality constitutes a fundamental alternative in education to a system that only purports to teach about it.

ACCESS TO FACTS

Abolishing the right to corporate secrecy -- even when professional opinion holds that this secrecy serve the common good -- is, as shall presently appear, a much more radical political goal than the traditional demand for public ownership or control of the tools of production. The socialization of tools without the effective socialization of know-how in their use tends to put the knowledge-capitalist into the position formerly held by the financier. The technocrat's only claim to power is the stock he holds in some class of scarce and secret knowledge, and the best means to protect its value is a large and capital-intensive organization that renders access to know-how formidable and forbidding.

RANDOM ACCESS TO SKILLS

It does not take much time for the interested learner to acquire almost any skill that he wants to use. We tend to forget this in a society where professional teachers monopolize entrance into all fields, and thereby stamp teaching by uncertified individuals as quackery. There are few mechanical skills used in industry or research that are as demanding, complex, and dangerous as driving cars, a skill that most people quickly acquire from a peer. Not all people are suited for advanced logic, yet those who are make rapid progress if they are challenged to play mathematical games at an early age. One out of twenty kids in Cuernavaca can beat me at Wiff 'n' Proof after a couple of weeks' training. In four months all but a small percentage of motivated adults at our CIDOC center learn Spanish well enough to conduct academic business in the new language.

SKILL-EXCHANGE

A first step toward opening up access to skills would be to provide various incentives for skilled individuals to share their knowledge. Inevitably, this would run counter to the interest of guilds and professions and unions. Yet, multiple apprenticeship is attractive: It provides everybody with an opportunity to learn something about almost anything. There is no reason why a person should not combine the ability to drive a car, repair telephones and toilets, act as a midwife, and function as an architectural draftsman. Special-interest groups and their disciplined consumers would, of course, claim that the public needs the protection of a professional guarantee. But this argument is now steadily being

challenged by consumer protection associations. We have to take much more seriously the objection that economists raise to the radical socialization of skills: that "progress" will be impeded if knowledge -- patents, skills, and all the rest -- is democratized. Their argument can be faced only if we demonstrate to them the growth rate of futile diseconomies generated by any existing educational system.

TRANSPARENT TECHNOLOGY

Access to people willing to share their skills is no guarantee of learning. Such access is restricted not only by the monopoly of educational programs over learning and of unions over licensing but also by a technology of scarcity. The skills that count today are know-how in the use of highly specialized tools that were designed to be scarce. These tools produce goods or render services that everybody wants but only a few can enjoy, and which only a limited number of people know how to use. Only a few privileged individuals out of the total number of people who have a given disease ever benefit from the results of sophisticated medical technology, and even fewer doctors develop the skill to use it.

The same results of medical research have, however, also been employed to create a basic medical tool kit that permits Army and Navy medics, with only a few months of training, to obtain results, under battlefield conditions, that would have been beyond the expectations of full-fledged doctors during World War II. On an even simpler level any peasant girl could learn how to diagnose and treat most infections if medical scientists prepared dosages and instructions specifically for a given geographic area.

All these examples illustrate the fact that educational considerations alone suffice to demand a radical reduction of the professional structure that now impedes the mutual relationship between the scientist and the majority of people who want access to science. If this demand were heeded, all men could learn to use yesterday's tools, rendered more effective and durable by modern science, to create tomorrow's world.

Unfortunately, precisely the contrary trend prevails at present. I know a coastal area in South America where most people support themselves by fishing from small boats. The outboard motor is certainly the tool that has changed most dramatically the lives of these coastal fishermen. But in the area I have surveyed, half of all outboard motors that were purchased between 1945 and 1950 are still

kept running by constant tinkering, while half the motors purchased in 1965 no longer run because they were not built to be repaired. Technological progress provides the majority of people with gadgets they cannot afford and deprives them of the simpler tools they need.

Metals, plastics, and ferro cement used in building have greatly improved since the 1940s and ought to provide more people the opportunity to create their own homes. But while in the United States, in 1948, more than 30 per cent of all one-family homes were owner-built, by the end of the 1960s the percentage of those who acted as their own contractors had dropped to less than 20 per cent.

The lowering of the skill level through so-called economic development becomes even more visible in Latin America. Here most people still build their own homes from floor to roof. Often they use mud, in the form of adobe, and thatchwork of unsurpassed utility in the moist, hot, and windy climate. In other places they make their dwellings out of cardboard, oil-drums, and other industrial refuse. Instead of providing people with simple tools and highly standardized, durable, and easily repaired components, all governments have gone in for the mass production of low cost buildings. It is clear that not one single country can afford to provide satisfactory modern dwelling units for the majority of its people. Yet, everywhere this policy makes it progressively more difficult for the majority to acquire the knowledge and skills they need to build better houses for themselves.

TECHNOLOGY DESIGNED FOR NON-PROFESSIONAL USE

Educational considerations permit us to formulate a second fundamental characteristic that any post-industrial society must possess: a basic tool kit that by its very nature counteracts technocratic control. For educational reasons we must work toward a society in which scientific knowledge is incorporated in tools and components that can be used meaningfully in units small enough to be within the reach of all. Only such tools can socialize access to skills. Only such tools favor temporary associations among those who want to use them for a specific occasion. Only such tools allow specific goals to emerge in the process of their use, as any tinkerer knows. Only the combination of guaranteed access to facts and of limited power in most tools renders it possible to envisage a subsistence economy capable of incorporating the fruits of modern science.

The development of such a scientific subsistence economy is unquestionably to the advantage of the overwhelming majority of all people in poor countries. It is also the only alternative to progressive pollution, exploitation, and opaqueness in rich countries. But, as we have seen, the dethroning of the GNP cannot be achieved without simultaneously subverting GNE (Gross National Education -- usually conceived as manpower capitalization). An egalitarian economy cannot exist in a society in which the right to produce is conferred by schools.

MODERN SUBSISTENCE ECONOMY

The feasibility of a modern subsistence economy does not depend on new scientific inventions. It depends primarily on the ability of a society to agree on dundamental, self-chosen anti-bureaucratic and anti-technocratic restraints.

These restraints can take many forms, but they will not work unless they touch the basic dimensions of life. (The decision of Congress against development of the supersonic transport plane is one of the most encouraging steps in the right direction.) The substance of these voluntary social restraints would be very simple matters that can be fully understood and judged by any prudent man. The issues at stake in the SST controversy provide a good example. All such restraints would be chosen to promote stable and equal enjoyment of scientific know-how. The French say that it takes a thousand years to educate a peasant to deal with a cow. It would not take two generations to help all people in Latin America or Africa to use and repair outboard motors, simple cars, pumps, medicine kits, and ferro cement machines if their design does not change every few years. And since a joyful life is one of constant meaningful intercourse with others in a meaningful environment, equal enjoyment does translate into equal education.

TOWARDS A STATIONARY STATE

At present a consensus on austerity is difficult to imagine. The reason usually given for the impotence of the majority is stated in terms of political or economic class. What is not usually understood is that the new class structure of a schooled society is even more powerfully controlled by vested interests. No doubt an imperialist and capitalist organization of society provides the social structure within which a minority can have disproportionate influence over the effective opinion of the majority. But in a technocratic society the power of a minority of knowledge capitalists

can prevent the formation of true public opinion through control of scientific know-how and the media of communication. Constitutional guarantees of free speech, free press, and free assembly were meant to ensure government by the people. Modern electronics, photo-offset presses, time-sharing computers, and telephones have in principle provided the hardware that could give an entirely new meaning to these freedoms. Unfortunately, these things are used in modern media to increase the power of knowledge-bankers to funnel their program-packages through international chains to more people, instead of being used to increase true net-works that provide equal opportunity for encounter among the members of the majority.

Deschooling the culture and social structure requires the use of technology to make participatory politics possible. Only on the basis of a majority coalition can limits to secrecy and growing power be determined without dictatorship. We need a new environment in which growing up can be classless, or we will get a brave new world in which Big Brother educates us all.

SUMMARY OF DISCUSSION

When questioned as to how deschooling should be brought about Dr. Illich made the following recommendations:

1. Legal considerations:

   a. Guarantee freedom from discrimination in jobs for those who have not followed a certain curriculum.

   b. Guarantee freedom from discrimination in practicing professions.

   c. Equalize the use of public resources spent for the specific purpose of learning.

2. Design criteria on technology:

   Aim toward a durable labor intensive economy where people can do more for themselves rather than an obsolescent consumer economy. Eliminate production of very expensive technology that only a few people can afford or that is beyond the capacity of the environment to provide for everyone. Decisions on criteria would have to be reached by consensus of the people.

3. Methods of teaching:

   There are basically three educational resources. They should be made available to everyone.

   a. Records: (books and basic tools): These can now be made cheaply in their simple forms and many kinds of learning require little else.

   b. Skill-models:(native speakers of languages, tradesmen, etc.): the sharing of skills can be encouraged much more effectively.

   c. Teachers: Public certification can be dissociated from the role of teaching.

Dr. Raja Roy Sing. (speaking personally) agreed with most theses, but made the following points:

1. Where the environment has become impoverished the sources of learning outside of the school do not exist.

Western countries have come to a stage where they should dismantle their educational systems. They have alternative sources of education, but many (Asian) countries do not.

2. Dr. Illich provided two useful reminders:

   a. The desirable form of education depends on the kind of society desired.

   b. Education is a reflection of the political and social structures of countries.

   Schooling systems do consolidate class structure, but deschooling does exactly the same. Protest is not possible without education. Education in India 2000 years ago was exactly the deschooling and this produced the cast system.

3. Educators subscribe to the fallacy that schools can do everything. Dr. Illich falls into the same fallacy in believing that deschooling is the lever for breaking up the class structure. The process of swinging from organization of education to disorganization has gone on for a very long time and is probably inevitable.

Dr. Illich responded:

1. Village schools often have considerable independence, but as the educational machinery of the country becomes more effective the freedom is lost and standards are established for class membership based on the number of years of schooling.

2. Improverishment has its two forms: lack, and acute awareness of lack. Schooling creates a claim for further, more expensive schooling.

3. Schools not only reflect the superstruction of society, they serve to reproduce the consumer-oriented class structure.

Dr. Sim questioned three assumptions in Dr. Illich's paper.

1. Forcing all children to climb an open ended ladder cannot entrance equality but favors the individual who starts out earlier, healthier etc. Dr. Sim suggested that on the one hand Dr. Illich seemed to say that every individual should have the right to do what he wants. On the other he opposes a system where some have more than others. This seems contradictory.

2. Enforced education deadens the will of independent learning. Dr. Sim pointed out that many people want dependent learning, and in any case, education is not compulsory in most Asian countries.

3. Education is treated as a commodity.

Dr. Sim asked, why shouldn't knowledge be treated as a commodity?

Dr. Illich responded:

1. A large scale program in the US intended to equalize educational opportunity for six million children classified as educationally underprivileged did not produce visible results.

2. He should have said "self-motivated" learning rather than "independent learning."

3. He had no objection to dealing with certain skill activities as one deals with other handicrafts. What he objected to was evaluating a man's social effectiveness on the basis of how much had been spent on his education.

In response to other questions Dr. Illich made the following comments:

1. The present educational systems produce privileged classes, with class membership based on the number of years of schooling completed (it is not the workers versus the exploiters any more). There is a real danger of shifting to systems based on scores of performance tests.

2. One should distinguish between the status of the teacher and the certified role of the teacher. It is the second that is undesirable. We need to return to pluralistic forms of teaching.

3. The current systems identify less developed nations as inferior on the basis of the amount of schooling completed by the population.

4. It is not "education" which has lost its legitimacy, only "schooling" which is an entirely different thing.

5. We should stop compelling our children to live in a world which is unreal, one in which we claim that unattainable things are available to everyone.

6. Dr. Illich emphasized that he is not a dreamer, and that he is not opposed to technology; he said he was against the systems which provide a very high or expensive level of education for a few at the expense of the majority.

IN-AND OUT-OF-SCHOOL ALTERNATIVES: A SEARCH FOR NEW POSSIBILITIES

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A great deal of criticism about the failure of school systems has been exchanged world-wide during the passing year causing, on the positive side, a profound 'shake up' effect among the widest circle of educators while, on the negative side, such contagious feelings of bitterness, hopelessness, antagonism and sarcasm are overwhelming. All these symptoms, let us hope, are the pains of growth.

This paper deliberately avoids joining in the current crusade against the established educational systems. It would instead try to propose alternative measures. The attempt is naturally grounded on the socio-economic and cultural context of South East Asia. To that effect, I take the liberty of drawing heavily from the efforts to improve Thai education and the manifestations of these efforts in my home country with a hope that these be, to a certain degree, applicable to other countries of South-East Asia, in as much as we are sharing many common problems as well as common needs.

I would like to submit my proposals in two parts in compliance with the title, namely in-school alternatives and out-of-school alternatives respectively.

I

IN-SCHOOL ALTERNATIVES

Despite numerous defects and fallacies in school systems which lead some reconstructionist educators to suggest the de-schooling measure, although, many educators, the majority perhaps, still believe, with some justice, that the school system by its essence is intrinsically useful, correctible and, if you like, reformable. Schooling by any means is an organized situation fostering an intensive learning experience which normally takes a person a much longer time with greater uncertainty to learn outside the school situation. Standing for this belief I would present certain possible alternatives which have been contemplated and in some cases tried out

in Thailand. It will be noticed that I have drawn heavily on my personal experience in the field of primary education, which, I am convinced, is the bedrock of all educational development efforts. May I also be permitted to clarify the use of the term "alternative" in this particular context; when I speak of "alternative" I mean reformatory or remedial measures in education.

ALTERNATIVE ONE: Minimizing Wastage in the School System

One paradox that has been plaguing every education system in South East Asia is a great wastage at every level of education in spite of grossly limited resources. Most countries in this region are still facing the old problem of having only half of the children entering the first school year proceeding successfully to the final elementary grade. The other half repeated the grades or dropped out along the way. In the case of Thailand, for example, 48% of the children entering the first grade repeated the grades somewhere sometime; thus it takes them 5, 6, and in few cases 7 years to finish the fourth grade while another 6% dropout.1/ This phenomenon, allowing for some difference in degree from country to country, is quite typical of the region, and during the past two decades the pattern has not changed to any significant degree. After years of continuing research studies and careful analysis, the Department of Elementary Education eventually came to the conclusion that the wastage issue, in toto, reflects the socio-economic problem of a large number of the poverty-stricken people on one hand and the low efficiency of the schools-mostly in remote rural areas on the other.2/ Many foreign experts, educators and economists alike, used to recommend to the Thai authorities the instant application of an automatic promotion scheme in line with the general practice in most countries. This recommendation was however felt by Thai educators to be too simplistic and unfit for the circumstances despite its respectable justification in terms of learning theory and child psychology for fear that with loose discipline and many inadequacies both on the school's and the students' part, the automatic promotion practice would produce even a greater degree of ignorance and illiteracy. The problem should be dealt with at its roots.

1/ Department of Elementary and Adult Education. Statistics on School Enrolment, 1971. Bangkok, Mimeographed.

2/ a. Department of Elementary and Adult Education, Ministry of Education, "The Studies of Factors Related to Elementary School's Varying Promotion Rate." Bangkok, 1970. pp. 16-17.

b. Department of Elementary and Adult Education, Ministry of Education, "Factors Related to Non-Attendance in the Final Examination of the Elementary School Children at Kanchanaburi." Bangkok, 1966. pp. 12-27.

In the light of the cited research findings and conclusion, a new alternative has been developed in Thailand. First, consideration was focussed upon the school children who cannot advance normally up the grades. To guarantee that they really learn something, the school and the immediate educational authorities are urged to see that every child coming to school is reasonably well fed, well clothed, and well equipped with learning materials and that their average daily attendance is regular. Financial and material provision both from public and private sources is regarded most necessary to materialize this programme. Secondly, the school, once evaluated, is expected, in reasonable time, to improve its programme to meet the required standard as judged by the Standardized National Norm in terms of its management, instruction, teachers quality, facilities, services, and community relations. At present a large number of schools can be immediately classified as having satisfactorily met the required standard. Yet, the poorer ones are in greater number. Greater investment and improvement effort is therefore needed in order to convert such sub-normal schools to normal ones. The underlying principle here to help justify extra effort is simply to spend some more in order to save much more. It is my belief that if the two tasks mentioned above are implemented, the grade failure and the school dropout rate will decrease dramatically, for there is no reason why healthy children learning in a healthy school should fail. To apply or not to apply the automatic promotion scheme will be a question no longer.

In seeking its way to fruition, however, the proposed alternative will face its natural course of difficulties, especially in terms of the financial implications and human factors. What counts more here, in my opinion, is the conceptual validity of the alternative. If, using this alternative, a nation is dealing with the problem at its root and thereby is able to reduce wastage to the possible minimum, then the alternative is worthwhile.

ALTERNATIVE TWO: Another Style of Compulsory Education

Most countries are presently expanding their compulsory schooling to keep children in the school longer and longer, i.e. from 4 to 7 years, 6 to 9 years, and 9 to 10 or 12 years because most educators still have the conventional belief that a longer period in school means better education. Unfortunately, that is not any more the case in as much as the curriculum content and the way of life in the school are frequently irrelevant to the demands of life outside school. Besides, at the International Conference on the World Crisis in Education, held at Williamsburg, Virginia, in October 1967, it was agreed upon by the majority of world educators that:

"... there is indeed a crisis in education's ability to match performance with expectations. The crisis takes two forms. The first is the world-wide disparity between the hope of individuals and needs of society on the one hand, and, on the other, the capabilities of the educational system. The second is an even greater disparity between the developing countries, faced with the cruel restraints of grossly inadequate resources and the developed countries, which are increasingly preoccupied with their own internal needs" 1/

In the case of Thailand, for example, the government had announced the extension of compulsory education from 4 to 7 years of schooling in 1962. Because of economic constraints, this was implemented in only 1240 districts out of 5339 throughout the kingdom in a span of 9 years.2/ To follow the same rate of expansion, it would take Thailand 30 years more to accomplish the complete expansion, not to mention the enormous financial and manpower requirements that would be brought to bear upon the educational authorities concerned. Restrained further by keen competition from many aspects of national development including defence and security programmes, the original hope of having seven years of compulsory education is facing rather gloomy days ahead. Nevertheless, even if the country is able to implement only half of the target, the trouble is by no means reduced. This is because the demand of the young people who finish grade 7 to go on to the secondary school will be huge enough to create a strong pressure on the educational system while the other half who do not continue their schooling will be, in a great many cases, underemployed. The majority of this unskilled and idle youth live in the rural area. Some will seek employment in the cities while a few others especially in the depressed, and politically sensitive areas are prone to be lured to join the insurgents. In any case, they cannot afford to be left alone for good. This has been and remains a critical situation for any developing country like ours.

What truly is the purpose of compulsory education and why do we have to extend the length of time for compulsory schooling? To upgrade the intelligence of the mass of people? To guarantee permanent literacy? To foster the national pride and prestige in the spirit of competition within the community of nations? The answer may or may

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1/ Philip H. Coombs. The World Educational Crisis. A Systems Analysis, Oxford University Press, N.Y. 1968. p. 175.

2/ Advisory Committee to National Executive Council, Home Affairs, Education Sector, Proposal no. 5, Compulsory Education, Mimeographed, Bangkok, April 1972, p. 1.

not lie in any or all of the questions above depending upon the national policy of each country. Now it may be a good time for us to pause and come to grasp with the reality of the challenge and then look with broader perspectives for a more sensible means of meeting it. We might be able to deal with the seemingly unsurmountable burden if we decide to be less conventional and more adaptive to indigenous circumstances in each country.

In the case of Thailand, there are several schools of thought as to what our compulsory education should be like. While most educators are still debating about the number of years of schooling in the old framework, there is a new group, which recently proposed to the National Executive Council that compulsory education in Thailand be handled in such a way that the people are offered educational opportunities beyond the first four grades in the form of two alternatives:1/

A. Those who finish the 4th grade and wish to continue up the formal stream may have complete liberty to do so. The state has the obligation to provide them a free but not compulsory education. As such, the expansion of the upper elementary grades will go on in a planned proportion with the actual capacities which the country can afford.

B. Those who finish the 4th grade and do not wish to go on attending the upper grades are provided with the opportunity to attend a specially organized class 60 days a year for three consecutive years beyond the fourth grade. At present and in the foreseeable future there will be presumably no less than half of the young people graduating from the 4th grade who will fall under this category, particularly in the rural communities. The curriculum content deemed desirable for these people is intensive in nature, comprising important concepts and skills such as additional literacy skills, modern agricultural concepts and techniques, ecology and preservation of natural resources, family life planning, cooperative concepts and actions, national security and civic action, etc. As an integral part of the curriculum it is also deemed important to have these young people bring in their experiences during the ten-month intervals out on the farm to blend with the given concepts and skills.

1/ Ibid pp. 4-7.

In as much as alternative A. has no special feature, let us leave it intact and discuss alternative B. for further clarification. There are a good many reasons to justify alternative B.

First, the prosent stage of farming rice as well as other crops is still predominantly seasonal, thus creating alternate periods of rush and relaxed activities for the farmers who constitute the great majority of the population. As a rule, school holidays have been already scheduled to synchronize with this tempo. Should we plan the 60 days intensive training to fit in with the ordinary holiday periods of the year, it would be convenient and practical to every party concerned.

Secondly, child labour is still much needed for farming in our region as a whole. For the school system to release the active 12 year olds from the school to help their parents in their daily work ten months a year could only be advantageous to the economy, even if their work is secondary like taking care of their younger brothers, tending the buffaloes, or doing miscellaneous household chores.

Thirdly, underemployed young people tend to resort to non-productive and even dangerous ventures when they have free time, especially after harvest. Many move to the cities to seek low income temporary jobs and bring back with them the undigested city fads and frills, while not a few are secretly recruited by the insurgents. To keep them occupied with meaningful learning two months a year would be undoubtedly more productive and could serve as preventive measure, against such errings.

Fourthly, a recent research study by the Thai Ministry of Education pointed out that there is a general tendency for the elementary school leavers to deteriorate rapidly in their literacy skills during the first three years after finishing the 4th grade, particularly in the remote rural areas where reading opportunities are rare.1/ We capitalize upon strengthening the literacy skills in harmony with other useful concepts in this critical period, and even if we deal with them for brief periods of 2 months at ten month intervals, I still believe that educatively this will greatly improve or even advance their reading and writing ability to serve a useful end.

1/ Department of Elementary and Adult Education Ministry of Education, Research Study no. 5. The Literacy Status of the Fourth Grade Leavers. Bangkok, 1969, p. 41.

Besides the conduciveness and advantages briefly discussed above, if the alternative is implemented on a nation-wide scale, it will significantly contribute to upgrading the general knowledge and ability of the people at large. It will, as well, relieve the popular pressure for secondary and higher education to come more in termswith the actual capabilities of the country and it will, at the same time, respond better to the realistic needs and circumstances of the local people. This is where the motivation for the new programme lies. Most attractive of all from a practical viewpoint, the proposed alternative will cost only one-tenth of the ordinary expansion upward. In our calculation, because the teaching force could be recruited principally from the regular teaching staff of the local schools during the summer and mid-year vacations, a sizable compensation allowance amounting to 1200 baht or 60 U.S. dollars per teacher per session plus another 1000 baht or 50 U.S. dollars for the expenses incurred per class of 40 students are just about all that we need to pay each year. The school facilities otherwise unused during school vacation, are readily at our disposal free of charge, saving, as such, the whole lot of capital outlay. The total per unit expense on the basis of this arrangement when compared to that of the ordinary upper elementary grades comes to only one-tenth as stated. What needs to be planned most meticulously in my judgment, is the actual teaching-learning programme and the preparation of the teachers in light of the curriculum intent cited earlier. If these crucial features receive the best thinking available then the chances for success will be greater.

ALTERNATIVE THREE: Curriculum Reform

It will be a total misunderstanding if I am taken as trying, thus far, to solve two basic educational problems in the South East Asian context without considering the validity and the relevance of the curriculum pattern under which the schools are operating their programme. Any alternative measure proposed is bound to be a complete waste unless careful consideration is given to the curriculum issue at stake. I am not, however, proposing any form of curriculum alternative, for no one is ready to be so prophetic without enough understanding of the complexity of each nation. My mission is simply to express the needs and the crucial points at which to break away from the established curriculum trends, overt or hidden, I would leave the more sophisticated and time consuming work of developing the new curriculum to other concerned educators.

What's wrong with the present curriculum trends especially at the elementary and secondary levels? Bennett questioned the validity and relevance of the curriculum offerings in most developing countries. He remarked, for example, that although over eighty percent of the children living in the rural areas are likely to spend their lives earning their living from the land, very little is spent directly on giving them the skills or the new ideas necessary for doing this more effectively than their parents. Priority areas of instruction have not been organized in such a way as both to provide some equality of opportunity, and to meet children's differing requirements i.e. some proceed to secondary education, some get paid employment in the modern sector, and some remain in the rural area.1/

With definite intentions to reform the present curriculum at many levels the Thai Ministry of Education has recently finished the systematic appraisal of the existing curriculum. To mention only a few findings regarded as 'critical indicators', it was reported that the curriculum objectives of the elementary level were too broad and encompassed aiming at too many good things which are too idealistic for attainment of school children, while the curriculum content was primarily subject matter oriented, inducing, in large part, only a narrow cognitive learning. Besides the stated purposes, content prescription, and time allotment proportion, little attention was given to suggesting ways and means for teachers to organize, in the light of the children's need and curiosity, the learning programme, material and desirable environment leading to sensible learning experiences. The teachers were left, in large part, to struggle single-handedly despite their own limited ability. The subject areas were conventional and prototyped allowing little room for inter-disciplinary learning and the introduction of important concepts in ecology, the social sciences, economics, etc. The practical arts subjects are miscellaneous, prototyped and not too responsive to real needs. On the implementation side, achievement is clearly much lower than what is expected in written form.2/

1/ Bennett, Nicholas, Primary Education in Rural Communities: An Investment in ignorance? Journal of the National Education Council. Bangkok, October 1971, pp. 37, 38.

2/ Ministry of Education, The Curriculum Appraisal Committee Report Bangkok, December 1971, Mimeographed.

II

OUT-OF-SCHOOL ALTERNATIVES

Several years ago Robert Jacobs made a very interesting conclusion that, for an average individual, what he has learned in school accounts for only one-fourth of what he actually knows. The rest three-fourth was learned in other situations outside the school. Bennett, in his study on equality of educational opportunity observed that Thailand, like most developing countries devoted almost half of its educational budget to high level manpower orientated education for less than two percent of the population; the other half to providing literacy education for less than 20% of the population and only a negligible amount for the education of the remaining 80% of the population 1/ (the 80% was once, in most cases, the 20% of the population).

Whatever the fact in each country may be, the element of truth here is that we have been giving too little attention to out-of-school education. Everybody in the education and economic circle now seems to give an unprecedented importance to non-formal education. There is no need for me, therefore, to further substantiate its great potentials. In harmony with the three in-school alternatives proposed earlier, I propose here to give the highest priority to the people in rural area who have or have not benefited from the elementary school. They are the mentioned 80%. The following out-of-school alternatives are intended for these people.

ALTERNATIVE FOUR: Village Reading Centres

It has been widely recognized that a very large proportion of the villagers in South East Asia who were once attending local schools are getting rusty in their literacy skills. Many of them forget almost all of what they learned in school for the simple reason that there are no reading materials for them to keep up with. In some isolated areas, the real need to read is not felt yet but the world is shrinking very fast and practically no people in no place can afford to be an island unto themselves. To keep the people's literacy skill function as a means to enrich thinking and experiences, it is deemed necessary that reading materials and reading facilities should be provided as extensively as possible.

1/ Bennett, Nicholas, Economic Development and Equality of Educational Opportunity : The Development Fallacy and the Egalitarian Myth Presented to the 4th Session of the ECAFE Conference of Asian Economic Planners, November 1971, Bangkok, Mimeographed P. 11.

A great deal more can be said about the inadequacy and the fallacies of the existing curriculum pattern. This is not the place to elaborate. In terms of the relevance and validity of the curriculum, however, let me highlight the issue by quoting Paul Goodman who defies any form of preconceived curriculum as follows:

> "We can educate the young entirely in terms of their free choice, with no processing whatever. Nothing can be efficiently learnt, or indeed, learnt at all - other than through parroting or brute training, when acquired knowledge is promptly forgotten after the examination unless it meets need, desire, curiosity, or fantasy. Unless there is a reaching from within, the learning cannot become 'second nature' as Aristotle called true learning." 1/

With a great deal of truth in what Goodman said, we cannot, however, completely avoid "processing". A wise shop keeper should know his customer's potential needs and fantasy and stuff his shop accordingly. At the same time, with his moral conscience, and professional ethics he should not provide what his customers want that is dangerous or illegal, otherwise it would lead to a complete breakdown of the society. What, then, is a potentially more desirable curriculum element in the political, cultural and economic context of the nations in South East Asia? Speaking as a native of South East Asia and without any intention of being dogmatic, I believe people in education should learn carefully what has happened in our societies and what has happened in the more economically advanced countries and then avoid, as much as possible, to follow the mistakes, since economic development and educational development are not necessarily two consistent goals.

If we take curriculum in the accepted sense as a means to improve the quality of life, then 'Good life' and 'freedom from suffering', in terms of the old wisdom of Asia, do not mean material well-being or physical comfort at all. This is the point of departure in forming any curriculum cornerstone. 'Peace' and 'Justice' also need re-interpretation, not to mean balance of power and the equal right to be aggressive, and 'knowledge and wisdom' are definitely two different things. 'Man in harmony with nature'. 'Man against nature' is an issue which we Asians shall have to decide for the sake of our survival. A great deal more 'Meanings' relevant to the curriculum foundation could be found in our future investigations. The problems that lie ahead will be just as momentous as those facing us now. Unless we care to choose what is fundamentally good for us we cannot attempt any kind of "processing" whatever.

1/ Paul Goodman, "Pitiful Waste of Youthful Years", in: Times Educational Supplement, July 16, 1971.

However, the idea of 'library' is frequently frowned upon when applied to the villagers who do not have the reading habit of the educated community. Besides, the tropical climate and life activities in the rural area of South East Asia are, in fact, not very conducive to serious reading. The village reading centre initiated in Thailand is therefore styled to be as informal and inviting as possible to make it harmonize with the activities and the habits of the rural folks. As pioneered by the Adult Education office in the Ministry of Education in Thailand, the village reading centre is housed in a thatched roof structure in the village centre near the market place or at the strategic location where people move in and out in their everyday life. The villagers were summoned to build it. Inside the place selected daily newspapers, magazines, booklets, pamphlets, posters, pictorial books as well as other useful publications are provided principally for casual reading or browsing through in a brief span of time. The place is used also for meeting and talking at leisure for the villagers. I witnessed an interesting scene myself once in the small North Eastern village. One early morning several young men, carrying fishing nets on their shoulders, walk pass the reading house. Glancing at newspaper headlines one of them stops, reads the details, and gets absorbed for ten minutes. Other two fellows then join him spending another ten minutes reading and chatting before they all walk away for their fishing.

It would be nice and more lively, I propose, if at this place there are coffee and cigarettes for sale, a chess to play, a jig saw puzzle or a simple version of scrabble for people to relax with. This can be subtly guided to be organized by the local people themselves. Once properly arranged the reading house will successfully become the center where reading skills are daily practised and information disseminated. In the future this place can be developed with greater sophistication. If the intention is a serious one, the overt manner in organizing and running it should be a casual and informal one. What needs to be financed is not too heavy a burden in comparison with the expected outcomes the reading centre is bound to yield.

In the light of the conceptual framework and the action lines described above, the Thai Ministry of Education has been operating the programme on experimental basis since 1970 with the following working hypotheses:

1. The Reading Center will result in the improvement of literacy for all readers regardless of their academic background.

2. Newspaper reading will change certain attitudes of the readers in such a way as to induce better efficiency among the general public.

3. There should be correlations between number of readers and factors such as sex, academic background, distance between the homes and reading centers, locality of the village, density of the population and the operating procedure.

4. Improvement in reading ability will correlate with regularity (frequency) of the reading.1/

The project was systematically evaluated in 1971, being statistically confirmed of its chance of success, the project was officially accepted and included in the Third National Economic and Social Development plan 1972 - 1976.

ALTERNATIVE FIVE : Functional Literacy and Family Life Planning

For the large enough number of the unfortunate adults (or they could be considered fortunate by the devout deschoolers) including the dropouts who have not benefited from schooling, functional literacy and family life planning programme can be designed to help them. In its essence the functional literacy and family life planning programme, now experimented in Northern provinces of Lampang and Prae, Thailand, is an attempt to combine literacy with useful knowledge and attitudes for the adults in a working-learning environment. New agricultural concepts and techniques, cooperative concepts and organization, simplified concepts of marketing, health and sanitation concepts and attitudes, environmental problems and the ways to better adjustment and, of course the family life planning concepts are all brought in to form one integrated series of lessons carefully programmed and branched to respond to the needs, felt or unfelt, of the people.

Currently, the pioneer project is entering its third year of operation. In 1971, the Adult Education Office of the Department of Elementary and Adult Education conducted a systematic evaluation of the pilot programme using the base line survey and comparing the pre-test with the post-test data collected at the end of the six

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1/ Department of Elementary and Adult Education Local Reading Centre Project. Bangkok 1970, Mimeographed p. 5.

month programme. In summary, it was reported "a successful project which had enriched the adult learners with a wider knowledge, better literacy and numeracy skills and developed desirable attitudes among them." 1/

Like the Local Reading Center project, the Functional Literacy Project was integrated into the Third National Economic and Social Development Plan 1972-1976.

It will be interesting to follow up by the end of 1976 whether the programme as an alternative to formal schooling is a practical and truly useful one or not. Collected evidences, so far, are in favour of the success.

ALTERNATIVE SIX : Mobile Trade Training Programme

Besides providing the people with greater reading opportunities and life-situation oriented literacy, there could be another alternative to help people live a better life in terms of their economic needs. The Ministry of Education in Thailand, upon recognizing the great need in rural area to diversify the occupational skills of the people in parallel with the changing economy has been launching the mobile trade training programme in many provincial areas.

During the Second National Five Year Plan 1966-1971 this programme has proved to be one of the most successful educational efforts to bring to the rural people the vocational skills much needed to diversify the growing economy. The Mobile Trade Training Schools are designed to take teachers and equipment to the needed areas where adults and out-of-school youths can learn the basic skills required to enable them to secure jobs. Trade skills offered in each training cycle reflect the wishes of the trainees and job opportunities available and generally include one or all of the following; metal work, automechanics, electricity, radio & T.V. repair, welding, woodworking, cooking, sewing, tailoring, barbering, and hairdressing. Once the training of these trade skills in one location has reached the saturated point, the unit will move to other areas and start offering the training to other groups of people who would otherwise have little opportunity to develop marketable skills. It must be noticed that in some provinces in the Northeast the opportunity for training of this kind has been extended to serve hundreds of the terrorists who have surrendered.

1/ Department of Elementary and Adult Education Research and Evaluation Report Functional Literacy and Family Life Planning, Bangkok, Mimeographed, 1971, Summary of Findings, p. 7.

As recorded in the fiscal year 1970, there are 36 mobile units throughout the country. By 1972 the number increased to 54. Normally about 800 to 1,000 trainees a year are produced by one unit, and in 1970 a number of 28,000 persons received training in the total set up. By increasing the number of the mobile unit to 54, it is hoped that a number of 43,200 trainees will be produced each year.

Since its beginning in 1961, this programme has received an overwhelming interest and participation by the local people, and the employment rate after training has been observed as very high. Not a few trainees run their own private business successfully.

It is anticipated with confidence in Thailand that, as an alternative to formal training the programme will have its highly productive future and will be, thus, welcomed by the people for many years to come.

ALTERNATIVE SEVEN : Youth Leaders Training Programme

It was mentioned in the early part of the present report that in certain politically sensitive areas and in a great many villages, the youth-male or female were largely unemployed and idle. Some of them were even recruited by the insurgents for subversive activities. It has been indeed an utterly unhealthy situation. The following alternative, perhaps, could serve as a supplementary effort to divert these young potentials to a healthier and more productive channel.

The Youth Training Programme is nothing but a subsequent development in modified form of the Fundamental Education Project conceived and operated by the Thai government in cooperation with UNESCO known popularly through the 50's as TUFEC.

In its essence, youth leaders aging 15 to 20 are recruited from many villages. During their 3 month boarding at the center, they are trained intensively for new agricultural concepts and techniques as well as other trade skills of their choice with major emphasis in practice and group process. Citizenship and patriotism are also emphasized. On finishing the programme, new breeds of pig, poultry, and seeds are given to be cultivated in their home village while close rapport has been established between the trainees and the trainers at the center for future supervision. The programme around a year is composed of three shifts with 60 to 80 trainees each shift. It has been evaluated as having a very satisfactory outcome. The provincial governors and district officers in the neighboring

Northeastern provinces help recruit the youths while the Center under the administration of the Department of Elementary and Adult Education operates the programme.

The strength and the potential value of this alternative as esteemed by the authority concerned in Thailand lie in the fact that the youth leaders recruited are carefully selected as being the future leaders of the people in their respective villages. The kind of concepts, attitudes, and skills they bring back to their folks will have to some extent, a multiplyer effect. Speaking in terms of its conceptual validity, it can be counted as another promising alternative in the light of the political, social, and economic context of the rural area of South East Asia.

I have, thus far, proposed a few alternatives for further consideration by this distinguished gathering. Some of the alternatives are already put into action while the others are sheer ideas to be tested yet. In any case, they all have their peculiar limitations as well as potentials. Before any proposal can be put to any use it needs, therefore, a great deal more planning. However, one should be reminded of Philip H. Coombs' good advice. His words:

> "The clear lesson of past experience is that the planning of any non-formal educational activity (or of any formal one, for that matter) should not begin with a preconceived notion of what educational model will best serve the need. It should begin instead with a serious diagnosis of the particular context to discover what the need really is." 1/

1/ Philip H. Coombs, The Planning of Non-Formal Education: Some initial thoughts. SEAMEO, Working Paper coded NSEF/WP/25, Non-Formal Education Seminar, Mimeographed, p. 9.

SUMMARY OF DISCUSSION

The essence of the discussion on Dr. Ekavidya's paper was indicative of general consensus that factors contributing to the wastage or drop outs gravitate around four basic ones, namely, (1) the home environment, (2) the poverty of the people, (3) the low efficiency and poor performance of the school, (4) the repetition of grades and successive failures, (5) the attitudes of children and parents toward schooling.

It was pointed out by some participants in the practicum that, while poverty can be a major cause of drop outs, it is not certainly the only one. The home culture, the quality of school instruction, the kind of reading facilities are other crucial factors contributing to the wastage. In commenting upon this remark, Dr. Ekavidya recognized that the home culture and the poverty of the people are indeed associated with one category of factors. The second category is the school itself with poor performance and low efficiency. Both aspects need to be dealt with in harmony. In the case of Thailand, strategies have been planned towards improving the quality of instruction. But he anticipated that school improvement might be more difficult and take longer time than helping the children instantly by ensuring that they are well-fed, well-clothed, i.e. providing school lunch, clothes, books and learning materials.

The repetition of grades, Dr. Ekavidya commented, may be another critical factor . But automatic promotion might not be the solution to drop out problems, as the incident of repetition, in many cases, occurs in the areas where there is teachers shortage and where the school fails to meet the standard requirements in terms of quality. To quote Dr. Ekavidya's words, "We need to help the schools to upgrade their performance first and to have an adequate number of teachers and then we can use the measure (automatic promotion) for them".

With respect to the fifth category of factors, viz. the attitude of children and parents toward schooling, Dr. Ekavidya conceded that this was a problem for Thailand before the war. After the war, the problem still exists, but it is decreasing in terms of seriousness and significance. Now the people at large see the value of education. People are no longer compelled to attend the school. It is their own self motivated desire to come to school because they see the benefit of schooling in Thailand.

A REGIONAL APPROACH TO EDUCATIONAL ALTERNATIVES

by Robert Jacobs
SEAMEO Consultant

Had this regional practicum on Alternatives in Education been held just two weeks later, the timing would have been exactly five years from the dates of the SEAMEO Instructional Materials Workshop, held in Saigon in May, 1967, from which the impetus came for establishing the SEAMEO Regional INNOTECH Center. At that workshop a paper was presented on "The Potential of Newer Instructional Media for Educational Development in Southeast Asia." It was intended to stimulate thinking and action among educators in Southeast Asia regarding educational alternatives. It also proposed in very rough fashion the broad outlines of a plan for utilizing a regional approach to the development of educational alternatives in Southeast Asia. Since that paper and this one suffer common authorship, this document might be regarded as a restatement and an updating of that first call to action. Because the earlier statement has considerable relevance to a great deal of what has been said this week about alternatives, I have appended to this paper the full text of that original statement for easy reference.

Before saying anything about a regional approach to alternatives, I think it is important to get our terms of reference straight. To put it another way, I would like to make clear what I have in mind in talking about alternatives and try to summon your temporary acceptance of my definitions while you hear and react to what I have to say.

First of all, in my original paper, and still today, I dismiss efforts to shore up and improve the present system from my thinking about alternatives. Improving the quality of teachers and teacher training, getting better text books, substituting tables and chairs for desks in fixed rows, and other manipulations within the present system are things we have been talking about for decades, and putting the label of "alternatives" on such "reforms" today does little to get at the major problems in education. Even curricular reform and provision of more relevant educational objectives, as badly as they are needed, will have little impact on the world crisis in education if they are simply implemented within the present system. Even if Silberman is correct in arguing that schools

can be transformed from the grim, joyless, intellectually sterile, and aesthetically barren institutions, he finds them to be in his book, Crisis in the Classroom,(1) so that they become joyful, intellectually stimulating, and aesthetically rich, the stark fact remains that two-thirds of the world's school-age population will have to receive its education outside these joyful and intellectually stimulating institutions. As suggested in the 1967 paper, this is true simply because there are not enough resources to build enough classrooms, train enough teachers, and print enough text books to meet the requirements for providing formal education for all.

I must not leave my definition of alternatives with a statement of what I dismiss. By refusing to talk about ways of trying to make the present system work, it appears that I place myself in the rebel camp of Illich, Goodman, Reimer, and Holt, all of whom believe that the present system of formal schooling must be replaced. This belief I do indeed share with the rebels, though I believe it for different reasons than those they argue. But the treatment of alternatives in this paper is in terms of alternatives to the present system -- not alternative ways of trying to make the present system work. New structures, new delivery systems, new modes of learning, new definitions of formal and informal education -- these are the objects of the search for alternatives; not new curricular materials, new gimmicks for improving classroom teaching, new philosophies which give children more choice, more enjoyment, and more freedom within the existing system. Unless we believe that the major educational effort should continue to be directed to the select few and that we should forget about the two-thirds of the population denied this benefit, my definition of alternatives would seem to be reasonable.

Dr. Illich believes that schools as they are now constituted should be abolished because they are evil; they are doing more harm than good. There are others who share this belief with Illich, and their criticisms of the present system cannot be easily dismissed. However, critics of the de-schoolers can argue, with history to back their arguments, that evils can be remedied without abolishing the system within which they exist. Further, it may not be easy to persuade the supporters of schools (parents, communities, employers, even nations) that schools are evil.

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(1) SILBERMAN, CHARLES E., CRISIS IN THE CLASSROOM. New York: RANDOM HOUSE, 1970. Pp. i - 553.

I would not belittle those who are setting out to convince the supporters of schools that the schools are actually doing more harm than good. Their arguments are sound and their cause is worthy. However, it is my belief that even while they are carrying on this battle another factor will win the case for change and will force a restructuring of schools as they now exist. This factor is simply economic necessity. Five years ago, in the appended paper, it was pointed out that with less than half of the school-age population in Southeast Asia actually in school, and with countries in this region spending up to 35% of their total national budgets on education just to provide for the minority in school, it was economically impossible to expand the school system so as to extend equal educational opportunity to all youth, following the traditional approaches which characterize the present system.

Through the past five years the impossibility has been compounded by a rapid population growth, an explosive increase in the amount of knowledge to be taught under the traditional objectives of formal schooling, and spiraling costs of all components in the present system -- the cost of buildings, the cost of teachers' salaries, the cost of text books, the cost of administrative and supporting services.

This is the persuasive argument for educational change: the argument of economic necessity. It was suggested in the earlier paper that "there is in Asia a far more urgent need for efficiency and greater economy in operating the educational establishment than there is in the more affluent societies where the pace can be slower and the conservative elements can be accommodated with more patience." To put this observation in another form, "economic necessity may force transformation of the traditional educational system in the developing countries more quickly than it will motivate such action in the affluent developed societies."

Today it would be more difficult to defend the above observation than it was five years ago. I say this simply to illustrate the pervasiveness of the economic factor. In the United States during the past year there has been a sudden out-pouring of treatises and papers on the economic crisis in education. Why? Across the United States communities and state legislatures are rebelling at the high cost of education. The majority of state-supported higher education institutions took major budget cuts in appropriations for their support last year. In Southern Illinois where I have my home, and where I spent last summer on home leave, many school districts are bankrupt. They do not have enough income to meet expenses. Teachers

salaries are paid in script -- a kind of promissory note which can be cashed at local banks and local business establishments at a considerable discount. Residents of these communities do not really wish to abolish schools, but they are now taxed beyond their capacity to pay. And schools in Southern Illinois, as in other local school districts across the United States, depend upon the local tax base for their primary financial support. Perhaps these bankrupt school districts can be bailed out by financial support from state or federal monies. But how long can this go on? Such monies also come from the taxpayers. Inevitably, pressures for economies will force educational change and the development of new approaches for achieving educational objectives even in the affluent societies.

Critics of educational alternatives can argue that evils can be remedied, but few can argue away the fact of depleted resources for the continually rising cost of the traditional system of schools. Parents, communities, and national bodies may not be easily convinced that schools are evil, but they can be convinced that the cost of schools as they now exist is greater than their ability to finance such costs.

Silberman reports that in the United States the national bill for higher education came to more than $20 billion in 1969-70 and that the public schools (elementary and secondary) in that same period cost more than $35 billion. These figures are actually reported with pride, as evidence that the expansion and democratization of education in the States has been an extraordinary achievement.(1) But my view of the extraordinary is that these are extraordinary sums of money. It would be foolish to suppose that educational expenditures can continue at these levels and beyond without questions being raised about the possibility of more economical ways of carrying out the business of education now done at such high cost by the traditional educational system.

Do alternatives exist? Is there any way to see that a child learns what he needs to learn other than to seat him in a classroom with twenty-five or thirty other pupils and have a teacher teach him? Too many of us cannot move beyond the negative responses we are inclined to give to those two questions. Hopefully this practicum has served to broaden the horizons. The fact is that very little of the total learning experienced by any individual takes place in the formal school system. This is simply to say that even those privileged few in Asia who are exposed to the formal school system do most of their learning outside the schools. And for the majority who for one reason or another have very little exposure

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(1) SILBERMAN, CHARLES E., CRISIS IN THE CLASSROOM. New York: RANDOM HOUSE, 1970. Pp. 15 - 17.

to the formal school system, all learning takes place outside the classroom. Thus, alternatives do exist and are actually in operation. People <u>are</u> learning outside the formal school system. Among the alternatives already operating are: (1) the home and family where the child learns to communicate, develops social skills, and, in Asia, frequently learns a craft or trade through the family apprentice system; (2) private schools which provide a variety of training and instruction ranging from typing and foreign languages up to university degrees 1/; (3) the cinema which is no longer limited to the large urban areas in Southeast Asia, but is rapidly spreading to smaller towns, provides a wide range of learning experiences forming probably the most potent window on the world in the total environment; (4) the press, radio, and television are operative alternatives to formal classroom learning, disseminating information and providing learning experiences daily, even though sometimes misdirected, in all countries of Southeast Asia; (5) social and religious groups, though multi-family, are in many ways as important as the home and family in providing both early and continuing education with regard to values, cultural habits and beliefs, and styles and modes of living in Southeast Asia.

All of us know about the existence of these environmental components which shape behavior and motivate and guide learning. Few of us, however, are willing to admit that they do as good a job as the school, or to go even a step further and agree to honestly delegate to these non-school environmental components the achievement of some of the objectives which we set for the school and incorrectly claim as school achievement when actually the non-school components are doing the job.

1/ In Manila the majority of university students are enrolled in private universities while only a small number is enrolled in the publicly subsidized University of the Philippines. While the University of the Philippines struggles to obtain financial support both from the Government of the Philippines and from external sources to meet its budget, these private universities actually operate at a profit, their income coming from tuition fees. In Thailand 68% of secondary education is carried on in private schools -- again schools which operate to make money for their owners. As an alternative to a costly public school system, private schools are already providing some healthy competition.

When I refer to these learning resources as operative alternatives, I do not mean to suggest that any one of them could be considered as an alternative to the existing school system. They are mentioned primarily to dispel the belief that learning -- that is real learning -- must take place in the classroom. And if a start were made toward developing educational alternatives by clearly identifying objectives to be achieved, it could very well be that the search for the most effective way of achieving these objectives would identify some of these non-school components as being the best instrumentality in terms of balance between cost and efficiency.

There are alternatives, also, which could serve to gradually transform the existing system without destroying it at the outset. For example, there is now carefully researched evidence that the time required to obtain educational objectives could be materially reduced. If the time-serving characteristic of the existing system could be eliminated, and through better programming of the curriculum, the objectives set for the secondary cycle of schooling could be achieved in two years instead of our, costs would be reduced by half. Such an innovation would probably appeal to most Ministers of Education and Ministers of Finance in Southeast Asia.

Educational research also suggests that certain kinds of learning can take place self-directed without a teacher just as effectively as with the teacher. Such findings usually frighten teachers, who immediately see themselves without jobs. But in a situation where there is a shortage of teachers and in situations where there are no teachers (as in some of the remote rural areas of Southeast Asia) full exploitation of that finding might at very low cost provide certain kinds of learning experiences where none now exist.

The potential of existing educational technology for providing alternatives has already been covered by Mr. Ho Tong Ho and Dr. Ellson. And it must be remembered that the full impact of educational technology on educational change and the variety of alternatives provided by this aspect of our modern world cannot be measured only in terms of what exists today. New developments in educational technology are occurring so rapidly that it is impossible to foresee what may be available in the future. Already the available technology in the field of mass communication infinitely outreaches our capacity to use it effectively. And as the focus of research moves toward the human organism itself and discoveries are made in such fields as genetics and biochemistry,

it can be expected that new learning theories will be developed which may change completely the way we educate -- or, at least, open alternatives not in our thinking today. The point is that the alternatives provided by educational technology are neither fully tested nor fully known.

But, assuming for the moment that you are willing to allow yourselves to be unsettled by either the evils or the economic impossibility of the present system, and given the alternatives which do exist, what can be done to bring about change? And, to move closer to the subject of this paper, what can be done on a regional basis -- through a regional approach -- to bring about change?

These questions must be addressed in order; i.e., it is necessary to know generally what must be done to bring about change before attempting to identify those parts of the job which might be done effectively and economically through the pooled resources and joint effort of a regional approach involving several countries.

Certain assumptions underlie the following attempt to answer the first question -- what can be done to change the present outmoded, and no longer workable, educational system? Some of the assumptions are arguable, but I believe they can be defended:

1. Educational change will not come overnight by decree or edict. Certainly the present school system will not be abolished in this fashion. In the first place, alternatives are as yet but possibilities which can and should be considered. They are not fully developed and tested systems which are ready to be utilized at the moment as a replacement for what now is. The combination of alternatives which fits one situation may not be suitable for another. Replacement of the existing system will probably be step by step and piece by piece through systematic trial and experimentation with alternatives. Further, as pointed out earlier, the roots of the educational system lie deep in the institutional base of any society, and in a very real sense one cannot change the educational system without changing the society. Some of the advocates of radical educational reform believe that needed societal reforms can be accomplished by changing the schools, and while this may have some validity, it is likely that change in schools cannot move too far ahead of changes in the society without generating determined resistance. However, assuming that change must be gradual does not dictate a leisurely pace in getting started with the job of developing alternatives. Problems are of crisis proportion and cannot wait too long for solution. This leads to the second assumption.

2. Change is inevitable. More youngsters to educate, mounting costs, and public pressures will force change whether we like it or not. Such change can come from breakdown of the present system and ad hoc,desperation solutions; or change can be directed or at least pointed in reasonably safe directions by planned solutions. The latter is possible only if a start is made now toward the development of acceptable alternatives, and by acceptable I mean alternatives which prove to be the most effective in a given situation.

3. When better ways are demonstrated, eventually they will be accepted. Among the assumptions listed here, this one is perhaps the most vulnerable to attack. But this article of faith does not say that the existence of better ways will make them acceptable. It implies that deliberate efforts to demonstrate the worth or benefit of a better solution must be mounted, and it assumes at least a minimum level of reasonableness and common sense on the part of most of those who plan, operate, and support the educational establishment.

Consensus cannot be expected. Reactionary elements cannot be eliminated. At some point hard decisions will have to be made regarding the implementation of educational change. This may seem to be inconsistent with the first stated assumption, and probably that statement should be qualified by recognizing that after reaching a certain point in trial and experimentation and after attaining a workable level of acceptance, decree and edict must come into the picture in order to implement change. But it is still assumed in this paper that when it is proven that something will work and when it is demonstrated that a new approach is superior to what is now being done, acceptance can be expected. As a special note it should be pointed out that the "something new" often is discarded when research results indicate that it is no more effective than the present system. The argument is that if it is no better than what we are doing now why bother with it? If, however, the "something new" costs considerably less than the present way of going about it and there is no significant difference in the results of the two methods, the "something new" is definitedly superior in a situation beset with economic difficulties simply because it costs less. And it must be kept in mind also that in many places in Southeast Asia the base of reference is either no or extremely limited educational opportunity. In these situations systems which are even less effective than the teacher-classroom delivery system are better than what exists (namely nothing) if they are financially manageable.

4. The development of better ways calls for research, trial, and experimentation. The development of alternatives as defined in this paper calls for a special kind of experimentation. It requires discarding fixed beliefs which keep the researcher from moving beyond the teacher-classroom approach, and it requires an honest search for the most effective ways of carrying out educational purposes and of solving educational problems. Until better terms come along, "innovation" and "innovators" are needed to develop new approaches.

5. For experimentation and innovation to flourish, certain conditions must be met. In the 1967 paper these conditions are described as environmental prerequisites. As seen by the author, they are listed and described in the appended paper. Briefly they include (1) trained innovators who can serve as change-agents and both stimulators and performers of educational innovation; (2) appropriate administrative structures to provide "homes" for the innovators; (3) adequate facilities and equipment for research, development, experimentation, and demonstration; (4) freedom and authority to carry out unrestricted experimentation, however radical the new approach may seem; and (5) channels of communication whereby researchers can have current and up-to-date information about educational change in other settings and whereby research and operational education programs can be interlinked.

Stating these assumptions actually serves to outline an answer to the question -- "What can be done?" In summary, the way to go about it, accepting these assumtpions, looks something like this:

— Accept the fact that change will be accomplished step by step, and in gradual fashion, rather then by one fell swoop, overnight. At the same time, try to move fast enough to give planned direction to change which will inevitably be forced by economic necessity.

— Establish the environmental prerequisites for developing, trying, and eventually implementing educational alternatives. These include the existence of innovators (skilled change agents), administrative structures geared to the needs and requirements of innovation, adequate facilities and equipment, freedom and authority to try new things, and access to a wide range of information about what has been tried in similar situations elsewhere.

— Through research, trial and experimentation, develop and then demonstrate the utility of better ways of going about the teaching/learning business. Start this process by defining clearly the purposes to be accomplished by an educational system and the objectives to be achieved in each part of that system; then search out the most effective means of accomplishing those objectives within the constraints of a particular situation, using the full range of alternatives in this search without assuming that the teacher-classroom approach as now structured is fixed and unalterable. The searching out will involve the process indicated above — research, trial, experimentation, and demonstration -- before the "most effective means" can be implemented.

Admittedly, this is a very broad outline of what can be done which could not serve in any sense of the word as a detailed plan of action. In fact, a great number of project proposals could and would have to be developed within the framework of this general outline to get things moving. But this broad, general answer will serve as a basis for considering what can be done -- that is, what part of the total job can be done -- on a regional basis.

Turning now to the topic of this paper -- "A Regional Approach to Educational Alternatives", I would like to indicate certain considerations which underlie the suggestions regarding the role which a regional program could play in bringing about change:

1. Before any success can be expected from regional endeavors there must be definite commitment on the part of the participating countries to work together. This commitment must be found at high levels within each government as well as among the educators.

2. There must be common problems on which to focus joint effort. The common problems may manifest themselves in different ways in differing national situations, but a reasonable degree of sameness must exist.

3. Whatever is developed as regional, whether it be institutionalized in a center or whether it be a cooperative program, must belong to the participants. Regional involvement in planning, regional leadership, and use of regional bodies in policy formation and program planning will create this sense of ownership on the part of the participating countries.

4. It is fully recognized that changing educational systems or introducing change into existing systems is the sovereign right of national governments. No regional entity or institution, no matter how firmly the participating countries are committed to the program, no matter how deep the sense of ownership on the part of the participants, can control, direct, or decree change within national systems of education. Trial, experimentation, demonstration can be done at the regional level, but actual implementation must take place at the national level under national decision making and national direction. Beyond experimentation and demonstration, a regional program or institution can serve to support and encourage change in all the participating countries by helping to develop the environmental prerequisites, providing the focal point for sharing of resources, and perhaps creating prototype solutions to common problems for further experimentation. But in a very real sense, a regional institution must of necessity remain on the sidelines and cheer when it comes to the actual implementation of change.

5. There must be available resources, both manpower and financial resources, for implementing regional approaches. To the extent that doing certain things jointly eliminates the requirement for each participant to do it separately, a good part of the resources can come from within the region by sharing costs. Beyond this, it is difficult for developing countries to divert resources to regional programs when national education programs are under-financed. External assistance will probably be required.

Here in Southeast Asia the commitment to regional cooperation in education exists. An organizational structure, the Southeast Asian Ministers of Education Organization (SEAMEO), has been created to implement this commitment. SEAMEO has legal status by virtue of an international charter which has been signed by the Ministries of Education of eight Southeast Asian countries[2/] and subsequently ratified by governmental action within each country. There are common problems. These have been identified through national and regional seminars undertaken under SEAMEO auspices. Resources are available both from member country commitments and from multilateral, external support of the SEAMEO programs. So as effort is mobilized in Southeast Asia to develop educational alternatives, it is possible to consider seriously what parts of the total task can be carried out economically and effectively through joint efforts. Consideration of a regional approach to educational alternatives is not just an academic exercise.

2/The eight countries include Indonesia, the Khmer Republic, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

Proposals for a regional plan of action were included in the 1967 paper. (See pages 161-162 in Addendum A) Briefly, these proposals envisaged the establishment of a SEAMEO regional center closely linked to national programs or centers in each of the SEAMEO countries. The center would serve to train innovators and to develop prototype educational systems and solutions of potential utility throughout the region. The national centers would provide "homes" for the innovators trained at the regional center and would adapt centrally developed prototypes to fit local conditions, and eventually install the new system in the national education system.

It was suggested that the regional center might be organized into divisions covering the major areas to be studied; e.g., basic education, technical training, adult education, and so on. In each of these divisions, resident specialists and research fellows (trainees) from the member countries would work together as a team to develop prototype systems in the particular research area, the research fellow receiving training while actually working in a problem-solving situation. In addition to the research divisions, it was proposed to have specialized technical resource units located at the center to backstop the research programs in such areas as measurement and evaluation, programed instruction mass media, instrumentation and engineering, and so on.

The proposed center was to be under the policy direction of a regional governing board made up of representation from each participating country, this board to identify common problems, establish priorities, and otherwise provide policy and program direction to the center. This first proposal anticipated that as the national centers became organized and staffed with innovators trained at the regional center, the functions of the regional facility might change and, at some point, would possibly outlive its developmental utility, and, if continued, would probably focus its efforts on clearing-house and information exchange activities.

This very general proposal put forward in the 1967 paper for consideration was taken by the Ministry of Education in Vietnam and used as the basis for proposing to SEAMEC that a SEAMEO regional Center for Educational INNOVATION and Technology (INNOTECH) be established in Saigon. The proposal was approved in principle and the SEAMEO Secretariat (SEAMES) set about the task of developing the project. Under the leadership of a senior educator assigned to SEAMES by the Vietnamese Ministry of Education, and by utilizing national and regional seminars as mechanisms for gathering data and information and involving large numbers of Asian educators in project development planning, a Five-Year Project Plan was prepared and subsequently put before SEAMEC for approval.

INNOTECH emerged from this planning, by and large, as an elaboration of the original proposal. The plan as approved by SEAMEC involved the establishment of a regional center together with tho establishment and/or identification of national institution. Operating under a regional governing board, the regional center would initially have three divisions: (1) an administrative division; (2) a training and research division; and (3) a library and information services division. The Plan stipulates that no formal administrative relationship would be established between the regional and national centers, as the national centers will be independent and will be operated entirely by the respective member countries. The regional and national centers will work in close cooperation on professional matters, and the role of the regional center will be to assist the national centers and their programs by training personnel, developing prototype materials and approaches for trial and modification, and by giving general professional support to the national centers. The national centers are expected to feed back information to the regional center on effectiveness of training, suitability of prototype solutions and materials, and other experimental work carried out at the national level.

The Proposed Development Plan(1) declares several essential requirements for successful operation of a national center or program:

1. The national center must be within the mainstream of educational planning and policy formation;

2. It must be adequately staffed, with imaginative and dynamic leadership;

3. It must have adequate budget support; and

4. It must have either as assigned functions or included in the scope of outreach such activities as research and evaluation, curriculum development, educational radio and television, audio-visual education, and other instructional media development.

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(1) SEAMEO REGIONAL CENTER FOR EDUCATIONAL INNOVATION AND TECHNOLOGY: PROPOSED DEVELOPMENT PLAN. SEAMES - Bangkok, Thailand, January 1970

The operational procedures as described in the Plan are as follows:

1. Problems to be dealt with by the Center will be determined by the Regional Governing Board.

2. Training and research programs will be organized to deal with problems identified by the Board. A research specialist with experience in systematic problem-solving will direct each research program, working with and through a regional team of selected trainees from member countries.

3. Trainees will undergo an initial orientation program, covering the systems approach and research methodology and providing familiarization with the general field of educational technology. Beyond this, the training will consist of actual participation in the research area or program to which the trainee is assigned. He will learn by doing, and he will help to produce a prototype solution to the problems comprising the subject of his research program.

4. The product of the research programs (proto-type solutions) will be taken by the trainees who helped to create them to their own countries upon completion of training for further trial, development, and refinement, and, finally, implementation at the national level.

5. There will be a national center in each country, providing a "home" for the returned trainees to carry out trials of prototype solutions and to work with further systematic problem-solving at the national level. The regional Center will maintain a close relationship with the national programs through follow-up, information services, and testing and evaluation. This is necessary to ensure professional support of the national programs and important feedback to the regional Center's programs.

6. It is anticipated that the long-term training programs will operate on a one-or two-year cycle. As one group of trainees leaves the Center, a new group will come in to staff the on-going research program and to receive training in the process of systematic problem-solving. There will also be supporting, short-term training programs.

The Plan outlines four distinct types of training programs to be offered at the start by the regional Center. The programs are to be evaluated during the early years and adapted as necessary as the program develops. These four programs include:

1. An intern training program focusing both on research and training. The concept of research fellows and resident staff working on prototype solutions to common problems is centered in this program.

2. An intensive training program (three months) for senior personnel involved in educational management.

3. Orientation to educational innovation and technology for top-level ministry officials (round-table discussion and training activities of from seven to ten days).

4. A series of short workshops stressing innovative aspects of such areas as curriculum development, educational planning, evaluation, statement of objectives, etc.

Priorities for research presented in the Five-Year Plan, based on recommendations which emerged from the national and regional seminars and subsequently approved by the Regional Governing Board, are as follows:

1. Curriculum development and reform.

2. Teacher training and development methods.

3. Evaluation.

4. Instructional media.

Illustrative projects described in the Plan, based on these priorities, are somewhat more exciting, including:

1. The development of a comprehensive inventory of specific educational aims, together with an appropriate set of measureable criteria of these aims.

2. The identification of distinct sub-groups of primary pupils who have separate educational needs, and the development of a model for optimum curricula for these pupils.

3. The assessment of cost effectiveness of instructional media and techniques under varying conditions.

In keeping with the described operational procedures, the research plans indicate that a research specialist will direct each of the proposed programs, and interdisciplinary team effort will be utilized. Interns and research team members from regional countries will be involved in all research projects. In this way, products of research will be taken back to member countries by the researchers themselves, for further trial and experimentation on the local level.

The Plan describes the function of the library and information services division as follows:

1. The establishment and maintenance of an up-to-date library on educational technology and related subjects.

2. The collection and dissemination of information on research, innovation, and educational developments within the SEAMEC region.

3. The publication of a newsletter and a bulletin or journal describing the activities and research results of the Center, as well as innovation outside the region.

4. The establishment of relationships with institutions and agencies outside the region with a view to keeping up-to-date on educational change and innovation in all parts of the world.

The project rationale and the conceptual framework of the INNOTECH Center are stated at the beginning of the Five-Year Plan. These statements have come to be known as the "INNOTECH Concepts" and they form very important background for understanding INNOTECH as a regional approach to the development of educational alternatives. This section of the Five-Year Plan is appended to this paper as Appendix B. If you seek a better understanding of what INNOTECH is all about, you should read this attachment.

INNOTECH is well into its second year of interim operations. It was not possible to set up the center in Saigon immediately, and through the generosity of the Government of Singapore a temporary site for interim operations was provided so that a start could be made. Under these circumstances no more than a partial test of the project plan and concepts can be expected from these months of

interim operations. Nonetheless, certain observations can be made based on the experience thus far. This experience includes almost two years of intern training with a group of eight the first year and a group of sixteen the second year; two three-month training programs (the second is only one month old as of this date); two seminars; and a number of research projects, most of which are still in progress.

Observations

1. Selection of Problems: The original concept of identifying common problems through the mechanism of the Regional Governing Board has not operated effectively. The priority research areas indicated in the Five-Year Plan for INNOTECH reflect the recommendations of a regional seminar which was convened to consider the data and information gathered from the eight national meetings during the project development period. They are of such general nature that they actually give INNOTECH a great deal of freedom and flexibility in choosing specific research activities or problems to solve, but this begs the question of identifying common problems. Furthermore, the priority areas listed in the plan could be pursued with a view toward making the present system work, or they could be designed so as to become steps in the replacement of the present system. So choice and selection still have to be exercised. Perhaps because the Center is in its pilot years -- interim operations -- the Governing Board has left INNOTECH with the responsibility of choosing specific problems to solve and specific research projects to undertake. As a result, the research and problem-solving activities undertaken have been influenced greatly by the limited size of the professional staff, and by the manageable targets of opportunity which presented themselves. Probably it is fair to say that the research and problem-solving activities carried out to date have been selected so as to be useful in carrying out the training activities, and the aim of producing prototype solutions that could be turned over to the member countries for further experimentation has been of secondary importance. Once the factor of expediency which normally characterizes pilot operations is eliminated, the process of problem identification (identifying common problems) needs attention, and the Governing Board needs to take a more active role.

2. Integrating training and research. One of the original INNOTECH concepts proposes that people will learn to be innovators at the regional Center by engaging in innovative activities: that is, the necessary skills, attitudes, and information would be obtained by actually working at problem-solving tasks as part of a research team under the direction of a resident specialist -- hopefully resulting in two products: (a) trained innovators, and (b) prototype systems or solutions. The experience of the Center to date throws some doubt on the validity of this concept. It has been found that the interns and trainees coming to the Center do not have the necessary qualifications for carrying on research, and that training them to the point where they can carry on creditable research, necessarily diverts time and energy from the research itself. As a result, one or the other, either research or training, is constantly being sacrificed. This situation could happen as the result of deficiency in the concept itself; i.e., it is possible that such integration of training and research simply will not work. On the other hand, the situation could also result from the fact that during its pilot phase, INNOTECH's programs were being developed from scratch -- programs which have no counterpart anywhere else to provide guidance -- and it can be expected that such factors as criteria for selecting interns and trainees, mechanisms for selecting research problems, determination of knowledge, skills, and attitudes necessary to become an innovator, and other related matters would need some trial and error. Additionally, a limited staff had to shoulder the responsibilities of both planning and implementing in getting these pilot programs under way. Probably it is a fair statement to say that the concept of integrating training and research has not had an adequate trial as yet. The particular circumstances of the months of interim operations to date have created serious difficulties in trying to implement this concept, and it needs further testing. It is quite possible that with more careful selection of common problems and focus on practical problems, with plans of action and research designs worked out in advance, with selection of interns and trainees to fit these plans and designs, and with a larger professional staff to share the training and research responsibilities, the concept will become more workable.

3. Development of national centers. The success of INNOTECH will depend in large part on the quality and the dynamism of the national centers. In each of the SEAMEO countries the Ministry of Education has designated the agency or unit which will serve as the INNOTECH National Center. Some of these are simply offices within the Ministry of Education; others are centers or units such as an audio-visual aids center, an instructional materials center, or

educational television service. All of these designated "homes" for the innovators at the national level do not meet the requirements indicated in the development plan for successful operation of a national center. In particular, few of the designated units meet the last stated requirement of having either as assigned functions or included in the scope of outreach such activities as research and evaluation, curriculum development, educational radio and television, audio-visual education, and other instructional media development. Since the strength of the INNOTECH program will depend basically upon the strength of the national centers, the development of these centers cannot be overlooked. The regional Center cannot be in a position of dictating or directing such development.

It is clearly stated in the Plan which was approved by SEAMEC that the national centers will be independent and operated entirely by the respective member countries. Nonetheless, if the member countries obtain maximum benefit from the INNOTECH program, planned efforts must be made to develop these centers into functional homes for innovators, all of which eventually meet the criteria established for their successful operation. The regional Center must give careful study to the process of national center development and must identify ways in which the programs and resources of the Center can both support and encourage national center development.

4. Immediate results versus long-range goals. The development of the INNOTECH Center was carried out through a process of involvement. This very process created expectations. With the establishment of the Center, even on an interim basis, there are pressures from popular expectations among the rank and file of Asian educators. All of this seems to call for immediate action; the Center must start producing some solutions. This is a practical matter which cannot be put aside. At the same time, everyone knows that educational change is a long-range task and it was recognized at the outset that a regional center could only support and encourage innovation and educational change which must take place at the national level. Training innovators to serve as change agents, preparing prototype solutions which need further trial and experimentation at the national level, providing information and other kinds of professional support are secondary tasks which prepare the national centers to do the primary task of changing national educational systems. Somewhere between these two -- immediate results and long-range benefits -- a Center posture must be worked out which will avoid serious compromise of the basic, more long-range purposes of the regional Center, but which will demonstrate the potential of innovation here and now. This is no easy task, but it is not an impossible one.

5. The systems approach. There is an aura of magic in the term "systems approach". In the development of INNOTECH as a regional project, this term was used liberally in describing the way INNOTECH planned to proceed in working out solutions to problems. This approach as used in engineering and industrial management and operations, or as applied to the planning and undertaking of a huge, complex task such as placing a man on the moon, is an extremely sophisticated approach involving computers and applied mathematics. Attempts are being made now to apply this approach at a sophisticated level to the planning and operation of educational systems. No applications in this sector have been made as yet which would completely satisfy the professional systems analysts. Actually, as presented to the INNOTECH planners by Dr. David Klaus in the early stages of the development of the project, something considerably less than computerized systems management and analysis was envisioned. The use of this term was intended to emphasize the importance and necessity of approaching problem-solving on a systematic basis -- carefully identifying purposes or objectives or clearly defining a problem, taking into account all of the variables which will affect solutions to problems or programs for achieving objectives (identifying constraints or listing specifications), selecting a promising solution, subjecting it to trial, and so on. When defined simply as a systematic way of solving problems, the systems approach becomes a manageable and teachable approach. When considered in its more complex and sophisticated definition and applications, it is probably too advanced for the present situation in the education sector of the nations of Southeast Asia. It is quite possible to get hung up on the complexities of the systems approach and thereby overlook its value in developing educational alternatives -- namely, the discipline it projects in trying to work out solutions to problems. This sounds more like a sermon than an observation regarding the INNOTECH experience of the past few months, but, in fact, there has been some confusion regarding both the value and use of the systems approach in carrying out the interim training and research activities of the Center. There needs to be some clarification as to just how far the INNOTECH programs should go with the systems approach.

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(1) Dr. Sim Wong Kooi has expressed this caution very wisely in his paper on INNOTECH Concepts available at the INNOTECH CENTER. See pp. 6 - 11 of that paper.

6. Prototype Systems. One of the ideas put forth in the 1967 paper was that it would be a mistake to import educational technology from other countries and try to use or adapt it to the Southeast Asian situation. The argument was that indigenous programs are needed -- programs that are peculiarly fitted to the Southeast Asian situation. I have been persuaded to change my mind on this point. The development of workable learning systems is so very costly that it is wise to avoid duplicating development costs wherever possible. Practical considerations now call for careful examination of all kinds of technology and systems developed in other situations to determine potential utility and to see if with inexpensive modifications acceptable solutions cannot be worked out with the borrowed systems. This observation is based more on world-wide development in educational technology during the past five years than it is on the INNOTECH experience during interim operations, but it is an observation which could and probably should have some influence on INNOTECH program planning for the immediate future. If the suggestion has validity, planned effort should be made to discover and bring to the Center for study and experimentation systems which have been developed elsewhere to solve problems similar to those being worked on at INNOTECH, and see if, at considerably less cost than developing completely new materials, refinements and adaptations could be worked out to become "prototype solutions" for use in Southeast Asia. And certainly one of the specific values of regional cooperation is the opportunity it provides for sharing information and sharing of systems and solutions worked out by any of the participating countries.

7. Implementation of educational change. Understandably, there is impatience at the regional Center when it is necessary to work somewhat removed from the cutting edge of innovation. It simply is not possible for a regional center to implement educational change. The adoption of new systems and new approaches, the actual implementation of innovations and alternatives are the responsibilities of national governments involved in regional cooperation. The regional Center and the professional endeavors carried on at the regional Center must play a supporting role. This understandable inclination for closer identification with implementation may in some ways affect development of prototype solutions. With actual implementation in mind, the researcher wants trial and refinement of a product to the point where he is satisfied that it will work. But if the intent is to develop products which will be taken by centers at the national level for further refinement and experimentation before the stage of actual implementation is reached, the degree of perfection required of

these products in the regional Center is considerably less. During these interim months of operation there has been some reluctance on the part of the Center to release items to the member countries simply because the research has not gone far enough. The regional Center must constantly discipline itself to hold to the supporting role, and, of course, the supporting role itself must constantly be evaluated and refined to be maximally effective.

8. INNOTECH staffing. It has not been possible to implement permanent staffing plans for INNOTECH during interim operations in a temporary location. Hence, the adequacy of those plans has not been tested. However, the experience to date does throw some light on what may be expected in the future. INNOTECH has had to innovate in getting its staff for the interim operations in Singapore. Part of the resident staff is from Vietnam, assigned by the Ministry of Education in Saigon; part is from Singapore; part from SEAMEO countries other than Vietnam and Singapore; and there are two American specialists from the American Institutes for Research. For the programs which have been attempted during the interim operations, the Center has been understaffed at the professional level. Handling intern training simultaneously with the implementation of a 3-month training program, together with on-going research programs, has over-taxed the interim staff of five professionals and the experience suggests that the full implementation of all of the training and research programs in a permanent location may require more people than projected in the Five-Year Plan at the professional level. The Center, with the assistance of SEAMES, has attempted to recruit other specialists from outside the region under technical assistance arrangements with friendly governments, but those countries indicating willingness to help SEAMEO by supplying experts for the projects have found it difficult to recruit for INNOTECH for two reasons: (a) it is difficult to locate professional persons with the skills required by the INNOTECH programs; and (b) the uncertainty about when INNOTECH can move to Saigon has meant that recruiters cannot tell prospects for sure where they will be living and working. The projected plans of recruiting part of the professional staff from within the SEAMEO region may also fall short of expectations, based on experience to date, because educators in the SEAMEO countries who have the skills required by INNOTECH are very scarce (one reason why INNOTECH was established was to do something about this scarcity) and the few who can be found are badly needed in the national programs. So it may be necessary to develop new plans for more vigorous recruitment efforts outside the region for the early years of INNOTECH operations. There is considerable evidence that staffing of the Center will be a continuing, immediate problem as well as a long-range one, and more attention will need to be given to this problem.

These observations deal mainly with problems and issues which can be identified from the interim operations of INNOTECH, and it certainly would not be fair to overlook or pass by the plus side of the scoreboard. Even from interim operations things are beginning to happen:

1. Twenty-four interns have been or are being trained at the Center, eight of whom have gone back to their countries prepared to operate as change agents. Sixteen more will return to their home bases in June of this year.

2. Forty-eight educators have been or are currently being exposed to the process of innovation and the potential of new educational approaches in the intensive, three-month training program. These persons will also serve to some degree as change agents when they return to the SEAMEO countries, and they can be expected to give support to other local change agents.

3. Research efforts have resulted in products such as programed materials for teaching the systems approach and the INNOTECH concepts, case study teacher-training materials, a pre-school readiness test, information sheets on innovative projects now going on in the SEAMEO region, materials (including tapes) for self study in improving command of English. Some of these items will be ready to release to member countries soon.

4. Seminars and special meetings have involved large numbers of Asian educators in discussions and deliberations regarding plans and procedures for bringing about educational change.

5. Among the most significant results of the INNOTECH activities to date are the interest, the talk, and the action they have generated in the SEAMEO member countries regarding innovation and the development of new approaches. It is the testimony of a senior educator in Indonesia, for example, that the current, very exciting national educational assessment and national educational planning programs in Indonesia, using the systems approach, came about as a result of Indonesian involvement in the plans and programs of INNOTECH. And in other SEAMEO countries not much could be heard about innovation and new approaches before INNOTECH started stirring things up with the national and regional seminars and with reports at SEAMEO meetings. One could make a random selection from the major educational speeches and written educational articles in the SEAMEO region during the past two years, and the chances are he will find some reference to the need for innovation and/or the need for new approaches. INNOTECH has generated some thinking and talking. And this is liable to lead to action, indeed has led to action in some of the countries.

So, though not completely tested as yet, there is enough evidence in the INNOTECH case to justify hope and expectation that an important part of the job of developing educational alternatives can be done through a regional approach to the benefit of the participants (cooperating countries), both in terms of economy and effectiveness. INNOTECH still has problems to solve, but it was created to solve problems. It is still new and there are no known institutional counterparts. Because of this, and because INNOTECH is daring to deal in an innovative way with educational issues which now plague countries around the world, a great deal of interest and attention is being focused on this particular SEAMEO project by agencies, institutions, and governments outside the Southeast Asia region. INNOTECH emerges as an instrumentality for successfully implementing a regional approach to the development of educational alternatives. Its full potential is yet to be determined.

Addendum A

THE POTENTIAL OF NEWER INSTRUCTIONAL MEDIA FOR EDUCATIONAL DEVELOPMENT IN THE COUNTRIES OF SOUTHEAST ASIA

By Dr. Robert Jacobs, Regional Education Advisor, U.S. Embassy, Bangkok

Introduction

In recent years the Asian countries have given high priority to the expansion of facilities for education and training. They have recognized that all other developments -- in industry or agriculture, in politics or defense -- depend on the skilled manpower and the informed citizenry that only an adequate educational establishment can provide. They have committed themselves to the attainment of sufficiency in education in the shortest possible time. But, despite their most earnest efforts, the demand has continued to eclipse the progress that has been achieved.

The limiting factor has been the enormity of the task. There have been no solutions to the quantitative problems of providing basic education to the large percentage of children to whom this opportunity now is denied; of balancing this investment with the equally urgent needs for higher education and for technical education at all levels; and of finding still further resources to cope with such special problems as literacy training for some 350 million adults. Nor have there been solutions to the qualitative problems of replacing the traditional aims of education with revised objectives attuned to present day manpower needs and national development aims, and of maintaining high standards of education throughout the flux of expansion and change. Could they have been treated individually, any one of these problems would have posed a serious challenge. In the aggregate, they have proved overwhelming.

Looking ahead, the Ministries of Education have projected their needs and their resources, and have found that even long-range solutions are nowhere in sight. It is simply impossible to build the schools, train the teachers, print the textbooks, install the shops, equip the laboratories, and hire the administrators in the numbers required to meet the basic needs of all sectors of the

educational effort. The unhappy alternatives have seemed to be (1) to concentrate the available resources in certain sectors, perforce slighting the rest; or (2) to dilute the effort with partial programs in all sectors, thereby doing justice to none. Either way, the established targets for national development cannot be achieved.

Hypothesis

As startling as it may be, as unacceptable as it may be initially, a strong case can be made for the hypotheses that most of the "insurmountable" problems of Asian education are in fact self-imposed and, to that extent, artificial. They are problems only because we have assumed that Asia must follow the traditional approaches to education that were developed in past centuries. We have assumed that each of the developing countries in Asia must retrace the steps that the advanced countries traveled decades before. The problems are self-imposed simply because we have continued to insist on traditional classrooms with standard equipment, on the accepted ratio of a qualified teacher for each 30 students, on the bound textbooks that are costly to produce and difficult to keep up to date, on the instructional methods whereby one student performs while his classmates sit idle and passive, and on all the other outmoded features that the countries which are exporting educational expertise are trying to replace in their own educational programs. Take away the constraints of history and tradition, and the problems begin to disappear. Remove the self-imposed assumptions and certainly the nature of the basic problems will change considerably.

The reality of today is that breakthroughs have been achieved in the technology of teaching and learning which demonstrate quite clearly that there are infinitely better, more efficient, and more economical means of achieving instructional objectives than were available even ten years ago. There is no reason why Asian education should be tied to approaches which have been made the norm only by history and tradition. Systems and methods consistent with Asian resources and directed specifically to Asian needs can, should, and inevitably will be developed.

What are the implications of these breakthroughs for educational development in Southeast Asia? What would be the effect of tossing aside these age-old assumptions? Is it indeed necessary to have a teacher for every 30 - 35 pupils? Is it necessary to spend 6 - 8 years to achieve the instructional objectives which are set for the elementary cycle? Is it necessary to house the learning process in the expensive physical plants which are designed to serve the one teacher to every 30 - 35 pupils approach? These are not simply "just suppose questions. They are questions which can be raised legitimately in view of the alternative approaches and solutions which are now above the horizon and which have never been tried seriously in Asia.

With exercise of just a bit of imagination, one can pass from questions about assumptions to a possible future where the objectives of basic education (literacy skills, basic computational skills, simple community living skills, and so on) are implemented and achieved right in the home and village by use of simple, inexpensive, self-instructional packets of materials, coordinated with radio broadcasts which come into either the home or perhaps a community center. No school as we know that institution today may be required. A completely new kind of institution may emerge replacing both the physical facilities and the concepts which now separate education into elementary and secondary cycles. These institutions of the future will possibly be community education centers for self-learning, where persons of all age groups will father to utilize modern learning resources, largely self-instructional, requiring a minimum of professional supervision, and achieving what the educational system is expected to achieve at a fraction of the cost, at greater efficiency, and in considerably less time than the twelve years norm established by tradition for the elementary/secondary cycles. Vocational education may be carried out in special learning centers where basic knowledge and techniques are mastered through multi-media instructional devices, at a bare fraction of the cost of vocational education as it operates today, leaving the development of special job skills based on this general background as the responsibility of the business, industrial, or governmental organization employing these skills. One can try to set these imaginative wanderings aside as being the science fiction of educational technology, but it must be remembered that in the physical sciences we have seen in our generation the leap from the science fiction of yesterday to the space exploits of today.

The Task

I am not foolish enough to propose or to even imply that this kind of change can come quickly or easily. The roots of the educational establishment lie deep, and this is true in any culture -- within any national boundary. Educators are generally conservative and resistant to change. And there are vested interests lobbying for maintenance of the statutes-quo. One can see all of these forces at work in the countries now coming to grips with the newer educational technology. But in Asia the alternative to change is perpetuation of "insurmountable" problems, and eventually, quite possibly, educational bankruptcy. For the cost of traditional approaches grows greater each year, and resources for the national investment in education, unfortunately, do not increase proportionately. There simply must be willingness to try new approaches, and there must be serious exploration of the newer educational technology to see what it may have to offer. However difficult the achievement of change, a start has to be made.

It would be a mistake, and a serious mistake, to begin simply by importing teaching machines, programed textbooks, educational TV, computers, and the other "gadgetry" developed for use elsewhere and attempting to impose them upon an existing system of education. There are two things wrong with this approach. First, innovation must be indigenous, suited to Asian problems and needs, if it is to be effective; and second, imposing gadgetry upon the existing system simply adds the cost of the new to the cost of the old. Educational television, for example, used as a supplement to traditional classroom instruction is a luxury few if any Asian countries can afford. But when used to make the skill of the master teacher available to fifty classrooms at a single performance, educational television may become an instrument for change while effecting genuine economies in the cost of education.

It would also be a mistake to start innovation by importing specialists from other countries to do the job for the Asians. Such expertise must be tapped for purpose of training and for dealing with specific problems, but innovation is not a oneshot affair; it is a continuous process, and to insure its continuity Asians themselves must be the innovators; not simply passive onlookers while the job is done for them by outsiders. Indeed, there is good reason to believe that once the situational prerequisites for innovation are established, the Asians may easily move into the forefront in the development and practical applications of educational technology, and themselves become the soughtafter specialists in this movement. The reason for

believing this is simply that there is in Asia a far more desperate and urgent need for more efficiency and greater economy in operating the educational establishment than there is in the more affluent societies where the pace can be slower and the conservative elements can be accommodated with more patience. Need breeds effort. Desperate need fosters great effort.

Prerequisites

How then can a start be made? What are the situational prerequisites for innovation in Asia whereby Asians can themselves work out Asian new approaches to the achievement of educational objectives? Among the basic requirements are the following:

1. Training for innovation - There must be in each country cadres of innovators and creative thinkers who can rid themselves of past assumptions and focus on the development of the most efficient and effective solutions to educational problems. The training experience should include thorough exposure to the state of the art of educational technology; such persons should know the techniques of programed instruction, the advantages and limitations of teaching machines, the potential of the various mass media and of self-instructional devices. And they should be thoroughly versed in the methodology and techniques of educational research and experimentation.

2. Organizing for innovation - Administrative structures must be provided as "homes" for the trained innovators; i.e. centers, institutes, or agencies whereby the necessary administrative and fiscal support can be provided to backstop and encourage innovation. The Instructional Materials Centers may well become the institutional homes for the innovators.

3. Equipping for innovation - There must be adequate equipment and facilities for research, development, experimentation and demonstration.

4. Unrestricted experimentation - Situations for unrestricted experimentation must be provided; e.g., experimental schools where curriculum, methodology, instructional materials can be separated entirely from the set educational requirements, and departures from these requirements, however radical, can be tried with an open mind and without restriction.

5. Keeping informed - There must be ready access to current and up-to-date information about progress in educational technology as it is being developed in other cultural settings -- the latest research data, descriptions of models, current thinking, and so on.

6. Relating research to operation - There must be an inter-linking of research and operational education programs to permit the easy injection of new approaches into the mainstream of education practice once experimental models have proven their worth. Such inter-linking will also provide continuous feedback from operations to research.

7. Adequate measurement system - Objective means of measuring the attainment of educational objectives must be developed so that tangible progress can be clearly differentiated from mere change, and so that savings in time and money can be evaluated in terms of loss or gain of educational quality.

The establishment of these prerequisites is a developmental effort of considerable proportions. However, to look ahead realistically to the coming changes in education and to reflect seriously upon the impossibility of keeping up with educational demands through traditional approaches, is to recognize that the size of the task must not dissuade making a beginning. As a developmental effort, it almost certainly affords a higher benefit to cost ratio than any other investment that might be projected for long-range educational growth.

Because of the nature of this developmental effort it may lend itself easily to a regional approach. And since one of the purposes of this workshop is to consider the desirability and feasibility of a regional program in instructional materials, let me attempt to outline a possible program which you may wish to consider along with other proposals for regional work.

Plan

The situational prerequisites for innovation could be brought into existence by centralizing certain portions of the task in a regional center which might be called the Southeast Asian Center for Educational Technology. Other portions of the total task could be carried out through national centers which would maintain sister relationships with the regional center.

The primary functions of the Center would be the training of specialists to staff the national centers, and the development of prototype educational systems of potential utility throughout the region. The functions of the national centers would be the adaptation of the centrally-developed prototypes to fit local conditions, and the installation of the new systems in local institutions. Responsibility for research, evaluation, and continuing improvement would be shared and carried out through cooperative projects encompassing all centers.

The organization of the regional center could be in terms of Research Programs or Divisions, one for each of the major areas to be studied (e.g., 1 - basic education, 2 - technical training, 3 - audit education, 4 - language instruction, etc.). The staffs of these divisions would be made up of resident specialists and research fellows (trainees) selected from the member countries. Each fellow would work at the regional center for a period of two years, spending six months in familiarization training, and eighteen months on productive research as a member of a multi-national team devising prototype systems for the particular research area to which he is assigned and for purposes of continued training, working under the continued guidance and supervision of the resident specialist in charge of the particular area. At the end of two years he would return to his own country to work in the national center on the adaptation and installation of the procedures he had earlier helped to develop. As trainees leave the regional center, new groups would come in, thus maintaining the strength of the central facility, while building up the expertise of the national centers.

This rotational staffing pattern would insure maximum use of the facilities and resources, since research and training would proceed concurrently, all within the context of solving practical problems. And, having the national centers staffed by specialists who are trained at the regional facility would provide the continuity and automatic feedback essential to the interweaving of basic research and practical application that is desired.

At the regional center, there could also be a number of specialized technical resource units to serve the needs of the research programs. These support units would backstop the research programs in such areas as instrumentation and engineering, mass media, programed instruction, and measurement and evaluation. The measurement unit would play an especially important role in helping the research staff to design procedures for evaluating the effectiveness of new ideas vis-a-vis specific instructional objectives. They would be staffed with specialists and would be adequately equipped with instruments of modern technology to provide a wide range of experimentation and research.

The national centers would be organized similarly, although their professional staffs would be built up more gradually as the rotational training prog[illegible] proceeds. At some point, the regional facility would outlive its developmental utility, and become a center for coordinating and sharing research, to maintain the close international professional ties that will have been developed.

Such a program could bring into being an environment in which innovation can flourish. By focusing the genius and energy of the Asian educator on the development of the most efficient means of achieving educational objectives, and by giving him the support he needs to be productive, it is possible to remove the adjective "insurmountable" from the problems which now seem to be that way. It is possible to leapfrog by decades the development of a discipline that has for centuries been characterized by too little for too few too late. The task is not an easy one, but a beginning has to be made. And the time to begin is today.

Addendum B

PROJECT RATIONALE AND CONCEPTUAL FRAMEWORK

A. Hypotheses on which the project is based:

1. In view of the mounting costs of education as it is now carried out, the expanding youth population in Southeast Asia, and the phenomenal increase in knowledge, added to the fact that for the region as a whole, less than half of the youth of school age are actually in school, conventional approaches to education are no longer capable of solving the basic educational problems of providing adequate educational opportunity to all school-age youth in Southeast Asia.

2. More effective approaches (innovation) are needed and Asian education and Asian educational systems must be prepared to create, borrow and modify, experiment with, and finally implement more effective approaches.

3. More effective approaches (either new approaches or reshaped old approaches) can be developed by clearly identifying problems to be solved or aims to be achieved and then working out the most effective solutions or approaches within the constraints of the situation, but without the restraint of fixed assumptions brought on by how things have been done in the past. The systems approach must be applied to educational problem solving if the complex tasks and burdens now placed on Asian education and educational systems are to be handled effectively.

4. The changes which must be made to deal realistically with the situation as described call for vigorous, adequately supported national programs, but a regional center can play a vital role by training specialists, orienting educational planners and administrators to the potential of the systems approach and the newer educational media, developing prototype solutions to educational problems, and by providing professional support to national programs through follow-up of trainees, dissemination of information, consulting services, and joint research and evaluation.

B. The INNOTECH Concept:

1. Since the project title may tend to focus unduly on innovation, it is important to point out initially as one element in the INNOTECH concept that the stress is on effectiveness and workability in working out solutions to educational problems. In other words, as problems are identified, clearly defined, and actions are initiated to solve them, effectiveness and workability of solution, in terms of the specifications which are set for a satisfactory solution, will be the keynote regardless of whether it is a new and unconventional solution or simply a restructuring of a long-practiced solution.

2. The work of the project is to be problem oriented. This is one of the most important elements in the INNOTECH concept. Work with educational television, teaching machines, programed instruction, and so on (if there is any such work) will be in relationship to identified problems and the possibilities presented by these media in deciding the most effective solutions to these problems. Educational television, programed textbooks, and self-instructional devices will not be developed as separate solutions after which there would be a search to find problems which these solutions might fit. To repeat, the work of the project will be problem oriented.

3. Although a regional center can play an important and effective role in effecting educational change and improvement, these eventual goals can never be realized unless there are strong national programs dedicated to the INNOTECH concept. The relative roles of the regional and national centers are spelled out on pages 11-14. But in dealing with the total INNOTECH concept, it is necessary to mention this element of placing primary responsibility for implementation of educational change and improvement on national centers and national programs.

4. Finally, a basic element in the INNOTECH concept is the integration of training and research. This will lead to two products: (1) key educators knowledgeable with regard to the use of the systems approach in education, with regard to research methodology, and with regard to operative educational technology; and willing to discard the sacredness of conventions; and (2) prototype solutions to educational problems developed by these key educators, ready for trial, further experimentation and eventually implementation in the national programs.

SUMMARY OF DISCUSSION

The discussion centered primarily on Innotech's function as a Regional Center. The following activities were suggested for Innotech:

1. Disseminate information about Innotech and the ways it would serve member countries.

2. Establish functioning National Centers.

3. Rather than prototype solutions, provide a bank of alternatives from which member countries might choose those adapted to local needs.

4. Accept specific problems from member countries for development of solutions.

5. Establish a clearing house for innovations from the region and elsewhere.

Answers from Dr. Jacobs and other discussants made the following points.

1. That Innotech is disseminating information about itself through national and regional seminars and through the activities of returned participants.

2. That solutions to local problems are being achieved by INNOTECH participants after their return home.

3. That as prototypes developed by INNOTECH accumulate they will form a "bank" of alternatives.

4. That INNOTECH, through its Project Clear, is in process of providing a clearing house of innovations from the region and elsewhere.

5. That the SEAMEO Planning Seminar and SEAMEO's contribution to the 1971 Commonwealth Education conference provide evidence of the value of regional cooperation through regional centers.

THE SIMULATION EXERCISE

"The central problem of the educational planner is to be able to identify on his intellectual radar set the really critical problems involved in human resource development, and this can be done with meagre statistical information. If you have good statistical information, you will be all the better for it, but there is no excuse for refusing to define the problem because statistics are not available. Moreover, the educational planner should never wait for a complete manpower assessment before he begins to identify the problems, because he may have to wait a very long time."

(F. Harbison: Educational Planning and Human Resource Development, UNESCO 1969, page 22).

OBJECTIVES

1. The main objective of this Simulation Exercise is to serve as a vehicle to promote consideration and discussion of ideas presented at the Practicum, from a regional, rather than country-specific, perspective.

2. It provides an opportunity to the participants to share their experiences in educational planning in order to enrich their views with new ideas that encourage and enable them to approach the educational problems in their countries in alternative ways.

INTRODUCTION

1. This simulation exercise simulates only the first stage in educational planning, i.e. the strategy building. This involves the setting of targets or educational objectives, which will govern the subsequent actions. The second vital element in strategy building is the determination of priorities.

2. This exercise deals with a hypothetical country named SEALAND. A hypothetical country is used to obtain free and frank discussions that will not offend those from any particular country and at the same time will reveal a few truths of practical relevance to a number of the Southeast Asian countries.

3. In constructing SEALAND, the hypothetical country, it was intended to reflect conditions and problems common to many of the SEAMEO countries. Some conditions and problems can be found in all of the SEAMEO countries, others are relevant only to a particular SEAMEO country.

4. The ideas and data for this simulation exercise are extracted from the following works:

   a. F. Harbison: Educational Planning and Human Resource Development; UNESCO 1969.

   b. Country Reports for the National Briefings in INNOTECH, by the Three-Month Program participants; Singapore, April 1971 (not published).

   c. Draft report of systems analysis mission; June - October 1970; Office of Educational Development, Ministry of Education and Culture, Republic of Indonesia.

   d. Report of SEAMEO brainstorming session, Bangkok, 1970.

   e. SEAMEO Regional Educational Planning Seminar. Final Report. Bangkok, 1971.

   f. Third Regional Conference of Ministers of Education and Those Responsible for Economic Planning in Asia. Final Report. Singapore, UNESCO 1971.

DIRECTIONS

1. The 24 country participants of the Regional Practicum on Alternatives in Education will be divided into three groups of eight persons each, group A, group B and group C.

2. In this exercise, each group will play two roles i.e. :

   a. The role of the Director and Staff of the Educational Planning Department, Ministry of Education of SEALAND.

   b. The role of the Minister of Education of SEALAND and his advisors.

3. In the morning session, each group will play the first role, as Director and Staff of the Educational Planning Department, to discuss a preliminary plan for educational development, and propose a revision.

4. Each group member will be provided with the following materials:

   a. Memorandum from the Minister to the Director

   b. The Preliminary Plan for Educational Development

   c. Information on SEALAND

   d. Manpower Needs and Popular Demands.

5. At the beginning of the morning session, each group will select one member to act as the Director; the other members of the group will play the roles of staff members.
   The Director is newly appointed and has been in office for only a few days.

6. The report of each group will be printed at the end of the session, and copies will be distributed to all participants before the afternoon session.

7. In the afternoon, each group will present its report to the Minister of Education of SEALAND. The complete time schedule for both the morning and the afternoon sessions follows.

TIME SCHEDULE

0830 - 0945	a. Election of the Director and the Rapporteur. b. Study the documents of SEALAND. c. Questions and answers, if any.
0945 - 1000	C o f f e e b r e a k.
1000 - 1200	Discuss SEALAND's Preliminary Plan for Educational Development and propose a revision.
1200 - 1230	Finalize the draft report to be given to the typist.
1230 - 1400	L u n c h.
1400 - 1500	a. Individual reading of group reports. b. Election of the Minister.
1500 - 1515	C o f f e e b r e a k.
1515 - 1700	Presentation and Discussion of group reports.
	1515 - 1545 Group A (Director and staff) will present its report to group B (as Minister and advisors).
	1550 - 1620 Group B (Director and staff) present its report to group C (as Minister and advisors).
	1625 - 1700 Group C (Director and staff) present their report to group A (as Minister and advisors).

Group Division

Group A

1. Dr. Arturo Guerrero
2. Mr. Bounthong Thao
3. Mr. Sugijanto
4. Mr. Kum Boo
5. Mr. Ngan Yimin
6. Dr. Ruth Wong
7. Mr. Somchai Wudhiprecha

Group B

1. Dr. Aurelio A. Tiro
2. Mr. Murad bin Mohd. Noor
3. Mr. Pham Van Thuat
4. Mr. Nhoeng Nhan
5. Dr. Ruang Charoenchai
6. Miss Phua Swee Liang
7. Dr. Santoso S. Hamidjojo
8. Dr. Veo Vanh Homsombath

Group C

1. Mr. Chhun Hien Ho Tong Ho
2. Dr. Ekavidya Nathalang
3. Mr. Haji Hamdan bin Sheikh Tahir
4. Mr. Kao Outsama
5. Mr. Nguyen Van Thai
6. Dr. Pablo T. Mateo, Jr.
7. Mr. Kartomo Wirosuhardjo
8. Mrs. Yeo Lai Cheng

Note:

1. Consultants, Observers, Interns and Three-Month Programme participants may witness the simulation sessions in any of the three rooms.

2. a. Morning Session : Group A in the Green Room
   Group B in the Red Room
   Group C in the Yellow Room

   b. Afternoon Session : All three groups will be in the Yellow Room from 1515 - 1700.

STATE OF SEALAND
Office of the Minister of Education

M E M O R A N D U M

From : Minister of Education
To : Director of Educational Planning Department
Date : 27th April 1972
Subject : Review of the Preliminary Plan for Educational Development

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As you know, a meeting of all Directors is scheduled for tomorrow to discuss our Preliminary Plan for Educational Development. In the light of the new perspectives on alternatives in education presented at the current INNOTECH Regional Practicum, I think we can try and improve on our Plan before the tomorrow meeting.

Your Department is requested, therefore, to review the Plan, prepare a brief report, and meet with me at 1515 hours in my office today. Your report should include the following:

1. Recommended revisions, if any, of Sections I, II, and III of our Preliminary Plan. Reasons should be given to each recommended revision.

2. A brief discussion of the rationale for each Section, be it revised or not.

3. A re-appraisal of Section IV, giving serious consideration to the educational alternatives suggested at the INNOTECH Regional Practicum.

It is understood that economic feasibility should be our primary concern. However, I think there is no need at this juncture for your department to go into details of cost and benefit as this can be done later when a systematic analysis has been carried out.

STATE OF SEALAND
Department of Educational Planning
Ministry of Education

A PRELIMINARY PLAN FOR EDUCATIONAL DEVELOPMENT

Submitted to the Minister of Education
on 30th March 1972

A PRELIMINARY PLAN FO' 'CATIONAL DEVELOPMENT

I. The educational objectives:

Based on general information concerning Sealand and the manpower needs and popular demands, the following educational objectives can be stated in order of priority:

1. The output of the educational system should meet the manpower needs of the country
2. All children of the 5 - 13 age group should have primary education
3. Every citizen should be able to read and write.

II. Targets of the educational system:

1. Primary education:

   a. Reduce the drop-out rate to 5% within 5 years
   b. Increase the number of students entering the secondary level to 90% within 5 years.

2. Secondary education:

   a. Reverse the ratio between student enrolments in academic and vocational schools from 4:1 to 1:4 within three years at the lower secondary level.
   b. Close down the junior high school of economics within three years.
   c. Close down the senior high school of economics within three years.
   d. Achieve the ratio of 2:3:4:4 for the number of students in the senior high schools, teacher training schools, schools of agriculture, and senior technical schools.

3. Tertiary education:

   a. Increase the number of graduates from the engineering faculties (industrial, agricultural, mining) to four times the present number within three years.

b. Achieve a similar increase for graduates of the science faculties.

c. Hold the number of the graduates from the medical faculty, social science and liberal arts faculties constant.

d. Reduce the number of graduates from the law faculties by 60% within five years.

e. Increase the number of nurses and medical technicians to four times the present number within 5 years.

f. Increase the number of managerial and executive personnel to twenty times the present number.

Note: As soon as more accurate quantitative and qualitative data are available the targets should be revised and readjusted.

III. Priority setting:

1. First priority should be given to development of the primary schools. There is a large dropout rate and a high percentage of the children leave the educational system after graduation. This means a loss for SEALAND of potentially useful manpower, a waste of money and energy. The children, who have been educated in academic subjects, will not be able to use or improve their knowledge and will not have the chance for a better life.

   In reassessing the primary schools, emphasis should be given to the quality of education rather than the quantity. Merely increasing the number of primary schools will lead to more frustration among the children than to success and happiness.

2. Of second priority are the senior technical schools and the agricultural schools which will provide SEALAND with engineering assistants and agricultural technicians. The stress here should be on quantity as well as on quality. According to the manpower needs of SEALAND there is under-employment of such personnel in the industrial as well as the agricultural sector. Education in those schools should be carefully planned. Skills should be developed to the point that the graduates are enabled to do their jobs effectively from the very beginning.

3. Engineering and science should receive the third priority. Apart from increasing the number of students, the quality of education provided by those faculties is critical. Poorly qualified engineers and scientists are of little value.

4. Next in priority are the teacher training colleges, especially the engineering and science departments. Stress should mainly be on the quality of education. Well qualified teachers should be trained to teach in the secondary schools.

5. Training schools for primary teachers are next on the list. Here too emphasis should be on quality. The quality of education in the primary schools depends a great deal on the graduates from the teacher training schools.

6. Colleges for nurses and medical technicians are sixth in priority. Graduates from the senior high schools can enter these colleges which should provide three year courses.

7. The junior and senior high schools are the seventh priority. The aim of education in these schools should mainly be to prepare the students for the universities. Graduates from these schools can also be absorbed in the labormarket as administrative personnel, clerical workers, typists, secretaries, bookkeepers etc.

8. Eighth in priority are the medical, social science, and liberal arts faculties (except the law faculty). Quality of education should be improved.

9. Training institutes for managerial and executive personnel have the ninth priority.

10. The junior technical schools which provide the country with craftsmen are given priority ten.

11. The law faculty is given the lowest priority.

IV. Strategies:

1. To reduce the drop-out rate, the curriculum of the primary school need not be changed. Let the stress remain on the academic subjects. There is no need to give training in

practical skills because after leaving primary school the students are still too young to work. What needs to be changed are the teaching techniques. Eagerness to study should be created in the students. The aim of new teaching techniques should not only be increased effectiveness of teaching but also the creation of curiosity for further knowledge.

2. To increase the total number of students at the secondary level by increasing the number entering vocational schools only, studies at the vocational school should be provided free or in the form of scholarships. The present fees for study at academic high schools should remain unchanged.

3. More buildings should be built for the junior and senior technical schools, schools of agriculture and teacher training schools. The buildings for the junior and senior schools of economics can be remodeled to serve as junior and senior technical schools.

4. The curriculum of vocational schools should be revised. The technical schools should be in close touch with the industries. The schools of agriculture should include agricultural field work and the teacher training schools should have enough laboratory facilities for practical training. Stress in the vocational schools should be on the practical skills needed for the corresponding jobs.

5. Increase the space facilities for the engineering and science faculties, among others by remodeling the buildings of the law faculties.

6. Increase the popularity of the engineering and science faculties by reducing fees and expenses and giving scholarships.

7. Expand the economic faculties by adding a department for training managerial and executive personnel.

8. Expand the medical faculties by adding departments for the training of nurses and medical technicians.

STATE OF SEALAND

Ministry of Education

INFORMATION ON SEALAND

Compiled by the Department of Educational Planning

Ministry of Education

GENERAL INFORMATION

I. Human and Natural Resources

1. Sealand comprises over 1000 islands and covers an area of approximately 100,000 square miles. Part of SEALAND is situated on the mainland of Asia.

2. The climate is tropical. The soil is very fertile. The eastern part of SEALAND is mountainous with some active volcanoes.

3. The country abounds in rich natural resources; forests, which cover much of SEALAND, rubber, mines (oil, tin, coal), agricultural lands (coffee, tea, pineapple plantations, rice), fisheries, water power.

4. The total population of SEALAND is about 20 millions in 1971, and has an annual growth rate of 2.8%. About 47% of the population falls in the 0-14 age group.

5. Labor force is about 40% of the total population, over 70% of those are employed in agriculture.

II. Social and Cultural Factors

1. In 1950, after years of struggle, SEALAND was recognized by the world as an independent state. The struggle for independence has left Sealand in a poor economic condition with poor administration.

2. There are 8 ethnic groups each with its own language. Before independence, development of the national language was inhibited by the former colonial language that was used as the official language and as the medium of instruction in the schools.

3. After independence, only the national language was used as the official language and as the medium of instruction. The government's action in developing and popularising the national language was very intensive and effective. Today, every citizen can speak and understand the national language.

4. The problem of national unity and identity faced by the government at the time of independence has been practically solved through several effective measures. Today, intermarriage between the different ethnic groups is common. SEALAND as one nation is growing.

5. The people of SEALAND are highly religious. In the past there were many conflicts between the different religions, but today they exist together in peace.

6. The vernment of SEALAND still faces the problem of rapid population growth. The National Board of Family Planning and Birth Control is encountering great difficulty in carrying out its plans. Religion and the philosophy of life of the people are the main obstacles, especially in the rural areas.

7. Another problem is illiteracy. In 1950 about 90% of the people were illiterate. Illiteracy has been significantly reduced to 40% in 1971. Looking further into the statistics, it reveals that there are still rural areas where illiteracy is high, up to 70%. On the contrary in few urban areas illiteracy is practically not a problem any more.

III. Economic Conditions and Prospects

1. SEALAND has experienced a series of grave economic difficulties since independence. Although rich in human and natural resources, it has been stagnant in terms of economic progress. The causes are lack of capital, skilled and administrative personnel, and political stability.

2. The country suffered several times from the war against the communists.

3. Since 1963, the political situation has improved. Recent conflicts with communists have occured only at the borders with the communist countries.

4. Internally, there have been no physical conflicts between the various political parties. The number of political parties is now reduced to three and the differences between them have been restricted in the parliament.

5. The government can now spend more time and concentrate on economic development of the country.

6. The first 5-year national development plan was drawn and implemented with much aid from international organizations and foreign countries.

7. While 8 years ago the inflation rate was 200% annually, in 1971 it was estimated to be only 5% a year.

8. The national income per capita in 1971 was US$200/-. It is expected that the overall growth of the G.N.P. will be 6% a year.

9. The second 5-year development plan is still directed towards land development, intensification and diversification of agriculture and industry. Priority is given to the development of industries supporting agriculture e.g., the fertilizer industry. Of second priority are the textile and the mining industries.

10. In accelerating the economic growth of the country, the government has adopted the policy of exploiting the human resources as effectively as possible for the benefit of the country, without using force. The democratic principle is valued by the government. People will be given free choice in looking for jobs.

11. In carrying out this democratic principle, the government faces the serious problem of lack of manpower in the important jobs. There is a shortage of skilled manpower at the middle level for both agriculture and industry.

12. As it operates now, the educational system in SEALAND is not meeting the manpower requirements of the country. The government must change the educational system in order to match the available manpower to the needs of the country.

13. The economic prospects of SEALAND are favorable. Two factors: (a) the government leaders' concern for economic development, and (b) the internal political stability, which attracts foreign countries to invest capitals in SEALAND.

14. Foreign investments are piling up, more industries are being built, and the labor market is growing. There is under-employment in the industrial as well as agricultural sector. But unemployment is still high, because the available manpower lacks the necessary skills.

15. Apart from foreign investments, SEALAND receives financial aid and technical assistance from international organisations like UNESCO, World Bank, etc.

IV. Education in SEALAND:

1. The constitution of SEALAND states that every citizen is entitled to education, and that the Government should establish a national system of public education.

2. The aim of education is the development of man's abilities for the purpose of upgrading the individual and improving society.

3. Educational planning in SEALAND should be integrated with the National Development Plan. Education should meet the realistic requirements of national development. In other words, the educational systems should provide the manpower needed for the development of the nation as a whole.

4. The educational system as its operates today is basically the same as it was during the colonial period, that is, it emphasizes academic subjects and fails to prepare the student for real life.

5. The school structure is 6 - 3 - 3. After six years primary school, the students can go to junior high school or to the vocational schools (technical schools and schools of economics).

6. Most of the graduates of the primary school do not continue their study on the secondary level. Of those who do, a large percentage enrolls in the junior high school, while only a very small percentage enrolls in the vocational schools.

7. The senior secondary level lasts three years. Apart from the senior high schools, there are technical and teacher training schools, schools of economics and agriculture.

8. The teacher training schools train students to become teachers of primary schools. After graduation they can enter the teachers training colleges that prepare students to be "subject matter" teachers for the secondary schools.

9. Graduates from the senior high schools can also enter the teachers training colleges after their graduation. On the whole there is a low popular demand for teachers training, on the secondary as well as the tertiary levels. The main reasons are low salaries and low status of the teachers.

10. At the teachers training colleges the engineering and science departments are of low priority to the students. Both departments are poorly developed and equipped, and are short of qualified staff. To achieve a standard of effectiveness comparable to that of other departments, per pupil cost for these departments would need to be about 4 times the corresponding costs of the other departments.

11. Although there are private primary schools, general secondary schools and universities, there are no private secondary vocational schools or teachers training colleges.

12. Education in primary schools, run by the government, is provided free. Primary education is not compulsory. Lack of funds makes it impossible to provide primary education for all people. But it is still the aim of the government to provide primary education for all in the future.

13. The budget for education in 1971 was 20% of the total national budget. Of this, 70% is for the Ministry of Education. The remaining 30% goes to the other ministries which provide in-service training courses for their employees.

14. Apart from the government controlled schools and training programs, private organisations are providing primary schools, general secondary schools and universities. The private universities are concentrating on social sciences and liberal arts and neglecting engineering and science, because of the high costs connected with the latter.

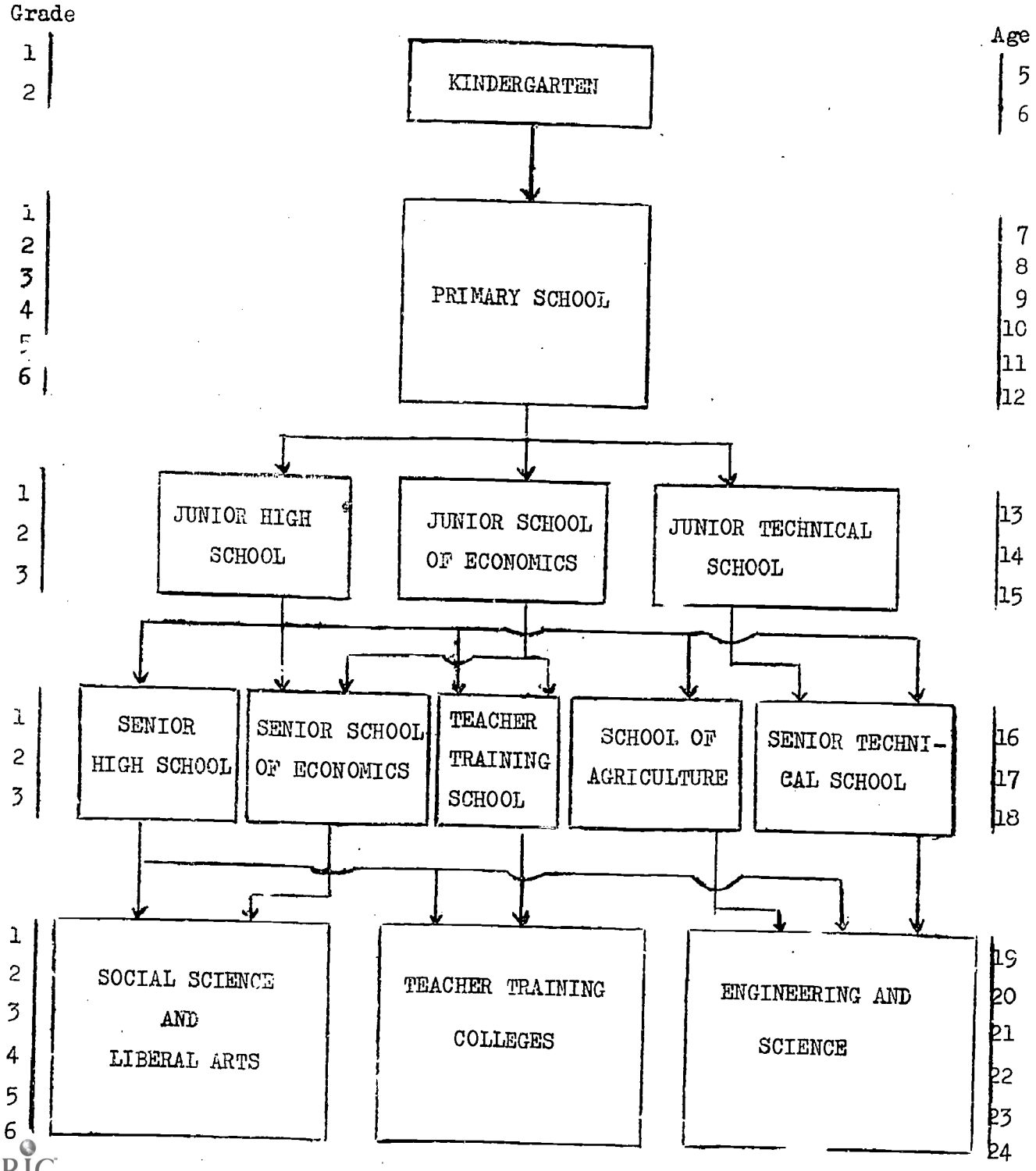
15. Other private institutions are conducting training programs for certain skills needed for specific middle level jobs, such as secretaries, book keepers, etc.
Two private institutions are providing training in managerial skills for middle and top level administrators.

16. The primary schools differ in quality. Although a single curriculum is provided by the government, its implementation varies. Apart from that, it is felt that the curriculum, with its stress on academic subjects, is not relevant to the needs of the society.

17. Graduates from the secondary schools still do not meet the standard requirements of the Universities, and consequently the first year at the university is devoted to remedial work.

18. The school year at all levels starts in January and ends in November.

EDUCATIONAL SYSTEM



STATE OF SEALAND

POPULATION DISTRIBUTION*

Year 1971
(in thousands)

Age - group	Male	Female	Both Sexes	%	Population in school	%
0 - 4	1,968	1,926	3,894	19		
5 - 9	1,517	1,466	2,983	15	1,909	64
10 - 14	1,295	1,238	2,533	12.8	1,189	46.9
15 - 19	1,075	1,047	2,122	10.7	127	6
20 - 24	878	853	1,731	8.7	29	1.7
25 - 29	708	698	1,406	7	8	0.5
30 - 34	579	576	1,155	5.9		
35 - 39	475	470	945	4.8		
40 - 44	391	391	782	4		
45 - 49	330	333	663	3.3		
50 - 54		286	564	2.9		
55 - 59	220	228	448	2.2		
60 - 64	158	166	324	1.6		
65 - 69	106	117	223	1.1		
70 & over	71	143	214	1		
Total	10,049	9,938	19,987	100	3,262	16.3

* Data taken from Ministry of Interior

STATE OF SEALAND

SCHOOL ENROLLMENT AT ALL LEVELS OF EDUCATION*

	# Students	# Students	%
I. Pre-School Level		457,000	14
Kindergarten	457,000		
II. Primary School Level		2,594,000	79.4
Primary Schools	2,594,000		
III. Junior Secondary School Level		89,000	2.8
1. Junior High School (J.H.S.)	71,000		
2. Junior School of Economics (S.E.S.)	6,000		
3. Junior Technical School (J.T.S.)	12,000		
IV. Senior Secondary School Level		80,000	2.5
1. Senior High School (S.H.S.)	38,000		
2. Senior School of Economics (S.S.E.)	11,500		
3. Teacher Training School (T.T.S.)	15,500		
4. School of Agriculture (A.S.)	3,100		
5. Senior Technical School (S.T.S.)	11,900		
V. University Level		42,000	1.3
1. Social Sciences and Liberal Arts (law, economics, sociology, history, linguistics etc.) (S.S. & L.A.)	21,000		
2. Engineering and Science (Industrial Technology, Agriculture, Medicine, Pharmacy, etc.)	13,000		
3. Teachers Training Colleges	8,000		
	3,262,000	3,262,000	100

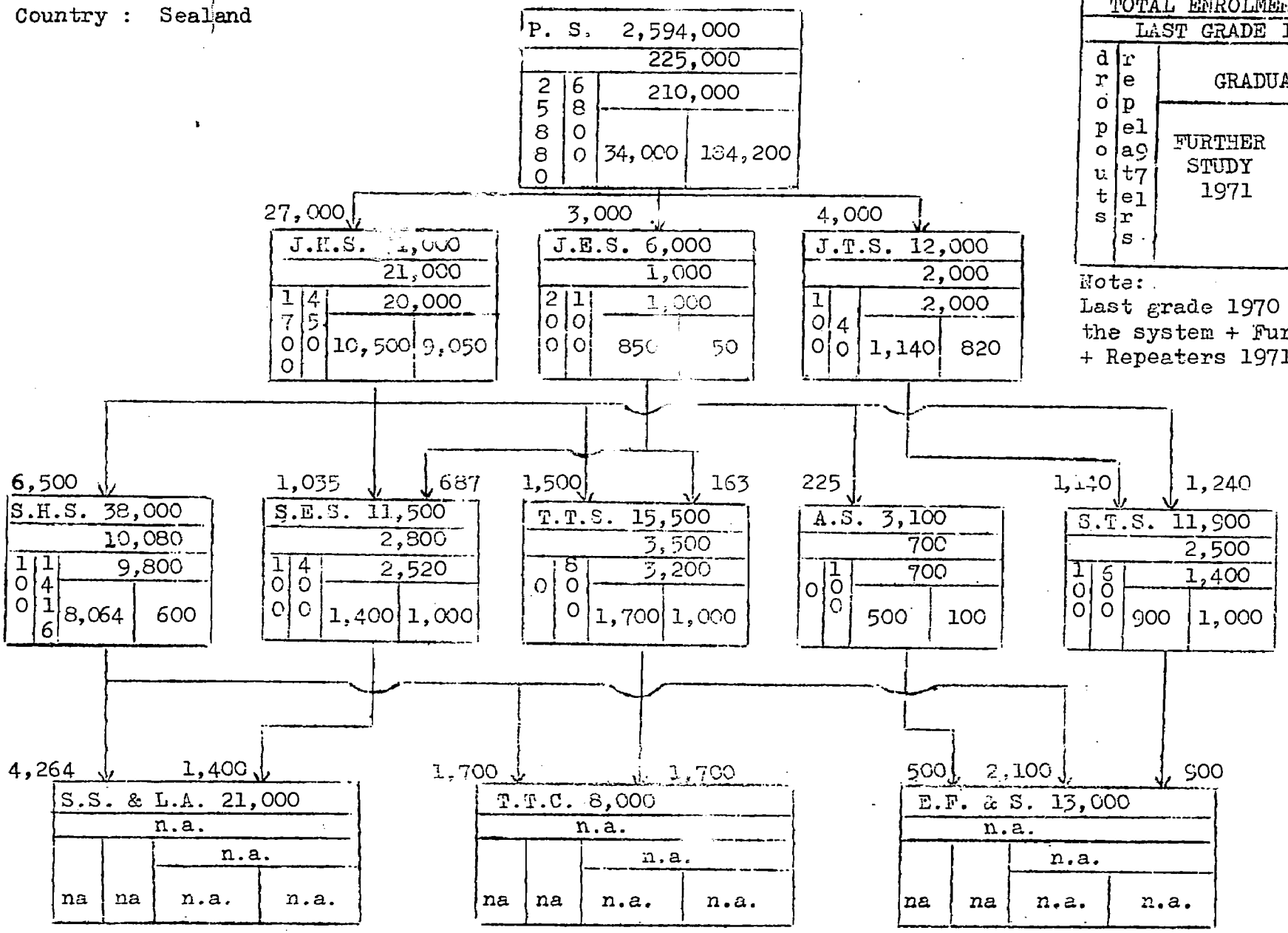
* Data taken from Ministry of Education

NUMBER OF SCHOOLS, STUDENTS AND TEACHERS

	1971 # of schools	Students	Teachers
I. Primary Level			
Public Schools	5,188	1,556,600	44,470
Private schools	5,187	1,037,400	41,496
II. Junior Secondary Level			
Public schools			
1. Junior high schools	218	43,600	1,453
2. Junior school of economics	30	6,000	300
3. Junior technical schools	36	11,000	220
Private schools			
1. Junior high schools	142	28,400	1,420
III. Senior Secondary Level			
Public schools			
1. Senior high schools	113	22,600	773
2. Senior school of economics	52	11,500	383
3. Teacher training schools	38	15,500	516
4. Schools of agriculture	15	3,100	77
5. Senior technical schools	29	11,900	238
Private schools			
1. Senior high schools	77	15,400	770

INTERCOMPONENT STUDENT FLOW CHART

Country : Sealand



Legend

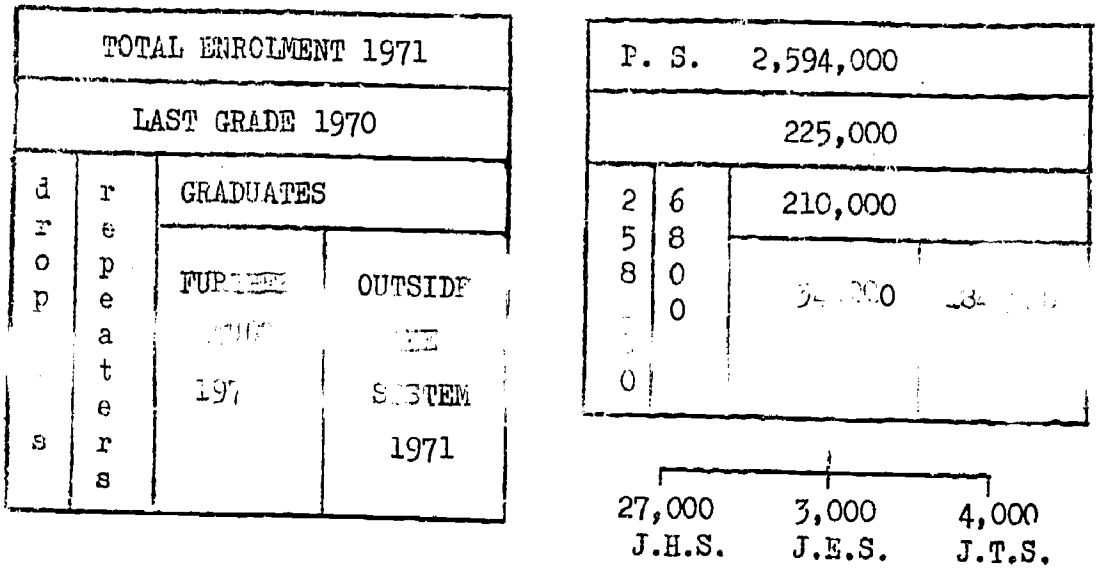
TOTAL ENROLMENT 1971		
LAST GRADE 1970		
dropouts	repeaters	GRADUATES: FURTHER STUDY 1971 / OUTSIDE THE SYSTEM 1971

Note:
Last grade 1970 = Outside the system + Further Study + Repeaters 1971

INTERCOMPONENT STUDENT FLOW CHART

Explanations

I. Reading the chart:



1. Total enrolment 1971: Total number of students enrolled in all grades of the primary school (P.S.) in the school year 1971, i.e. 2,594,000 students.

2. Last grade 1970: Total number of students in the last grade, 6th grade in Primary school, of the school year 1970, i.e. 225,000.

3. Of the 225,000 students,

   a. 6,800 students fail to pass the leaving examinations and are repeaters for the school year 1971,

   b. 34,000 students graduated from the primary school and continue their study at secondary schools in 1971 (further study 1971),

   c. 184,200 students are leaving the primary school and do not continue their studies at the secondary schools in 1971 (outside the system 1971).

4. Of the 34,000 graduated students from the primary school:
   a. 27,000 students enrolled in the Junior High School (J.H.S.),
   b. 3,000 in the Junior School of Economics (J.E.S.),
   c. 4,000 in the Junior Technical School (J.T.S.).

5. Graduates: Total number of students who passed the leaving examination in 1971. They are not from the same grade as the students in the "last grade 1970", they were 5th grade primary students in 1970, who became 6th grade students in 1971 and graduated at the end of the school year (210,000).

6. Dropouts: Total number of students from the 1st until the 5th grade who left the primary school in 1971 (258,800).

II. Abbreviations:

P.S. = Primary School
J.H.S. = Junior High School
J.E.S. = Junior School of Economics
J.T.S. = Junior Technical School
S.H.S. = Senior High School
S.S.E. = Senior School of Economics
T.T.S. = Teacher Training School
A.S. = Agricultural School
S.T.S. = Senior Technical School
S.S. & L.A. = Social Sciences & Liberal Arts
T.T.C. = Teachers Training Colleges
E.F. & S. = Engineering Faculties & Sciences.

STATE OF SEALAND

MANPOWER NEEDS AND POPULAR DEMANDS[1] *

(Summary of the National Survey on Manpower Assessment)

I. Manpower Needs:

The second 5 year development plan of SEALAND is directed towards land development, intensification and diversification of agriculture and industrialisation.
Consequently SEALAND needs a very large number of technicians and subprofessional personnel.

The following manpower needs are listed in order of priority:

1. Agricultural Technicians:

   Land reform which is to be carried out, requires a large number of agricultural technicians to carry the ideas to the farmer and to assist the farmer in implementing the new ideas.

2. Engineering Assistants:

   They are badly needed for the industrial development of the country. This is true for industries supporting the agricultural sector such as the fertilizer industry, rice milling, etc., as well as other industries, such as textiles and mining.

3. Graduate Engineers and Scientists:

   Both are needed to be able to carry out research and development intensively as well as extensively, to accelerate the progress of industry.

4. Agronomists, Soil Scientists and Agricultural Engineers:

   The land development, intensification and diversification of agriculture requires more agronomists, soil scientists and agricultural engineers.

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[1] Needs are determined by the manpower assessment and represent the country's manpower or educational requirements to meet specific social, political and economic goals. Demand reflects individual desires to prepare for a particular profession or trade, the desires for given types of education "F. Harbison. Educational Planning and human resource development" UNESCO, 1967, page 19.

* Data taken from Ministry of Labour.

5. Nurses and Medical Technicians:

Nurses and medical technicians are a necessity for the improvement of state hospitals and health services.

6. Social Scientists:

Economists, sociologists, psychologists, anthropologists are needed to staff planning organisations which have to deal with the economic and social problems of development.

7. Teachers:

In producing the necessary manpower the teachers still play an important role. SEALAND has a great shortage of teachers at all levels, especially teachers of science and engineering in universities. There is also a critical shortage of mathematics and science teachers in secondary schools.

8. Managerial and Executive Personnel:

Additional managerial and executive personnel are badly needed. SEALAND is still an agricultural country and has no history in the industrial sector. Dropouts from universities after several years training and experience, and graduates from the universities after training are seemingly doing well as managers and executives.

9. Craftsmen:

The shortage of craftsmen of all types is very great.

10. Clerical and Secretarial Personnel:

Clerical and secretarial personnel is still required, but the need is not large and is expected to be met in 1972, due to the large number of graduates from the junior and senior high schools.

11. Doctors, Medical Practitioners:

SEALAND has already a great number of doctors, medical practitioners, but they are more in the cities than in the rural areas. This problem could be solved partially by substantial increase in the number of sub-professional personnel, nurses, and medical technicians.

II. Manpower Demands:

1. There are still a significant number of people in the rural area who think it not necessary for their children to continue their study as soon as they can read, write and solve simple mathematical problems. This is one of the reasons for the high dropout rates in the primary schools in rural areas.

2. The main reason for [illegible] drop out rate [illegible]wever, is financial. The parents are not able to pay the cost of education for their children.

3. The main motive of the people, especially from urban areas is to send their children to school and continue their study to the master's degree level, no matter in what field.

4. If they fail in their studies, the people are satisfied if their children are able to get white collar jobs.

5. Manual skilled labor is not favored by the people since it has a low social status.

6. Because of the high status of all university graduates, there is a very great demand for admission to junior and senior high schools and universities.

7. At the beginning of every school year there is an overflow of applicants to both junior and senior high schools.

8. On the other hand there is limited interest in the vocational training, i.e., in the technical and economic schools on the junior secondary level and the technical, economic, agricultural and teacher training schools on the senior secondary level.

9. Most people want to become doctors (medical practitioners) because of their high status and income, and lawyers, because of their high status and relatively "easy" and "cheap" study. At the moment, there is an excess of lawyers in SEALAND.

10. Many people want to become engineers and scientists because of their high status and salary, but there are too few of them because of the high educational costs.

11. Although they also have a high status, not many people want to become scientists. Their income is relatively low compared with that of doctors and engineers. The number and supply of social scientists is considered sufficient to meet the needs of the country.

12. Only a few people want to become technicians and sub-professional personnel such as agricultural technicians, engineering assistants, nurses, medical technicians because of the low status and pay.

13. Teachers do not have the same status as in the past. Earlier, they were valued highly (they were considered to be authorities and powerful persons), but today they receive less respect. The low salary makes the job less attractive.

14. Looking at the statistics alone, the conclusion can be drawn that there is no teacher shortage in SEALAND (either at the primary or the secondary level) since the average ratio between teacher and students is 1:28. But closer study reveals that the statistics do not reflect the true picture.

15. Because of low salaries teachers have to look for additional jobs; usually they teach in several schools. After teaching in a public school in the morning, a primary school teacher may teach in a private school in the afternoon and/or evening. Secondary teachers may also teach in several public and private schools.

16. Consequently the number of the teachers shown in the statistics is larger than the true number. Many teachers are registered more than once.

Report on the Simulation Exercise

On the whole, the Simulation Exercise can be said to have attained its main objectives, i.e., to serve as a vehicle to promote consideration and discussion of ideas presented at the Practicum, and to provide an opportunity for the participants to share their experiences in educational planning.

The consensus of opinion was that the Simulation Exercise as prepared by INNOTECH does lend itself to enjoyable participation and to fruitful brainstorming. All three groups, however, felt that the time allotted to the Exercise was much too short, and as a consequence, that a large number of recommendations were made without proper consideration of all the facts.

Another consequence of the time element was that the schedule for the afternoon sessions had to be revised as follows, in an ad hoc meeting at noon between the elected "Directors" and the INNOTECH staff:

14.00 - 15.00	Continued discussion on the SEALAND Preliminary Plan
15.00 - 15.15	Coffee Break
15.15 - 17.00	Plenary session: group reports presented orally to one elected "Minister", and discussion afterwards

The group reports, although made orally, were later submitted in written form, and are reproduced below.

Report by Group A

Director: Mr. Somchai Wudhiprecha

Rapporteur: Dr. Chetana Negavajara

Members:

1. Dr. Arturo Guerrero
2. Mr. Bounthong Thao
3. Mr. Sugijanto
4. Mr. Kum Boo
5. Mr. Ngan Yimin
6. Dr. Ruth Wong

I. The educational objectives

1. The objectives should not be arranged in order of priority, but should be considered as a unified set of principles.

2. The Group has given consideration to other aspects of education not included in the original draft as well, such as the social and cultural sides of education. These considerations, however, could be integrated into the curricula at all levels and need not be spelt out in this set of objectives, which are fundamentally operational objectives. We have therefore decided to adopt the original draft as policy directives.

II. Targets of the educational system:

1. Primary education

   a) From the available statistics, the drop-out rate is approximately 10%. It is therefore feasible that the rate could be reduced to 5% within 5 years. We are in agreement with the original draft.

   b) We interpret "the students entering the secondary level" as "graduates of the primary school progressing to the secondary level". The existing progression rate is approximately 15%. We propose an annual increase of 15% for five years, which should be feasible.

2. Secondary education

a) We propose the introduction of the junior comprehensive school to replace all other types of schools at the junior secondary level. Experience in many countries have shown that vocational education at the junior secondary level has proved to be ineffective. This can serve as a check against over-emphasis in academic-oriented secondary education, and at the same time, it can provide training in the basic skills which will be useful in further vocational training.

b) These schools will be absorbed into the junior comprehensive high schools.

c) We are in agreement with the original plan.

d) We propose to re-adjust the ratio to 2:2:3:4. The reduction of the ratios for teacher training schools to 2 is based on the belief that the introduction of para-professionals into the teaching system and the increasingly effective use of educational technology can alleviate the burden of the teachers. The decrease in the ratio for schools of agriculture is due to the fact that the rather conventional agricultural occupations in the country do not need sophisticated specialized training, whereas the trend in the expansion of industry, motivated by the extra-oridinary wealth of natural resources, calls for intensive technical education.

3. Tertiary education

a) We are in agreement with the proposed increase in the number of engineering graduates, but do not think that a four-fold increase is feasible. No time limit can be specified with certainty.

b) The same reservation about the time-limit is made in this connection.

c) The number of graduates in the social sciences and humanities (the term "liberal arts" is incorrectly used in the original) should remain as it is, although internal re-adjustment among the various disciplines must be made, such as increasing the number in economics and/or national language and decreasing the number in history and/or law.

The number of medical graduates should be increased. The curriculum should be revised to be more responsive to the need of the rural community as well. Such measures as introducing more training in public health instead of over-specialization should be encouraged. Internship could be conducted in the rural setting.

d) This has been dealt with above under (c)

e) & f) No specification should be made with regard to the volume (either 4 times or 2 times) increase, since this remains, for lack of data, hypothetical.

It has been observed that the original plan sets no target for two very important areas, namely: teacher training and non-formal (including adult education).

III. Priority settings

We propose to formulate priorities differently from the original plan, namely to arrange them in three "packages" in the following order.

1. Middle level

The country is in desperate need of middle-level manpower. This is therefore given the highest priority. Within the context of middle level training, priorities will again have to be determined in the resources allocation for such types of education as senior high schools, teacher training schools, schools of agriculture, technical schools, colleges for nurses and medical technicians etc. The base for all these will be the junior comprehensive school.

2. Tertiary level

Priorities among the various academic and professional disciplines will again have to be set. The targets described above can serve as guidelines.

3. Primary education

Considerations in resource allocation must be given both to primary education as such and the training of teachers for this level.

Although we realize the importance of primary education, it might be wiser not to spend an inordinate amount of public funds on elementary education, since we can rely on non-formal alternatives as well as modern educational technology to supplement the classrooms.

IV. Strategies

1. We think that primary education should be concerned primarily with the 3 R's, with possible inclusion of such useful subjects as elementary science in the form of observation of the natural world.

2. The increase enrolment in the junior comprehensive high schools will be in accordance with the targets. It may be necessary to charge school fees at the secondary level, but provision must be made for education grants to poor and worthy students.

3. We are in agreement with increased investment in school building where necessary.

4. Vocational education at the level beyond junior comprehensive high schools could be streamlined into various specialization, such as technical, agricultural, trade etc. Some basic skills will have been acquired in the junior comprehensive high schools.

5. We are in agreement in principle. It is, however, questionable whether this is practical and more economical than building new facilities.

6. Incentives could be given by other measures than just reducing fees and giving scholarships. Students in other disciplines might raise objection to the original proposal. We can attract students better by way of disseminating information through the mass media.

7. This has already been discussed above under II, 3c.

8. We are in agreement with the proposal.

Report by Group B

Chairman: Mr. Murad bin Mohd. Noor

Members:

1. Dr. Aurelio A. Tiro
2. Mr. Pham Van Thuat
3. Mr. Nhoeng Nhan
4. Dr. Ruang Charoenchai
5. Miss Phua Swee Liang
6. Dr. Santoso S. Hamidjojo
7. Dr. Veo Vanh Homsombath

I. The educational objectives:

1. There is a need to redefine the educational objectives of a country, since any educational system should not confine itself solely to the production of the manpower required for the development of the country. The manpower requirement is certainly an important one, but we must not lose sight of the other aspects of educational goals, such as individual development, in the social, cultural, economic and political contexts.

2. Primary age group 5-13 is somewhat confusing, so we amended it to 7-12. Judging from the response toward education, it is unrealistic to assume that a plan for primary education for all could be achieved. Similarly, to enable every citizen to read and write, presumably during the plan period, would call for an intensive adult literacy program. Our recommendation, therefore, would be simply to reduce the illiteracy rate.

II. Targets of the Educational System

1. Primary education

a. Reducing the dropout rate to 5% within 5 years with the present traditional form of education is somewhat unrealistic. We suggest, therefore, two alternatives: (1) reduce the rate to 30% or so; or (2) introduce other alternatives where mass media are fully utilized to reach a greater number of children. The second alternative does not seem feasible as no data are available to support it.

b. Increasing the number of students entering the secondary level to 90% within 5 years is somewhat too idealistic. Such an increase, even if it is possible, would require corresponding increases in school facilities and teachers, which in turn would lead to other economic and social problems.

2. Secondary education

a. Similarly, reversing the academic/vocational ratio from 4:1 to 1:4 within three years at the lower secondary level, seems to be a very hasty proposal, and if adopted, problems of a social and economic nature would certainly arise.

b.and c. Taking into consideration the main objectives of producing manpower at the middle level, we recommend not only the closing down of the junior high schools of economics, but also of all the senior high schools for vocational education. To replace all these, we suggest the introduction of a comprehensive system of education at this level where vocational elements or options can be made available to all. We do not feel, however, that the products of the junior high schools for vocational education would achieve the required skills to do the jobs without further training.

d. We propose that further study be made on the ratio of 2:3:4:4, because at this juncture, it is simply unrealistic to try to achieve this within three years.

3. Tertiary education

a. Increasing the number of graduates from the engineering faculties to 4 times the present number within three years simply implies that these students are already in the universities at this time, and therefore we need not take that part of planning very seriously.

b. The same can be said of increasing the number of graduates of the science faculties.

c. We agree with this.

d. This is all right.

e. Same remarks as in a and b. Eliminate "4 times".

f. Same remarks as in a and b. Eliminate "20 times".

III. Priority Setting

1. First priority should be given to development of primary schools to reduce the dropout rate in this area, which means a loss for SEALAND of potentially useful manpower, a waste of money and energy.

2. Training schools for primary teachers are next on the list. Here, too, emphasis should be on quality.

3. The third priority is the establishment of comprehensive junior high schools characterised by academic curriculum with practical arts options, aimed at exposing pupils to vocational activities so that they can have the opportunity to explore as many subjects as possible.

4. Of fourth priority are the senior technical schools and the agricultural schools which will provide SEALAND with technicians in agricultural and technical fields. The stress should be on quality as well as quantity.

5. Next in priority are the teacher training colleges, especially the technical and science departments. Stress should mainly be on the quality of education.

6. Engineering and science should receive the 6th priority. Apart from increasing the number of students, the quality of education provided by these faculties is critical.

7. Colleges for nurses and medical technicians are seventh in priority. Graduates from the senior high schools can enter these colleges which should provide 3 year courses.

8. The senior high schools with emphasis on science and technology are the eighth priority. The aim of education in these schools should mainly be to prepare the students for the universities especially in the fields of technology and science.

9. Ninth in priority are the medical, social science and liberal arts faculties (except the law faculty). Quality of education should be improved.

10. Training institutes for managerial and executive personnel have the 10th priority.

11. The law faculty is given the lowest priority.

Report by Group C

Director: Tuan Haji Hamdan bin Sheikh Tahir

Rapporteur: Mr. Nguyen Van Thai

Members:

1. Mr. Chhun Hien Ho Tong Ho
2. Dr. Ekavidya Nathalang
3. Mr. Kao Outsama
4. Dr. Pablo T. Mateo, Jr.
5. Mr. Kartomo Wirosuhardjo
6. Mrs. Yeo Lai Cheng

I. Objectives

1. Recommendation

The educational system should be manpower-need-oriented, however, liberal, cultural, and religious aspects should be given proper consideration.

Rationale

The objective is too narrow. Although the educational plan should be integrated in the national plan, education should not be solely geared to specific demands of economics.

2. Recommendation

All children of primary school age should have a primary education of 5 years in length from the time of their beginning schooling.

Rationale

SEALAND is an agrarian country, where many children have to work and consequently may not be able to fulfil the requirement concerning age. So, the rewording of the objective in such a way would allow for flexibility in age requirement.

3. Recommendation

Every citizen should be able to read and write, however, preference should be given to citizens below the age of 45.

Rationale

The limit is set for the purpose of saving money.

II. Targets of the Educational systems

1. Primary education

Recommendation

a. An annual rate of decrease of 10% of dropouts should be achieved.

Rationale: the reduction of about 40% of dropouts to 5% within the limit of 5 years would be too ambitions.

b. An annual rate of increase of 15% in the number of students entering secondary education should be attained.

Rationale: the target of 90% of primary school leavers to enter secondary education would be too colossal an objective.

2. Secondary level

Recommendation:
Combine points a, b, c into one, as follows:

Keep the present types of schools and improve them with a diversified curriculum.

Rationale

Point (a) is an infeasible endeavour in terms of expenditures and the absorptive capability of the labor market, and the educational plan should be in line with the national economic master plan.

Recommendation

Point (d) should be modified as follows:
"Increase enrolments in the fields of technical, vocational, agricultural and teacher education."

3. Tertiary education

No changes.

III. Priority Setting

We propose nine priorities instead of eleven:

Priority 2, "senior technical schools and the agricultural schools" becomes priority 1, "development of the primary schools."

Priority 1, "development of the primary schools" becomes priority 2, "senior technical schools and the agricultural schools."

Priorities 3+7, "engineering and science", "junior and senior high schools" become priority 3, "engineering and science."

Priorities 4+5, "teacher training colleges", "training schools for primary teachers" become priority 4, "teacher training colleges."

Priority 9, "training institutes for managerial and executive personnel" becomes priority 5, "training schools for primary teachers."

Priority 6, "colleges for nurses and medical technicians" remains priority 6.

Priority 8, "medical, social science, and liberal arts faculties" becomes priority 7, "junior and senior high schools."

Priority 10, "junior technical schools" becomes priority 8, "medical, social science, and liberal arts faculties."

Priority 11, "the law faculty" becomes priority 9, "training institutes for managerial and executive personnel."

APPENDICES

APPENDIX 1

PROGRAMME

Monday, 24th April, 1972

0800 - 0900	Registration of Participants and Observers and Distribution of Documents
0900 - 0930	Opening Ceremony - Welcome Address by INNOTECH Director - Address by SEAMES Director - Address by Inche Mohd. Ghazali Ismail, Parliamentary Secretary to the Ministry of Education, Singapore
0930 - 1000	Refreshments
1000 - 1230	1st Plenary Session - Election of Chairman and Vice-Chairman - Remarks by Chairman of Seminar - Appointment of Rapporteur-General - Adoption of the Agenda Presentation and Discussion of 2 Working Papers: 1. The Need for Alternatives by Dr. Nguyen Duc Kien (Vietnam) 2. The Systems Approach to Alternatives by Mr. Kartomo Wirosuhardjo (Indonesia)
1230 - 1400	Lunch

1400 - 1700 — 2nd Plenary Session

Presentation and Discussion of 2 Working Papers:

1. Alternative Technology
   by Mr. Chhun Hien Ho Tong Ho
   (Khmer Republic)

2. Alternative Objectives
   by Dr. Sim Wong Kooi (Malaysia)

(1515 - 1545 Coffee Break)

Tuesday, 25th April, 1972

0830 - 1230 — 3rd Plenary Session

Presentation and Discussion of 2 Working Papers:

1. Alternative Teaching Methods
   by Mr. Veo Vanh Homsombath (Laos)

2. Alternative Curricula
   by Dr. Arturo Guerrero (Philippines)

(1045 - 1115 Coffee Break)

1230 - 1400 Lunch

1400 - 1700 — 4th Plenary Session

Presentation and Discussion of 2 Working Papers:

1. Evaluation of Alternatives
   by Dr. Ruth Wong (Singapore)

2. Educational Technology as an Alternative
   by Dr. Douglas G. Ellson (INNOTECH)

(1515 - 1545 Coffee Break)

Evening Reception at Regional Innotech Center

Wednesday, 26th April, 1972

0830 - 1230	5th Plenary Session Presentation and Discussion of 1 Working Paper: The Alternative to Schooling by Dr. Ivan Illich (CIDOC)
(1000 - 1030	Coffee Break)
1230 - 1400	Lunch
1400 - 1700	Presentation and Discussion of 2 Working Papers: 1. In and Out-of-School Alternatives by Dr. Ekavidya Nathalang (Thailand) 2. A Regional Approach to the Development of Alternatives by Dr. Robert Jacobs (RED)
(1515 - 1545	Coffee Break)

Thursday, 27th April, 1972

0800 - 1230	Simulation Exercise: Part I Simulation of Educational Planning Sessions
(1000 - 1030	Coffee Break)
1230 - 1400	Lunch
1400 - 1700	Simulation Exercise: Part II Simulation of Educational Planning Sessions (Continued)
(1515 - 1545	Coffee Break)

Friday, 28th April, 1972

Morning	FREE
1400 - 1500	Evaluation of the Practicum
1500 - 1530	Coffee Break
1530 - 1700	Adoption of Report
	Closing Address by Chairman
	Communique

Note: All plenary sessions will be held in the Red Room, Hotel Equatorial. The Simulation Exercises will be held at the Regional Innotech Center.

APPENDIX 2

SEAMEO REGIONAL INNOTECH CENTER

REGIONAL PRACTICUM ON

"ALTERNATIVES IN EDUCATION"

SINGAPORE, 24th - 28th APRIL, 1972

List of Participants

INDONESIA

Mr. Kartomo Wirosuhardjo	Head, Office for Educational Development, Ministry of Education and Culture, Djakarta.
Dr. Santoso S. Hamidjojo	Director, Institute for Educational Media Development, Office for Educational Development, Ministry of Education and Culture, Djakarta.
Mr. Sugianto	Director, Directorate of General Education, Ministry of Education and Culture, Djakarta.

KHMER REPUBLIC

Mr. Chhun Hien Ho Tong Ho	Departmental Inspector, Ministry of National Education, Phnom Penh.
Mr. Ngan Yimin	Assistant Director of Secondary Education, Direction of Secondary Education, Ministry of National Education, Phnom Penh.
Mr. Nhoeng Nhan	Assistant Director of Primary Education, Direction of Primary Education, Ministry of National Education, Phnom Penh.

LAOS

Mr. Veo Vanh Homsombath	Director of Teacher Training and Pedagogical Research, Ministry of National Education, Vientiane.
Mr. Kao Outsama	Director, Educational Planning Office, Ministry of National Education, Vientiane.
Mr. Bounthong Thao	Director of Primary Education, Ministry of National Education, Vientiane.

MALAYSIA

Tuan Haji Hamdan b. Sheikh Tahir	Director-General, Ministry of Education, Kuala Lumpur.
Mr. Kum Boo	Director of Schools, Ministry of Education, Kuala Lumpur.
Mr. Murad b. Mohd. Noor	Director of Planning and Research, Ministry of Education, Kuala Lumpur.

PHILIPPINES

Dr. Arturo Guerrero	President, Trinity College, Quezon City.
Dr. Aurelio A. Tiro	City Superintendent of School, Aboitiz Building, Cebu City.
Dr. Pablo T. Mateo, Jr.	Assistant Director, Bureau of Private Schools, Department of Education. Manila.

SINGAPORE

Dr. Ruth Wong Hie-King	Principal, Teacher Training College and Director of Research, Ministry of Education.
Mrs. Yeo Lai Cheng	Chief Inspector of Schools, Ministry of Education.
Miss Phua Swee Liang	Research Officer, Research Unit, Ministry of Education.

THAILAND

Dr. Ekavidya Nathalang	Director, Elementary Education Division, Department of Elementary and Adult Education, Ministry of Education, Bangkok.
Mr. Somchai Wudhiprecha	Director, Educational Planning Division, Office of the Under-Secretary of State, Ministry of Education, Bangkok.
Dr. Ruang Charoenchai	Director, Comprehensive School Project, Secondary Education Department, Ministry of Education, Bangkok.

VIETNAM

Dr. Nguyen Duc Kien	Dean, Faculty of Pedagogy, University of Hue, Hue.
Mr. Pham Van Thuat	Director-General, Department of Secondary-Primary Schools and Mass Education, Ministry of Education, Saigon.
Mr. Nguyen Van Thai	Educational Specialist, Department of Educational Planning, Ministry of Education, Saigon.

SEAMES Officials

Dr. Sudjono D. Pusponegoro	Director, Darakarn Building, Bangkok.
Dr. Aurelio Elevazo	Assistant Director for Administration and Finance, Darakarn Building, Bangkok.
Dr. Chetana Nagavajara	Programme Development Assistant, Darakarn Building, Bangkok.

CONSULTANTS

Dr. Robert Jacobs	Regional Education Adviser, RED, Bangkok, Thailand.
Dr. Ivan Illich	Director, Centre for Intercultural Documentation, Cuernavaca, Mexico.

OBSERVERS

Mrs. Tai Yu-Lin	Director, SEAMEO Regional English Language Centre, Singapore.
Mr. Chin Pin Seng	Director, Regional Centre for Education in Science and Mathematics, Penang, Malaysia.
Professor Makoto Hasegawa	Professor of Education, Department of Education, Waseda University, Tokyo, Japan.

Mr. Sutarso	Information Attache, Embassy of the Republic of Indonesia, Singapore.
Mr. Kenneth Ian McCallum	Representative, British Council, Singapore.
Dr. Yip Yat Hoong	Director, Regional Institute of Higher Education and Development (RIHED) Singapore.
Mr. J.R. Whittick	Guidance Counsellor, Singapore American School, Singapore.
Dr. Ang Kok Peng	Associate Professor of Chemistry and Dean of Faculty of Science, Chemistry Department, University of Singapore.
Mr. Paul Seow	Senior Producer, Educational Television Service, Singapore.
Professor Chai Hon-Chan	Professor of Sociological Studies in Education and Dean, Faculty of Education, University of Malaya, Kuala Lumpur, Malaysia.
Dr. Dietrich Lange	Acting Director, Center for Production and Training for Adult Education Television, Singapore.
Mr. Tan Tiong Liat	TV Specialist, Center for Production and Training for Adult Education Television, Singapore.

Mr. Lian Fook Shin	Educational Media Specialist, Center for Production and Training for Adult Education Television, Singapore.
Professor M. Rashid	United Nations Asian Institute for Economic Development and Planning, Bangkok, Thailand.
Mr. Pierre Marie Mallet	Cultural Attache, French Embassy, Singapore.
Dr. Augusto L. Tenmatay	Education Advisor, Ford Foundation, Makati, Rizal, Philippines.
Mr. Raja Roy Singh	Director, Regional Office for Education in Asia, UNESCO, Bangkok, Thailand.
Mr. Sok Cham	Third Secretary, Embassy of the Republic of Khmer, Singapore.
Enche Ahmad b. Salleh	Chief Education Officer, Education Department, Johore Bahru, Malaysia.
Mr. James Henry Faulhaber	Regional Education Adviser, RED, Bangkok, Thailand.
Dr. Clifford L. Larsen	Representative/Senior Program Adviser on Educational Development, The Asia Foundation, Singapore.
Dr. Sidney G Tickton	Executive Vice-President, Academy for Educational Development, Washington Office Washington, U.S.A.
Dr. Caesar A. Hidalgo	Specialist in Linguistics, SEAMEO Regional English Language Centre, Singapore.

Mr. Chong Seck Chim	Director of Educational Mass Media, Ministry of Education, Kuala Lumpur, Malaysia.
Mr. Jan Kamp	Assistant Regional Representative, United Nations Development Program, Kuala Lumpur, Malaysia.
Dr. Philip G. Davidson	Programme Adviser in Higher Education, Ford Foundation, Bangkok, Thailand.

INNOTECH Staff

Mr. Ly Chanh Duc	Director
Mr. Norman de Souza	Administrative Division Chief
Miss Duong Van Quyen	Executive Assistant
Mrs. S.L. Windt	Librarian
Miss Greta C. Librata	Publications Officer
Mr. Tran Trung Luong	Public Relations Officer
Mr. Nguyen Giac	Finance Officer
Mr. Truong Dinh Vinh Lan	Audio Visual Specialist
Dr. Douglas G. Ellson	Director, Research and Training
Dr. Donald P. Horst	Specialist in Measurement and Evaluation
Dr. Sim Wong Kooi	Specialist in Educational Evaluation
Mr. A.S. Munandar	Specialist in Educational Psychology
Mrs. S.C.U. Munandar	Specialist in Child Psychology

INNOTECH Interns

INDONESIA

Mr. Purwadi Harto Prawirosudarmo	Secretary, Instructional Technology Department, I.K.I.P. Djakarta, Djakarta.
Mr. R. Ibrahim	Research Staff of the Educational Research Centre, I.K.I.P. Bandung, Bandung.

KHMER REPUBLIC

Mr. Khong Ann	Inspecteur Primaire, Adjoint a Kandal.
Mr. Tea Meng Tech	Inspecteur Primaire, Ville de Kompong Som.

LAOS

Mr. Douang Nophalay	Teacher, Fa-Ngum Comprehensive High School, Vientiane.

MALAYSIA

Mr. Abu Zahari b. Abu Bakar	Assistant Lecturer, Pusat Latehan Guru, Johore Bahru.
Mr. Chaim Tah Wen	Education Officer; Headmaster, Secondary English School, Kluang, Johore.

PHILIPPINES

Mrs. Adoracion del Prado	Chief, Section of Statistics, Division of Evaluation, Research and Statistics, Bureau of Private Schools, Manila.
Miss Marcelina S. Magno	Test Construction Gen. Supervisor I, Research, Evaluation and Guidance Division, Bureau of Public Schools, Manila.

SINGAPORE

Mr. Tan Eng Cheng	Lecturer, Education Department (English), Teachers Training College.
Mr. Dorai Natarajan	Teacher, National Junior College.

THAILAND

Mr. Samrerng Boonruangrutana	Lecturer, Educational and Psychological Test Bureau, The College of Education Prasarn Mitr, Bangkok.
Mr. Roj Dulyakorn	Head of Educational Department, Tepsatri Teachers College, Lopburi.

VIETNAM

Mr. Trinh Viet Thai	Member, SEAMES Bureau, Directorate for External Relations, Ministry of Education, Saigon.
Mr. Nguyen Dang Phuong	Teacher, Nguyen-Dinh-Chieu High School, My-Tho.

INNOTECH Three-month Programme Participants

INDONESIA

Miss Christina Mangindaan	Staff, Institute for Curriculum Development, Office for Educational Development, Djakarta.
Mr. Soetoto	Head, Teachers' Training Division, Djakarta Regional Office, Djakarta.
Mr. Hardjono	Secretary, Institute of Educational Manpower Development, Djakarta.

KHMER REPUBLIC

Mr. Mai Lon	Direction of Pedagogic Services, Ministry of National Education, Phnom Penh.
Mr. Chea Saem	Inspector of Primary Education, Ministry of National Education, Phnom Penh.
Mrs. Yao Malaing	Direction of Primary Education, Ministry of National Education, Phnom Penh.

LAOS

Mr. Thongchanh Chanthery	Directeur de Stage, Ecole Normale, Luang Prabang.
Mr. Lang Souphida	Chef de Bureau d' Etudes et Programmes, Direction de Renseignement Primaire, Vientiane.
Mr. Samrith Buasisoath	Professor of Lao Literature, Institute of Law and Administration, Vientiane.

MALAYSIA

Mr. Chee Hee Yin	Planning Officer, Educational Planning and Research Division, Ministry of Education, Kuala Lumpur.
Mr. Annuar Ayob	Deputy Chief Education Officer, Malacca.
Mr. Khalid Jamin	Deputy Chief Education Officer, Johore Bahru.

PHILIPPINES

Mrs. Estrella Manuel	Assistant Professor III, Central Luzon Teachers College, Bayambang, Pangasinan.
Mrs. Nicholasa M. Nacar	Training Instructor, Cebu Normal College, Cebu City.
Mr. Antonio Sebastian	General Education Supervisor III, Bureau of Public Schools, Department of Education, Manila.

SINGAPORE

Mr. Chia Hong Kit	Specialist Teacher, Audio-Visual Section, Ministry of Education, Singapore.
Mr. Joseph Devasagayam	Assistant Examinations Officer/Tamil, Examinations Division, Ministry of Education.
Mr. Sardara Singh	Lecturer, Teachers Training College.

THAILAND

Mrs. Chavalwan Choungcharoen	Supervisor, Teacher Training Department, Ministry of Education, Bangkok.
Miss Praopan Komolmalya	Research Officer, Research Division, Department of Educational Techniques, Ministry of Education, Bangkok.
Mrs. Watana Siriratana	Supervisor, Department of Elementary and Adult Education, Ministry of Education, Bangkok.

VIETNAM

Mr. Nguyen Van Nha	Director Inspector, Saigon Normal School, Saigon.
Mr. Nguyen Van Luom	Chief Supervisor, Saigon Normal School, Saigon.
Mrs. Luu Thi Kim-Van	Supervisor of Student Teaching, Saigon Normal School, Saigon.

APPENDIX 3

SPEECH BY INCHE MOHD. GHAZALI ISMAIL, PARLIAMENTARY SECRETARY TO THE MINISTER FOR EDUCATION, AT THE OPENING CEREMONY OF THE INNOTECH REGIONAL PRACTICUM ON "ALTERNATIVES IN EDUCATION" ON MONDAY, APRIL 24, 1972, AT HOTEL EQUATORIAL, SINGAPORE

Your Excellencies
Distinguished guests
Ladies and gentlemen,

Educators the world over are concerned over educational objectives and the means of attaining those objectives. It would seem obvious that the objectives must first be defined before the means of attaining them can be sought; in other words, we must first decide what an educational system is supposed to produce before we determine the methods of production. Surprisingly, it is only in comparatively recent times that this simple fact has become widely recognised.

Defining educational objectives as preparing students to "play a useful role in society" or to "meet national manpower needs" is not really precise enough. Such vague and high-sounding phrases are of little help to those entrusted with the task of devising a system to produce the goods. In the absence of clearly defined educational objectives, it is futile to seek improvements to any educational system.

It is clear, however, that developed as well as developing countries are increasingly aware that much of what is taught is irrelevant to the needs of the student. At the higher levels, the explosion in knowledge has made it an impossible task for the teacher to pass on to the student a complete, up-to-date body of knowledge in any discipline. It would therefore seem logical to teach the student to acquire the knowledge for himself, to equip him with the necessary tools for self-acquisition of knowledge. But how far down the line do we go? At the lower levels, should not the child know something of the world around him, of the history of his country and people, of the basic facts of science and technology? And when we weigh the relative importance of difficult subjects to a child in terms of his personal needs against the needs of society as a whole the difficulties of drawing up a universally acceptable set of educational objectives become apparent.

But these difficulties are nothing compared with those encountered in devising a system for attaining the objectives, if and when agreed upon. If we stick to the traditional solution of providing so many teachers to so many students in so many classrooms, most developing countries would have to give up in despair for the simple reason that there are insufficient resources to provide these facilities for the existing student population, let alone the projected enrolments of the future. But even for these countries which can afford the traditional solution, the question may well be asked whether it is the most effective, the most economical solution. Should we not look to modern technology for alternative solutions?

This is the theme of our practicum. Fortunately for me, I don't have to supply the answers to our problems. This can be left in the safe hands of the experts from all over the world who are gathered here this morning. To them and to the distinguished participants from SEAMEO member countries, I extend a very warm welcome to Singapore. To INNOTECH I offer my congratulations for organising this practicum, whose report and findings I am sure will constitute valuable reference material for ministries of Education throughout Southeast Asia.

I now have great pleasure in declaring open the INNOTECH Regional Practicum on "Alternatives in Education."

APPENDIX 4

ADDRESS BY DR. SUDJONO D. PUSPONEGORO, SEAMES DIRECTOR, AT THE OPENING CEREMONY OF THE REGIONAL PRACTICUM ON "ALTERNATIVES IN EDUCATION", ON MONDAY, 24 APRIL, 1972, SINGAPORE

Your Excellencies
Mr. Parliamentary Secretary
Mr. Director
Distinguished Colleagues
Ladies & Gentlemen,

I am very happy to be present at this distinguished gathering. Unfortunately, I shall not be able to be with you through the whole duration of the Practicum, because I shall have to spend part of my brief visit to Singapore consulting with a number of Singaporean authorities and Regional Centres' officials. I have, therefore, designated a staff-member of SEAMES to go through the exercise with you and to report back to me on the findings of the Practicum.

My predecessor and my colleagues in SEAMES have told me that a regional meeting of this nature organized by INNOTECH is an annual event which figures prominently in the calendar of SEAMEO. As the new Director of the Secretariat, I am well aware of the enormity and complexity of the task to which INNOTECH addresses itself and for which the educational experts who gather here today are better qualified than I am with respect to expertise and wisdom. I must admit I still have much to learn from you. While I may not be an educationist by training, I may be classified as one by experience and interest, and I can assure you that I am prepared to give you the fullest measure of support which the Secretariat is capable of providing. In my brief incumbency as SEAMES Director, it has been my pleasure to witness the cordial working relationship which exists between SEAMES and INNOTECH, a relationship which, I am sure, will ripen in the years to come.

In the field of education, it may well be admitted that the intellectual leadership in the years ahead may have to come from INNOTECH. I may as well intimate to the distinguished gathering here that in the "SEAMEO Plan for the Seventies" which the Secretariat is now in the process of developing, there will be plenty of room for INNOTECH to demonstrate its innovative capacity and its leadership role. We may, in the near future, launch a number of research and study projects on a regional basis, and INNOTECH will have to play a vital part in this effort.

With regard to the theme of the present Practicum, I think it is most appropriate that SEAMEO should give serious attention to the ways and means of finding alternatives to our existing systems of education. We have been fortunate enough to have had exposure to a great deal of innovative ideas put forward by thinkers and educators both within and outside the SEAMEO region. SEAMEO has always been outward-looking. INNOTECH in particular has never hesitated to draw inspiration from external sources. The first exploratory meeting on INNOTECH was held in a small island in the middle of the Pacific called American Samoa. Last year, we had a very fruitful collaboration with the Southeast Asia Development Advisory Group (SEADAG). Both the Seminar in Washington on "Non-Formal Alternatives", and the "Non-Formal Education Seminar" held in Penang have, indeed, opened up new vistas for our educationists. One of the hallmarks of SEAMEO is that it has always been able to adapt all kinds of ideas to fit Southeast Asian conditions. I very much hope that this capacity, however eclectic it might seem at first sight, will continue to yield positive and constructive results. The world today has become so small that nobody would be dogmatic enough not to look beyond his own national confines. Great innovations, great ideas, belong to the whole of humanity.

Having said all that, I cannot help but be gratified that the INNOTECH Director has been able to invite distinguished speakers from both within the region and outside, some of whom, as we know, are international personalities in the world of education. It is through the meeting of the minds that constructive ideas could emerge. I have had occasion to peruse a number of recent INNOTECH publications, and I have found them to be most stimulating and thought-provoking"! I agree with INNOTECH that educators and teachers, at times, need a little shaking-up. But as Director of the Secretariat, I would like to offer a few humble suggestions from a practical point of view. It is well and good that we should look "forward", but I think we must at the same time look "around" and look "inward". In the search for alternative plans for the future, we must never lose sight of the present. There is great merit in innovation and more particularly in the quest for innovation, but while we are waiting for the ultimate solution to our problems, we must also keep the existing mechanism going. There is great merit in looking for alternatives to the school system, but we must guard ourselves from demolishing the on-going system without having produced a really workable innovation approach.

All in all, I must admit that the programme of the Practicum and the reference papers made available to us are, indeed, very impressive. I am sure that many brilliant ideas will be elicited at this Meeting, and some of these ideas will certainly be adaptable to our Southeast Asian situation. However, Southeast Asia, as we all know, has had long indigenous traditions, and, whether we like it or not, any departure from the traditional way of thinking and of doing things is often viewed with suspicion. It is, therefore, necessary that thinkers and educators must also bear in mind the difficulties of engaging public sympathy.

Another point I would like to make in this connection is that with our very limited resources in terms of finance and educated man-power, educational development will have to be planned and to be geared according to priorities of needs. A certain kind of "discipline" becomes, in the long run, unavoidable, if we do not want to take too great a risk in the utilization of our meagre resources. It is a real challenge for our educators to try to absorb as many ideas as possible into a new scheme of educational development. But we must move with clear-cut objectives and an assured sense of direction, and our efforts should be unified. My remark is not meant to undermine original thinking by individuals, which may have great merits. All I want to say is that we must be able to translate ideas into practice for the common benefit of our peoples.

One characteristic about SEAMEO is its reluctance to play with mere ideas; we have managed to survive through these difficult years because our thinking has always been practical and problem-centred. I expect that this Regional Practicum will be able to come up with concrete suggestions which SEAMEO could implement.

I wish you great success in your deliberations.

Thank you.

APPENDIX 5

WELCOME SPEECH BY LY CHANH DUC, INNOTECH DIRECTOR, AT THE OPENING CEREMONY OF THE INNOTECH REGIONAL PRACTICUM ON "ALTERNATIVES IN EDUCATION" ON MONDAY, APRIL 24, 1972, AT HOTEL EQUATORIAL, SINGAPORE

Mr. Parliamentary Secretary
Execellencies
Distinguished guests
Ladies and gentlemen,

On behalf of the SEAMEO Regional INNOTECH Center, I have the great pleasure to welcome you to our Regional Practicum on "Alternatives in Education." First of all, I would like to express our deep gratitude to Inche Mohd. Ghazali Ismail, the Parliamentary Secretary to the Ministry of Education, Singapore, for having so kindly consented to address this distinguished assembly, and to open the Practicum.

We are also most grateful to their Excellencies the Ambassadors and representatives of the SEAMEO and friendly countries for honouring us with their presence.

To Dr. Sudjono Pusponegoro, the Director of SEAMES, who has taken a fatherly interest in INNOTECH, and who is here with us today, we wish to say a million thanks. And last but not least, we thank all our distinguished guests for providing us support and encouragement by attending this ceremony.

For the benefit of those who are not familiar with INNOTECH and its work, this Practicum is our second annual exercise since we began our operation in September 1970. Our first annual exercise, held in Singapore in February 1971, was called the First Regional Conference on INNOTECH. We tried very hard to conduct that conference in an innovative way, so much so that some delegates said it was a lot more like a seminar or a workshop, rather than a conference. As a consequence, we have decided to do something more conventional this year. This Opening Ceremony, for instance, is conventional. The way the Practicum is organized is also more convertional than not. As to the term "Practicum", we use it because it sounds innovative, or at least different. But I must confess that it has so far puzzled quite a number of people. That in itself is a very good thing already, because a most desired outcome of the Practicum is to make people think, and we should hope that the more they are puzzled the more they will think.

We are most gratified by the responses to our invitations. As a matter of fact, the number of acceptances has far exceeded our expectations. I wonder whether the attraction has come from the word Practicum or from the fact that Dr. Ivan Illich is our special guest speaker. At any rate, it is our hope that the Practicum will live up to its promise, and that the participants will find it worth their while.

I think all of us are interested in what Dr. Ivan Illich will have to say about alternatives in education. Many of us may not completely concur with the controversial views he has published so far, but let us not forget that a man of his stature would not try to deceive anyone. May I suggest, therefore, that we consider his critical judgement of the ails of current educational practices, not as rebellious outcries of a discontented idealist, but as excellent food for thought.

I would like to take this opportunity to thank Asia Foundation most sincerely for having provided the funds to make Dr. Illich's participation in the Practicum possible.

In addition to Dr. Illich's presentation, distinguished speakers from SEAMEO member countries and from INNOTECH will present different aspects of the same theme during the first three days of the Practicum. The first speaker on our programme is Dr. Nguyen Duc Kien of the University of Hue. Unfortunately, recent troubles near Hue, the former imperial capital of Vietnam, have made it impossible for Dr. Kien to join us today.

The second speaker is Mr. Kartomo Wirosuhardjo, from Indonesia. Few people are more qualified than Mr. Kartomo to speak on the "Systems Approach to Education", for, as Head of the Office for Educational Development, he has been instrumental in introducing systems approach to educational planning in Indonesia.

With the increasing sophistication of education hardware and software, our educational systems will soon be flooded with the most advanced technologies. In this regard, we are fortunate to have Mr. Ho Tong Ho, Departmental Inspector, Ministry of Education, Khmer Republic, to share with us the experiences of his country in the field of "Technology of Education."

As a point of departure, Dr. Douglas G. Ellson will discuss the possibility of using "Educational Technology as an Alternative." Dr. Ellson is currently the Director of Research and Training at INNOTECH. He has done considerable work on programmed teaching, and I am sure his observations will be relevant in our search for alternatives.

It is probably apparent that, even before deciding on alternative technologies or technology as an alternative, it is essential to clarify one's objectives. INNOTECH has undertaken to investigate the perceptions and expectations of various people at the ground level in regard to the objectives of primary education. Although the first phase of the project involving a feasibility study has only just been completed, perhaps Dr. Sim Wong Kooi from Malaysia, who has been mainly responsible for the study, will be able to enlighten us on this difficult area when he address us on "Alternative Objectives."

All the countries in the region have of late been introducing new curricula, some of which are adoptions or adaptations of Western curricular reforms, but a few are deliberate attempts to meet the special needs of the countries concerned. In this respect, Dr. Arturo Guerrero, President of the Trinity College, Philippines, is indeed well qualified to talk on "Alternative Curricula", since he acted as a resource expert to a recent Presidential Commission to review Philippines education, the very impressive report of which will no doubt make considerable impact not only in the Philippines but also in other SEAMEO countries.

Regarding "Alternative Teaching Methods", we are glad that Dr. Veo Vanh Homsombath, Director of Teacher Training and Pedagogic Research, Ministry of National Education, Laos, will share with us some of his experiences and thinking on this important subject.

Of late, there has been increasing awareness of the possibility of complementing formal education as obtained in regular schools with non-formal alternatives. Dr. Ekavidya Nathalang, Director of Elementary Education, Ministry of Education, Thailand, who has had considerable experience with both formal and non-formal education, is indeed a most suitable choice for presenting a paper on "In- and Out-of-School Alternatives."

We are especially fortunate in having Dr. Robert Jacobs present a paper on "A Regional Approach to the Development of Alternatives." We are all aware of the fact that Dr. Jacobs is one of the architects of INNOTECH, and that the INNOTECH philosophy derives in large part from the well-known argument that, to the degree that developing countries persist in following the traditional approaches of more advanced countries, their so-called insurmountable problems are self-imposed.

And last but not least, Dr. Ruth Wong, Director of Research at the Ministry of Education and Principal of the Teachers' Training College in Singapore, will discuss the intricate issues pertaining to "Evaluation of Alternatives," an area of investigation the importance of which cannot be over-emphasized.

Thus, the menu for the eleven-course Practicum promises to be an appetizing one. To top it up, INNOTECH is offering an equally challenging dessert, by setting up a simulation exercise in which the participants can contribute meaningfully in a scaled-down but relevant effort at seeking alternatives in education.

As said above, one of the desired outcomes of this Practicum is to make people think. With your permission, therefore, I will try and start the ball rolling in this direction by quoting for you this passage from R. Buckminster Fuller's book entitled "Education Automation," :

> "All this will bring a profound change in education. We will stop training individuals to be 'teachers,' when all that most young girl 'education' students really want to know is how they are going to earn a living in case they don't get married. Much of the educational system today is aimed at answering: 'How am I going to survive? How am I going to get a job? I must earn a living.' That is the priority item under which we are working all the time - the idea of having to earn a living. That problem of 'how are we going to earn a living?' is going to go out of the historical window, forever, in the next decade, and education is going to be disembarrassed of the unseen 'practical' priority bogeyman. Education will then be concerned primarily with exploring to discover not only more about the universe and its history but about what the universe is trying to do, about why man is part of it, and about how can, and may man best function in universal evolution."

Once again, may I bid you a hearty welcome to the Practicum, and God speed to Alternatives in Education.

PRESS STATEMENT

The INNOTECH Practicum will bring together 24 top-level educational decision makers from the eight SEAMEO member countries and a much larger number of consultants and observers from various organizations and agencies. The purpose of the Practicum is to consider educational alternatives that might improve the educational systems of the region. Papers on educational alternatives will be presented by distinguished member-country educators, and by the INNOTECH staff and consultants.

Special guest speaker will be Dr. Ivan Illich, Director of the Center for Intercultural Documentation, Mexico. Internationally known as a proponent of innovative approaches to educational reform, and for his work in Central and South America, Dr. Illich's contribution to the Practicum may well constitute a stepping-stone to what the Director General of Unesco, Mr. Rene Maheu, has suggested: "a complete re-thinking of education."

On Thursday, following three days of formal papers and discussion at the Hotel Equatorial, the Practicum will adjourn to the INNOTECH Center at 39 Newton Road. There, the delegates will participate in a simulation exercise in which they will plan an educational system for a fictitious Southeast Asian country. The educational problems of this fictitious country are common to many of the member countries and will give the delegates a framework for evaluating alternatives suggested by the Practicum speakers.

This Regional Practicum is a part of the overall INNOTECH program to assist the SEAMEO member countries in the identification and resolution of their basic educational problems through innovative approaches to education, and application of modern technology.