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9. ABSTRACT
Cost-effectiveness analysis is a feasible approach to educational planning, but it is practical only if "effectiveness" is carefully defined. This interim report describes the ongoing work of the Networks Project, which is concerned with identifying optimal strategies for educational planning. Work conducted to date includes a survey of theory relating to knowledge diffusion and its transfer to action; a review of case studies of various strategies of knowledge diffusion; a series of three conferences on knowledge networks; commissioning of several papers on selected problems of knowledge utilization; organization of a seminar on network strategies among graduate students at UCLA; and meetings with selected university and technical assistance groups in Europe to discuss research on cost-effectiveness of alternative strategies for university involvement. Some tentative conclusions from the work to date: In educational planning, standards of cost-effectiveness that are applied to middle-class communities should not be applied to poor communities. Strategies and criteria of networking effectiveness may have to seek out unorthodox measures of planning "output" if service to poor communities is to be an operational priority rather than just a pious wish. Problems of working with poor communities are so complex that solutions are not likely to come from general principles; the communities need to be studied, and specific success stories disseminated. It is difficult to make contacts with people close to the problems. Countries usually send VIPs to seminars and even training programs, rather than people immersed in the problems of poor communities. One must break through the filters built in at various levels of the system.

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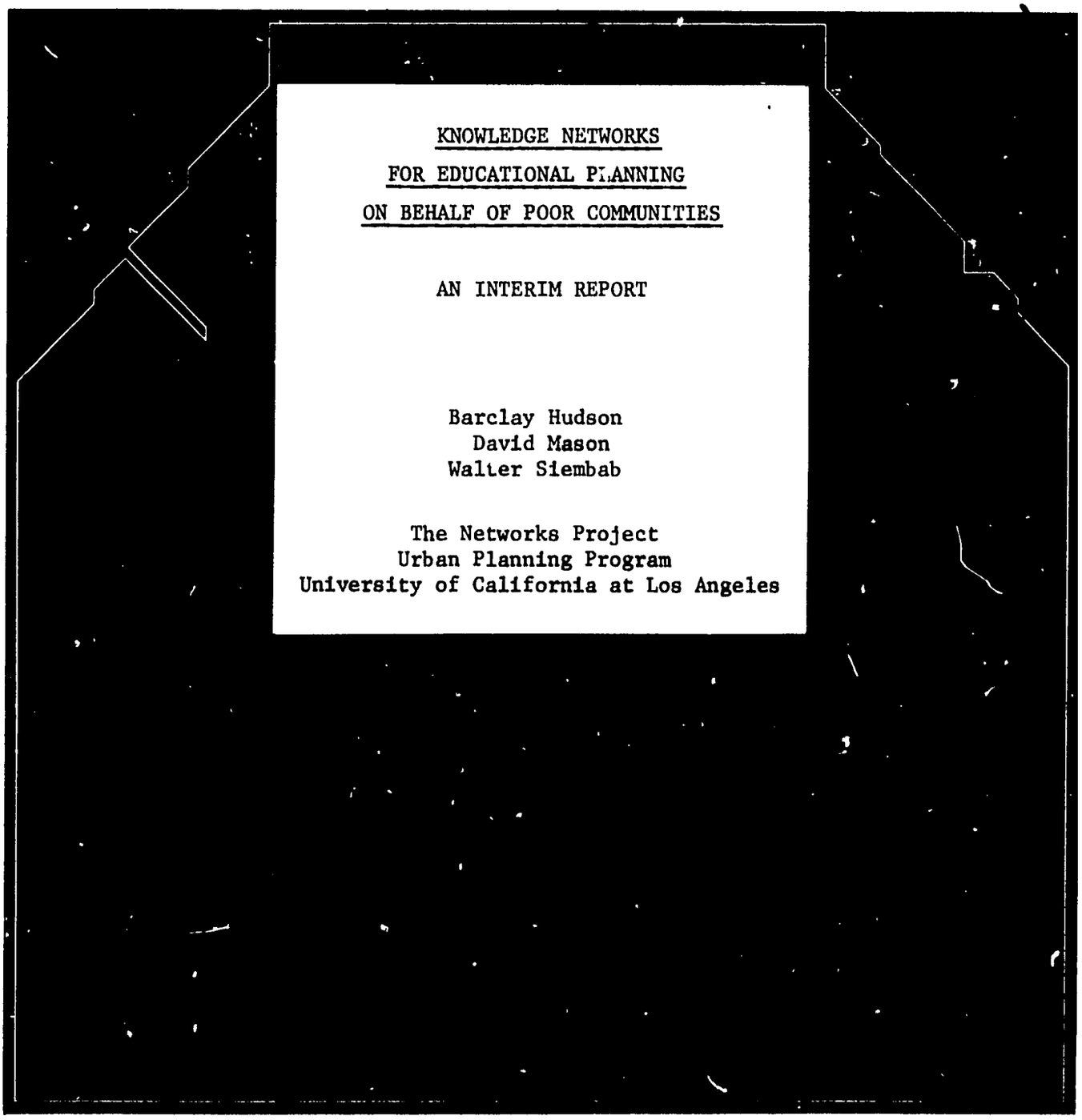

KNOWLEDGE NETWORKS FOR EDUCATIONAL PLANNING ON BEHALF OF POOR COMMUNITIES

AN INTERIM REPORT

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INTRODUCTION

1. Purpose of the Report

This report updates the on-going work of the Networks Project, summarizing the major theoretical (conceptual) and empirical (case study) work undertaken over the past year, and incorporating a number of significant suggestions made at the Networks Conference held at UCLA in September 1975.

In this document, we have attempted to locate specific organizations within a conceptual matrix of strategies -- aiming at more effective utilization of educational planning knowledge. Those who receive this report may find it especially useful to review the functions and intents we may have ascribed to their own organizations, bringing to our attention any corrections that may be necessary. (An index of organizations cited appears in Appendix C.) There are many omissions, and likely some errors as well. Your comments will be useful and most welcome.

Our present intention is to produce a final report in June 1976. The conclusions outlined here are not final; on the contrary, they are intended to be somewhat provocative at this stage, in hopes of soliciting reactions from specific individuals and organizations that have assisted our work up to now.

Underlying this project is the assumption that cost-effectiveness analysis is an appropriate and feasible approach to the broad enterprise of educational planning. It has generally been found, however, that cost-effectiveness analysis stands or falls on the question of how we define "effectiveness " (Weiss and Rein, 1972; Lyden and Miller, 1972; Hoos, 1972).

Evaluation of policy alternatives must begin with the question -- Do they address the same objectives? Are they truly comparable? The mandate of our contract with AID* sets certain boundaries on the definition of effectiveness, which helps us to narrow on a more focused set of ends and means:

a) in the first place, we are concerned with the effectiveness of educational planning in terms of how well planning knowledge is utilized, apart from the mere production of knowledge;

b) secondly, we are concerned with the role of universities in educational planning;

c) and, third, we are concerned with the effectiveness of educational planning in reaching poor communities, as opposed to more traditional recipients of schooling.

Even with these guidelines, however, major problems emerge in the identification of optimal strategies for educational planning. a) In the first place, our research has made it clear that knowledge "utilization" can mean several things, each implying quite different things for an "adequate" educational planning strategy. b) Secondly, we have encountered sharply different theories of the role that education plays -- or should play -- in the development of poor communities. These, too, suggest very different requirements for "effective" planning strategy. c) Third, it has become clear to us that any strategy designed to involve universities in planning "missions" must also address a set of other, "extrinsic" objectives reflecting the interests of the delivery system itself, or of those who fund it, or of those otherwise affected by its operations. Thus, for example, a university engaged in

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*The Networks Project has been funded by the Agency for International Development for the period July 1974-June 1976. Based at UCLA, it draws upon cooperation from other universities involved in educational planning for Lesser Developed Countries -- primarily Stanford, Michigan State University, Florida State University, and the University of California at Berkeley, as well as a number of other agencies and individuals.

educational planning must deal with the goals and incentives and underlying motives of academic organizations in general; they must also address the goals (explicit or implicit) in the funding agency; and they must be sensitive to the cultural, and professional interests of their counterparts and clients with whom they work. It is neither realistic nor appropriate to define "effectiveness" exclusively with reference to "knowledge utilization" or the "needs of poor communities."

In short, it becomes clear that there can exist no single "optimal strategy for improving the utilization of educational planning knowledge: it all depends on a set of prior assumptions that must be made regarding: a) alternative definitions of knowledge "utilization," b) alternative categories of "Network Systems" in which universities may participate, and c) alternative definitions of what it means for education to be "effective" in the specific case of poor communities.

2. Research Activities Undertaken

The research conducted under this project has consisted of the following activities:

1. a survey of theory relating to knowledge diffusion, and the transfer of knowledge to action;
2. review of case studies suggestive for prototypical strategies of knowledge utilization, and tactical variants on these major strategies;
3. a series of three conferences on knowledge networks, each progressively refining the conceptual basis and strategic options for knowledge network development;
4. commissioning of several papers on selected problems of knowledge utilization identified in the conferences;
5. on-going exchange of information with other universities and technical assistance agencies pursuing similar work;

6. organization of a seminar on network strategies among graduate students at UCLA connected with the project during the summer of 1975;

7. meetings with selected university and technical assistance groups in Europe (summer 1975) to exchange views and research on cost-effectiveness of alternative strategies for university involvement in technical assistance.

Current activities under the project are focused on perceptions of the need for knowledge networks from the perspective of developing countries. Activities now underway include:

8. focus on literature regarding educational projects overseas, to assess the role of foreign technical assistance within the total complex of factors affecting "success";

9. preparation of a site visit to a country in the Caribbean region, to assess the validity of our findings to date, within a particular context, and in light of the totality of educational planning needs;

10. preparation of a questionnaire to selected Latin American educators, as another means of assessing the felt needs for educational planning knowledge; the nature of that knowledge; and mechanisms for its transmittal. This questionnaire complements an earlier questionnaire sent out by Florida State University, pursuing related lines of inquiry.

3. Definitions (and Some Tentative Conclusions)

It will be useful to provide an initial clarification of principal concepts used in subsequent sections of the report. Definitions are important here because of the interdisciplinary nature of theory we have relied upon, the diversity of educational planning efforts we have alluded to, and the differences among ideological perspectives that one encounters in any critical analysis of foreign assistance.

In offering these definitions, we have had to pick our way between widely differing views among authorities. We have also made an effort to define concepts broadly enough to capture some unorthodox cases of educational planning

which have proced among the most successful we have encountered. Consequently, our choice of definitions has been dictated by a continual refinement of terms that allows us both to generalize about isolated experiences and yet make critical distinctions between divergent ends and means of educational planning. In this sense, the conceptual premises offered here are more to be seen as products or conclusions of our work than as a priori categories arbitrarily siezed upon from the beginning.

Definitions are listed below in the form of extended footnotes to focal issues of the project stated as follows:

> THE NETWORKS PROJECT at UCLA is concerned with the cost-effectiveness of knowledge utilization networks in educational planning for lesser developed countries. Three focal issues are addressed:
>
> -- Design criteria[1] for knowledge networks[2] aiming at effective utilization of knowledge[3] derived from educational planning[4];
>
> -- University roles[5] in alternative Network Systems[6], including consideration of their effectiveness and cost-effectiveness[7];
>
> -- Poor communities[8] as targets of educational planning.

1. Design criteria. This term is borrowed from the field of architecture; it refers to the initial selection of objectives or performance characteristics to be sought, and subsequent identification of design options to meet these objectives. The term "design criteria" denotes a) explicit attention to definition of client needs, revealed through active client participation in the design process; b) avoidance of a premature fix on a "one

best" solution; c) recognition that objectives are rarely fixed and a priori, but tend to evolve through exploration of concrete options, often into the project implementation stage itself. (This implies a particular bias toward evolutionary planning involving a strong learning component, or "planning from the bottom up" as opposed to one-shot, top-down planning. See Dunn, 1971; Friedmann, 1973; Waterston, 1965; Faber and Seers, 1972; Goulet, 1971, esp. pp. 161ff; Caiden and Wildavsky, 1974.)

2. Knowledge networks. Network is a word that occurs frequently in the literature, seldom twice with the same shades of meaning. For purposes of this study, a "network" is formed by geographically separated institutions that span the production and utilization of knowledge and are linked through information transfer or collaborative action. This project focuses on networks involving institutions that operate in the areas of educational cost and finance, educational technology and non-formal education. Lesser Developed Countries (LDCs) are assumed to be the primary target for the use of knowledge produced in such networks. American universities are also seen to have a role in learning from successful development efforts in "lesser developed" countries as models for domestic policies on behalf of poor communities in the United States. Most of our case studies relate to educational planning institutions, but some relate to activities in other sectors -- particularly agriculture -- where these provide suggestive experience in translating knowledge to action.

Components of a knowledge network include producers and users of knowledge. We are especially interested in the characteristics of the users, and the critical linkages between relevant actors. For purposes of this study, we find it useful to distinguish four major groups of actors: a) universities; b) sponsors, such as AID or the World Bank; c) professionals

in LDCs; and d) the target population -- in this case, poor communities. Each may be a knowledge resource for another, and consequently, linkages are not to be conceived as a hierarchy, with universities and sponsors at the "top" and educators and target communities at the "bottom."

3. Utilization of knowledge. We might simply speak of knowledge "use," but "utilization" denotes a deliberate program of putting knowledge to use, directed toward applications that are both feasible and appropriate. (Conceivably, one problem of educational planning is the existence of excess knowledge, put to wrong use.) "Utilization" in this report specifically embraces four categories of knowledge consumption:

a) knowledge diffusion among groups who work in the same media, sharing the same experiential base for interpreting data, and using it for similar purposes;

b) knowledge exchange among groups or individuals who do not share similar roles, problem definitions, incentives to act, or epistemological foundations, and for whom knowledge must, in effect, be translated across professional, cultural, political, language, and personal barriers, often requiring face-to-face interchange;

c) knowledge application involves a more stringent definition of utilization; it denotes concrete action traceable to knowledge diffusion or exchange, resulting in outcomes perceived by a target population (in this case, not only school children but groups affected by that schooling, such as parents, employers, and social action groups in the target community);

d) knowledge validation refers to evaluation of knowledge outcomes (both deliberate and unintended); coupled with a capacity to learn from experience (a memory), and a capacity to modify actions on that basis.

These categories are described at length in Section I of this report, with illustrative case studies. Section II explores the comparative advantage of different Network Systems in affecting each of these four forms of knowledge utilization. Section III, in dealing with the particular problem of educational planning for poor communities, put major emphasis on the more

"stringent" versions of knowledge utilization (knowledge application and validation). This is because, especially in the case of dealing with poor communities, educational planning is not difficult to talk about -- knowledge diffusion and exchange come easily. The real problem lies in the gap between knowledge and action -- true for most planning efforts, but doubly so for actions on behalf of the poor.

4. Educational Planning. Planning often refers to development of a Plan document, but more usually to an on-going process of analysing needs and evaluating efficient means to these ends. Needs analysis usually refers to:

a) demographic projections affecting future enrollment requirements;

b) economic analysis defining manpower growth targets in key sectors of economic activity, yielding specific training requirements;

c) social analysis of political, cultural, and other objectives affecting curricular contents and enrollment targets.

Planning of means to these ends may refer to:

d) budget allocation to overcome deficits identified through analysis of needs;

e) major curriculum adjustments, reflecting local and national needs; instructional innovation; teacher re-training; new materials and equipment;

f) administrative reforms aimed at increased efficiency;

g) provision or coordination of school-related activities such as student services, non-formal education, on-the-job training, use of mass media, community involvement in education, out-of-school activities for students;

h) special analytical studies bearing on costs and effectiveness of educational systems, including benefit-cost and cost-effectiveness studies; systems analysis, Planning-Programming-Budgeting Systems; "rate of return" studies; analysis of educational finance.

Increasingly since the 1960s, the following activities have also been given more explicit recognition as part of educational planning (Schiefelbein, 1976):

i) evaluative research on educational effectiveness, including ad hoc studies of special programs; on-going assessment of educational quality and learning outcomes; identifying needs of special groups, such as poor communities; basic research on student flows and educational "production functions";

j) the art of preparing specific projects according to the funding requirements of international donor agencies, or other sponsors;

k) political analysis of educational proposals, aimed at more effective plan implementation: includes weighing of benefits and costs to all parties affected; maintaining personal ties with implementors; sitting on committees; providing speech material to authorities; articulating the long-run public interest and fending off immediate pressures from special factions (Schiefelbein, 1976).

5. University roles. These refer mainly to American higher education involvement in overseas programs. We generally group foreign (LDC) universities together with their American counterparts, on the assumption that universities everywhere tend to have more in common with other academic institutions than they do with other groups even within their own country (such as poor communities). For some purposes, we also group with universities other agencies (such as international institutes of agriculture) which carry out similar functions of research, training, and specialized technical assistance.

6. Network Systems. Our research thus far has suggested that it is useful to distinguish five major categories of Network Systems, primarily based on different combinations of actors (see Note 2 above, regarding "knowledge networks"):

System I consists of links among universities, primarily within MDCs (More Developed Countries), but also including LDC universities staffed by persons trained in MDCs.

System II consists of links between one or more universities and one or more sponsors of educational planning activities;

System III consists of links between universities and Professionals in LDCs (with or without sponsors as intermediates);

System IV consists of educational planning activities entirely within an LDC, focused on distinctive needs of particular target communities.

System V consists of direct linkages between MDC universities and LDC target communities.

These categories are more specifically defined and illustrated in Sections II and III of this report. Each system involves a distinct bias toward one or another definition of knowledge "utilization"; each actor is looking for a particular version of "effectiveness;" and each has a different comparative advantage in addressing the distinct needs problems of poor communities. Whenever we wish to attach these fairly precise meanings to discussion of knowledge networks, we will refer to "Network Systems" in the capitalized form shown here.

7. Cost-effectiveness. Cost-effectiveness is an issue of economics, and it therefore raises the three basic questions that every economic system must address: what shall be produced? how? and for whom? (Samuelson, 1961, p. 17; Haveman, 1970, pp. 27-29). For purposes of this report, what refers to the problem of defining knowledge utilization (Section I below); how refers to university involvement in alternative knowledge networks (Section II); for whom refers to the problem of defining appropriate roles for education in poor communities, and the problem of adequate incentives for putting knowledge to action on behalf of poor groups (Section III).

In part 4 of the introduction, below, more explicit attention is given to problems of cost-effectiveness analysis applied to technical assistance efforts. There, the following problems are addressed: a) Multiplicity of objectives, reflected in the multiplicity of agencies involved. b) Costs as well as benefits that cannot be reduced to monetary equivalents. c) Appropriateness of including secondary and tertiary impacts of education. d) Problems of justifying the greater expense usually associated with successful program implementation in poor communities. e) Similar justification of "loss

leaders"--programs requiring initially low-effectiveness efforts (eg, seed grants, basic research, risky pilot projects) for the sake of results that may emerge only after decades of experimentation, learning, vacillations of leadership, crises, Acts of God maturing, "readiness" for change--and other normal elements of social evolution.

8. Poor communities. This term is more target-specific than "Lesser Developed Countries," which include rich as well as poor communities. The term "community" refers to a set of collective interests of individuals seeking personal advancement through education (for example, by leaving the community, exploiting it for personal gain, or serving factional interests). Education serving community interests may thus require very different planning strategies and supporting development actions than traditional education aimed at individual social mobility.

The term "poor" community does not presuppose any emphasis on rural or urban communities, or any a priori assumption about the causes of poverty. The term also allows for transferability of experience and policies between anti-poverty strategies in LDCs and MDCs.

The term "poor" is used in a strictly economic sense, measured with respect to provision of basic needs (health, housing, nutrition, literacy, democratic participation in social action or felt needs). "Poor" does not necessarily refer, then, to monetary level of income, which reflects consumption standards exported from more industrialized countries. The term "poor community" also seems preferable to "underdeveloped," in the sense that the latter tends to hold up an often inappropriate standard of "the modern sector" as a target and benchmark of progress. Modernization may in fact be a counter-productive standard for dealing with the specific problems of poor communities: modernization comes easiest to those who can already afford it, and pays best to those who can "deliver" modernization (planners included).

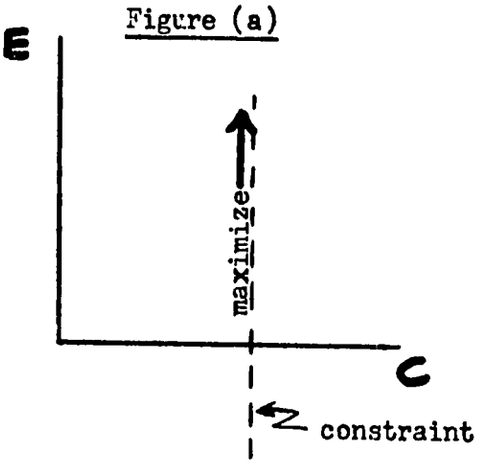
4. Cost-Effectiveness Analysis: Applications to a "Moving Target"

In most conventional applications of cost-effectiveness analysis (CEA) we are simply trying to get from A to B in the cheapest way possible. In the case of educational planning, however, we set off from A on a path to discover where B is, Moreover, if the journey is successful, we are likely to change our minds along the way about why we want to go there; other modes of conveyance may appear as we proceed; the very composition of who "we" are may well have changed before we arrive. And in the end, we might find that we wanted to go to C instead of B anyway. In short, we face a difficult problem of trying to take aim on a constantly moving target.[1]

In this study, our view of an appropriate format for cost-effectiveness analysis has undergone considerable change, as a result of attempted applications to specific cases of educational planning. The progress of our thinking may be summarized in the following simple terms:

(a) In rudimentary form, CEA consists of an optimization model aimed at maximizing some criterion of effectiveness (E) subject to a budget constraint (C), thus:

Figure (a)



[1] This is not always true: sometimes goals remain constant; sometimes no new policy options are revealed with the implementation of plans; sometimes the causal relation between means and ends behave nicely according to our expectations, and nothing new is learned. But it is usually otherwise, especially if planning is aimed at the "structural changes" which development efforts often address, and especially if planning is carried out with an open mind, ready for surprises, learning from experience, and prepared for adaptation to a constantly unfolding reality.

(b) Alternatively, the optimization procedure might be to attain some target level of effectiveness, while minimizing costs:

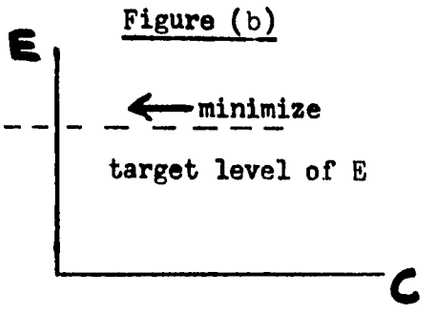


Figure (b)

(c) Thirdly, one can cast the problem in terms of maximizing efficiency, allowing both costs and effectiveness to increase together, but seeking some level where economies of scale have been realized without diminishing returns to scale taking over:

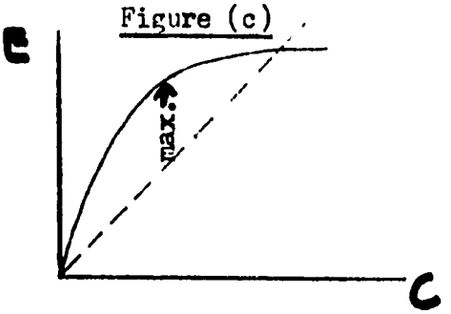


Figure (c)

When we observe educational planners in action, however, we rearely observe them -- even the most sophisticated ones -- making very many decisions on this basis. Nor do we see sponsors of planning using CEA in these ways. Why? Well, for one thing, it is rare to find pre-specified budget constrainsts, or well-defined targets for educational planning: more often they are simultaneously negotiated in budgetary and policy-making processes. This more or less describes the situation shown in Figure (c). The trouble with that particular schema is that it assumes some approximation of cardinal (absolute) values attached to the measure of effectiveness, whereas these are usually lacking, (or at least blurred by the multiplicity of objectives addressed by educational programs). Figure (c) assumes that one can realistically chose between alternatives that are smoothly arrayed along the curve of diminishing returns. In fact, the available choices are rarely aligned in this manner. Alternatives tend to come in "lumpier" packages, involving a limited number of discrete options. One option can be judged "better" than another with respect to a certain criterion of effectiveness, but just <u>how much</u> better is often a meaningless question. Thus, one option may result in a hundred more schools being built; another provides for more curricular flexibility; another advances the art of educational technology; yet another makes teacher's happiest. Presumably, scales exist for measuring each of these outcomes; but the scale shrinks or grows in particular decision contexts, to

its significance in the context of other consequences that stem from implementing the option, as well as the general political climate in which trade-offs are weighed.

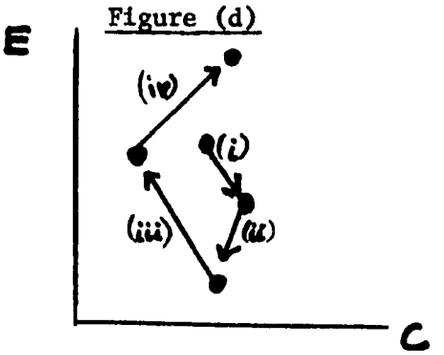
This is the essence of decision, and good planning speaks to this reality of "elastic scales." Good planning analyses the "problem" of educational means and ends into component parts, but it avoids the isolation of each part from the context of trade-offs and associated outcomes which give it significance.

This at least is what we conclude from seeing educational planning in practice -- that is, educational planning that yields knowledge utilized by educational policy-makers, and educational planning that informs judgment rather than simply reducing problem variables to an rational calculus. Figures (a), (b) and (c) stand for useful considerations in the decision-making process; they have a well-developed, internally consistent logic. But they represent methods for analysing relationships, not models of reality itself.

How, then, can we describe a heuristic for decision-making that keeps judgment constantly in play, while still focusing on the relation between costs (C) and effectiveness (E) among policy alternatives? Based on our observation of educational planning, and our own attempts to evaluate a range of network strategies for knowledge networks serving educational planning, we have concluded that cost-effectiveness analysis makes most sense in the pair-wise comparison of discrete alternatives. This does not call for absolute measures of effectiveness, but only general, judgmental evaluations of how particular programs stand in relation to each other and other options. In effect, the direction and general magnitude of differences seems more important than precise and absolute calculations of co-variance between costs and effectiveness. The appropriate schema then takes on the look of Figure (d).

For sake of illustration, consider the kind of judgments likely to be made between the discrete policy options denoted by the dots. In order to make the pair-wise comparison (i) all that is necessary to know is that moving in the "south-

Figure (d)



east" direction, costs are increasing, while effectiveness is decreasing. In case (ii), a cost-saving seems possible, but at great expense in program effectiveness - a case of penny-wise, pound foolish. Again, no great effort is needed to get precise figures on C and E - the choice is fairly obvious.

More obvious still is the choice in regard to decision (iii). Here, one can get more output for less input - not a very frequently encountered situation, but it sometimes arises. Some shoe-string programs seem to go a long way, at least by some criteria, whereas past experience with other programs can sometimes show us expensive mistakes to avoid. (Among the programs included in Appendix C, referred to throughout this report, some have price-tags that are astonishingly modest compared to other programs with similar reputations.)

Only in the case of decision (iv) would we likely need more precise data on the relationship between (E) and (C), which are both increasing. Yet realistically, greater precision here may not count for much: it may falsely imply a degree of knowledge that we simply cannot justify;[1] or the choice might be dictated by other constraints (cost ceilings; minimum levels of performance). Precision may prove superfluous anyway, in light of other criteria that bear on the final choice between options. It is rare that any <u>one</u> criteria - any single schema like Figure (d) dominates a particular decision based on all we have observed about choice between educational plans, or educational knowledge networks.

In short, we will be using cost-effectiveness analysis in this report mainly as depicted in the kinds of choices made in Figure (d) - less as a finely calibrated yardstick than as a general "compass" for locating the moving targets that constitute significant policy options.

1With good statistics, however, and proper use of sensitivity analysis, we can be more accurate about the state of our ignorance, helping decision-makers to identify the range of judgment that they must then provide on their own. For a good example of this, see Arrigazzi, 1972).

Primary, secondary, and teritary impacts. Educational planning makes its impact through an extended chain of events: educational processes are themselves long-term, having their outcomes spread out over entire lifespans and beyond; there is little planning literature that reports on the final implementation of plans, the applications of research undertaken, or follow-up of specialists trained. And it is impossible - perhaps inappropriate - to separate out the role of planning from other societal processes that make planning possible and bring plans to fruition.

In evaluating the effectiveness of educational plans, it is important to distinguish between broad categories of outcomes - particularly those we can immediately measure if we put some effort into it, and those which we have to make some intelligent guesses about as they lie beyond our immediate range of observation. Primary impacts of planning can be measured in terms of relatively short-term consequences, or long-term outcomes for which relationships can be reasonably estimated (eg, income and employment and migration effects of schooling). Secondary impacts are those which accrue to populations outside the target group, as well as issues not explicitly weighed in the policy calculus (eg, benefits to teachers and perveyors of educational equipment; consumption benefits or disbenefits to children; custodial functions of schooling for children and otherwise unemployed adults; social status conferred by a diploma; provision of a social sorting mechanism; possible displacement of other traditional forms of education provided by family, religion and work-place.)

Tertiary impacts are those which affect the decision-making processes themselves. Both the act of planning process and the resulting outcomes may shift the relative power of different groups; they may legitimize values not previously taken into account; they may change perceptions of reality or the availability of resources to take action. Previously disenfranchized groups may become more active in politics (self-help education in Kenya derived from indiginous efforts to find alternatives to colonial government and missionary schools in the movement toward independence.) Reforms create new institutions and new forms of vested interest. International collaboration may create new perceptions of what is at stake in development processes,

or coalesce values around salient new alternatives about what is "possible." (ITDG, Comilla, ACPO, SPRU, ECIEL, and other planning networks are demonstably concerned with tertiary outcomes in all these respects).

For reasons already stated, it is often impossible to directly assess the tertiary and secondary outcomes of educational planning efforts. Nevertheless, explicit reference to their existence is often important, particularly insofar as development efforts aim at "structural change" and not mere quantitative expansion of opportunities. The "compass" approach to cost-effectiveness analysis (Figure d above) allows for some incorporation of secondary and tertiary effects, by emphasizing general directions and magnitudes of effect, in place of possibly unwarranted precision about a sub-sets of outcomes that happen to be quantitatively measurable.

A useful distinction has been drawn between the effectiveness of a program and its adequacy: the former refers to success in reaching a particular target, whereas "adequacy" refers to the ability to serve the entire population in need of the program (or alternatively, the entire need of a target population.)

Yet another useful concept is "target efficiency." (Weisbrod, 1970):

(a) horizontal target efficiency asks, out of the total target population, what proportion received benefits?

$$\text{HTE} = \frac{\text{No. of target group beneficiaries}}{\text{No. of people in target group}}$$

(b) vertical target efficiency asks for a comparison across different groups of beneficiaries intended and unintended: how many were in the target group?

$$\text{VTE} = \frac{\text{No. of target group beneficiaries}}{\text{Total no. of beneficiaries}}$$

Categories of "Effectiveness". It is traditional to look at costs in terms of dollars or other monetary resources, and effectiveness in terms of one or more quantifiable (but non-monetary) measures of progress toward specific objectives. But when it comes to actual policy decisions, the operational considerations might be quite the reserve: the most important costs may turn out to be non-monetary costs incurred as side-effects of the intended outcomes; conversely, the problem of program implementation (or knowledge utilization) may revolve around monetary benefits to implementors, apart from actual services delivered to the ultimate client. This is not meant to be cynical, but only to draw attention to the fact that altruistic motives on behalf of school children have to be complemented by real incentives to planners, sponsors, ministries, and teachers to act in ways consistent with the needs of people who have traditionally been neglected by education. Rhetoric alone cannot change this. So we must look closely at the other incentives that cause official policies to be acted upon, neglected, or distorted.

Furthermore, not all benefits and costs can be measured in quantitative terms. Most text-books recognize this, but then go on to construct formulas which by nature exclude any qualitative (or "intagible") categories of program effects. Certain styles of technical assistance, for example, might bring about significant intangible costs: implicit rejection of rural life styles; the fostering of a consumption ethic that outstrips national production capacities; or the diversion of national resources away from appropriate labor-intensive technologies. As Schumacher points out (1972) a plastic chair that we might design eminently well for the function of sitting down may be horribly "inefficient" from the standpoint of Buddhist economics: for Buddhists, the function of a chair cannot exclude the aesthetic of its carving; plastic on the other hand, far from being "cheap" as its market price implies, draws on non-renewable resources and cannot be recycled back to nature - both violations of a chair's "natural" function.

For other reasons, market prices may be "inefficient" indicators of costs.

Many costs which would be dollar costs in MDC's must be considered non-dollar costs in LDC's because of tighter constraints on specific bottlenecks of trained manpower, materials, and administrative control. Resource constraints cannot be overcome through larger budgets, especially in the short run. For this reason, we often need to talk about costs in a very literal way, e.g., so much concrete, so many people with M.A.'s in educational planning, so many additional staff in the Ministry of Education. It is notable that the PPBS concept first came into use by the U. S. Government as a means to allocate scarce aluminum resources supplies during WW II. A large and rapid shift in policy, whether in mobilization for war or mobilization of major development efforts, requires specific attention to critical means-ends linkages, which price and market mechanisms are not equipped to handle. Costs of course remain an important consideration. But for planning purposes, questions of cost must often be translated into terms that reflect the intrinsic nature of what must be sacrificed in order to get something else accomplished. Sometime the intrinsic sacrifice is indeed a matter of dipping into a general treasury (monetary costs); but costs may also be non-monetary (curtailment of alternative programs) or intangible (accumulation of political debts). In order to keep quantitative and qualitative, monetary and non-monetary considerations in balance, one might construct an accounting sheet that looks something like the following.

	Type of Factors to be Considered in Computing Cost-Effectiveness		
	Monetary	Other Quantities	Qualitative
Costs	(1)	(3)	(5)
Effectiveness	(2)	(4)	(6)

traditional comparisons

Clearly, it is not as straightforward a decision-rule to weigh these six categories against each other as it is to compare simple ratios of monetary costs (cell 1) against intended benefits (cell 4). But there is no ethical way to eliminate a broader range judgmental trade-offs: this is the stuff of policy-making.

Diminishing the need for output is yet another aspect of effectiveness. Traditionally, planning takes the demand for services as an exogenously determined variable, the problem being one of maximizing supply. In many fields, however, demand is itself becoming an object of policy: highway planners, frustrated by the self-defeating tendency of new roads to generate their own demand, are rephrasing the question of cost-effectiveness - no longer asking how to maximize traffic flow, but how to reduce the public's need for travel. Similarly, agricultural research is increasingly concerned with ways to minimize the need for pesticides and fertilizers, even while giving them full credit for the Green Revolution just achieved. Energy planners are also turning to conservation measures, abandoning the previously single-minded concern with augmentation of supplies. In education, however, systematic policies to "conserve" requirements for schooling are rarely considered (China's policies since the cultural Revolution, being a major exception). Non-formal education, for example, is usually seen as a poor man's alternative to the standards of schooling set by yesterday's elites, modelled after the experience of the Atlantic Rim countries. Massive restructuring of production processes to accomodate existing skills have actually been tried with success in the United States - but only as a temporary expedient of converting to a wartime economy in the early forties.

For many organizations, the idea of reducing the need for their services is a threatening concept. For universities involved in educational planning, however, reducing the need for their own services does not mean putting themselves out of business. Instead, it means a greater concern for the long-run need to shift the major portion of planning efforts to host country agencies, even though this function - this reduction of need for foreign experts to shoulder the whole burden of educational planning - is expensive; and in the short run it will appear contrary to the principles of cost-effectiveness. It also means, perhaps, a possibly expanded role for universities - not just in planning for education, but planning for the conservation of education, relative to other sources of culture and skills that formal

education has often served to devalue and extinguish. Universities would seem to have a comparative advantage here, in standing back from the immediate problems of educational "production" to consider whether so much of it is really needed. Sponsors of university-based educational planning should also recognize, however, the possible biases of university researchers toward exaggerating the importance of formal education as either a means or end of national development.

European interviews helped to clarify for us the ambiguous feelings that many planners harbour for cost effectiveness analysis. One Swedish researcher noted that "truth in the social sciences is a function of whether you are a Marxist." Yet along with this image of American political naivete, Europeans seem to have a healthy respect for the political accountability that governs many areas of U.S. government policy. Part of it lies in the separation and balance of powers, and the usually strong analytical capabilities developing in the American legislature and judicary. But part stems from the willingness of the academic community to get involved in these exercies. (A dramatic and clear-cut case where this seems to have made a difference can be seen in the divergent fates of the Concorde and the U.S. SST.) The use of cost-effectiveness analysis may not define our superiority in this area, but it seems to reflect it. In this sense, CEA is a little like the Calvinistic version of "good works": Doing good won't help you in the salvation of your soul, but if you happen to be one of those predestined to be saved, you'll be known by the good works you do. In the same way, even though we may not believe in the results of any CEA we do, the excercise allows us to ask some tough questions, and force critical debate on public issues.

For all the gaps and biases, important progress has been made with a host of evaluation techniques, including cost-effectiveness analysis, use of social indicators, planning balance sheets, logical frameworks, back-of-the envelope PPBS, as well as more traditional manpower and demographic studies, cohort analysis, and other more strictly educational planning tools. With these, we can make clearer definitions of what we want to accomplish (make the new rhetoric more operational), and we can make

the means to these ends more accountable to secondary objectives which are usually violated by single-minded pursuit of a particular goal. On the other hand, university involvement in aid programs may seem impractical and round-about, at times, it is partly because universities at their best play inconsistent roles, liable to engage in second thoughts, and dwell on the contradictions involved in taking action. In suggesting what makes IDS unique, John Oxenham pointed out its "love-hate" relation with on-line agencies, its possibilities for both engagement and detachment, the simultaneous focus on both means and ends. These features are not unique to universities, but nevertheless in line with their central purposes and organizational sanctions - more than is true of most other institutions with a "job to get on with." On-line agencies can learn from experience, but often lack the incentives and time for cogitation and freedom from political pressure which are necessary in order to systematically analyze that experience in the context of overall objectives, or review experience elsewhere, or think about all this with a view to adaptation to other situations.

SECTION I: KNOWLEDGE UTILIZATION

Considerable advances have been made in recent years in the literature on educational planning. At the same time, new insights have been gained into the processes of social and economic development which educational policies seek to address. It is not clear, however, how much of this has been translated into new practices. In particular, we have sought to develop under this project a better understanding of the role that universities can play in transforming this new knowledge into new practices.

Much depends on how we define knowledge. According to one way of thinking, knowledge consists of a set of specific facts and concepts which are discovered, and capable of being stored and retrieved when needed. In this view, knowledge is an "inert" substance, universally valid, and unchanging: new knowledge accumulates in publications and reference files and in experts' heads, and old knowledge gets weeded out. In this view, knowledge has an existence independent of whether anyone puts it to practical use or not. Accordingly, knowledge utilization can be considered as a separate issue -- and not a touchstone for evaluating the value of knowledge or the value of the knowledge development efforts.

An alternative definition of knowledge refers more concretely to the things that are done with it. In this view, the meaning of knowledge is not contained in the words and formulas and information media that give it expression but in the ways it is applied and the ways it makes a practical difference for people who put it to the test of practice. In short, knowledge becomes knowledge only in use.

In this pragmatic definition of knowledge, utilization of knowledge is not to be measured by its intended or potential uses, but in terms of the

"ultimate" consequences of its application. In these terms, criteria for measuring the effectiveness of university roles in educational planning must refer to not just the processes but the products of planning. Thus, to the extent possible, we should be looking at what happens to students and the communities affected by what their education, and not just at the making of plans and the allocation of resources and the behavior of teachers. In these terms, knowledge utilization goes beyond the mere transfer of knowledge between agencies. In fact, it might take place with no transmission being involved at all, in that an "optimal" strategy for knowledge use might consist of collapsing the knowledge generation and utilization functions into a single agency or person.

The investigators in this project begin with a certain bias toward the more STRINGENT definition of knowledge use. In part this reflects the terms of our contract with AID, whose own mandate is directed toward practical development efforts. In part it reflects the focus of this project on poor communities, and our feeling that the usefulness of educational planning on their behalf requires a hard headed focus on results rather than rhetoric and good intentions which have proved so disappointing in the past. (Faber and Seers, 1972; Caiden and Wildavsky, Coleman et al., 1977, Auerich et al., 1972, Simmons, 1974). In part our bias toward practical knowledge application reflects the attractiveness of the land grant college as a model for university involvement in development efforts. (Hudson, 1975).

On the other hand, many people and institutions we have contacted in our research have forcefully argued the position that there is a unique role for universities to play in educational planning which requires universities to stand back from direct involvement in planning and development

efforts.[1] We have attempted, then, to treat "knowledge utilization" in a manner that would embrace both academic as well as pragmatic versions of knowledge use. Knowledge utilization has come to be defined in this project in a way that distinguishes four categories of knowledge "use": dissemination, exchange, application, and validation. Each sets different standards for "utilization" and different criteria for measuring the effectiveness of university efforts; and each has different implications for an "optimal" strategy of knowledge networks. Each also provides a more comparable basis for grouping case studies of educational planning efforts. Each of these categories is briefly reviewed below.

1. Knowledge Dissemination. As one version of knowledge "use," dissemination is taken to mean the following:

(a) The employment of "general-use" communication channels, such as journal articles and monographs; classroom and other training facilities; seminars and professional meetings; broadcasts and mail-outs. The term "General use" denotes that facilities are not restricted to one particular form of message or mission, but are accessible to a wide variety of senders and users, involving little esoteric skill or other restrictions on their use.

(b) Communication is primarily one-way. Included here are one-way communications of a reciprocal nature (eg. mutual participation in an information clearinghouse like ERIC). Thus, listener feedback, while it may be deemed useful, is dispensable for any package of knowledge disseminated.

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[1] A recognized danger of the pragmatic model is that academic thinking can be captured by political and commercial interests that sponsor university teaching, research, and extension programs. For example, it has been argued that Land-Grant college research has been biased toward mechanization and heavy reliance on energy, fertilizer, and pesticide inputs, reflecting university cooperation with manufacturers, to the detriment of small farmers originally intended to be served by the Land-Grant programs. (Long and Groskind, 1973).

(c) The specific identity of knowledge users may remain unknown, as well as specific applications of knowledge disseminated. Cost-effectiveness considerations call for broad audiences (economies of scale) and minimum need for feedback or validation of knowledge which involves costly monitoring of practical applications. This creates problems of relevance and communicability, which in turn calls for measures to define a homogenous audience. Thus dissemination tends to entail the organization of receivers and senders into standard institutional roles (students, professionals, researchers, trainers, administrators). More generally, the less dissemination channels identify specific users, the more they must identify specific classes of users sharing the same vocabulary, academic disciplines and paradigms, educational and cultural backgrounds, and social settings for interpreting the significance of knowledge transmitted. Examples would include consortia of universities (eg. England's Inter-University Council for Higher Education Overseas); aid officers (eg. AID's annual in-house Conference of Education Program Officers; Bellagio participants); or of subject specialists (eg. users of ERIC). On the other hand, dissemination among dissimilar institutions may also take place by linking of individuals within them that share common backgrounds (old school ties, prior association with particular projects, shared views on development problems and priorities). A good example of this is the use of (apparently very cost-effective) use of "panels of experts" by the Intermediate Technology Development Group;

Some preliminary conclusions regarding "dissemination" as a form of knowledge utilization.

A. We recognize the legitimacy of dissemination as a form of knowledge use. Despite our bias toward action consequences of knowledge, it is clear that dissemination often opens the road to actions that would otherwise have been inconceivable. Evidence includes:

(i) studies of innovation diffusion, indicating that at least for the "early adopters" of new practices, knowledge by itself can be a motive force, unaccompanied by other resources that a more "enriched" network of technical assistance might provide (Rogers, 196[illegible]).

(ii) significant educational reforms have often been the result of indirect dissemination of results from policy studies, rather than direct links between researchers and policy-makers. Dissemination helps translate new ideas into "good currency," and creates new "climates of belief" (Cohen and Garet, 1975), creating the necessary fertile ground for specific proposals. Ideas are often seen to often take hold "on the second bounce," as Champ Ward puts it (Ford Foundation Vice-President, who has studied the policy impacts of foundation-sponsored research, along lines similar to our own research).

(iii) U.S. Office of Education efforts to disseminate innovative educational practices suggests that adaptation by teachers can be enhanced by efforts to "target" dissemination toward well-defined groups of potential users. (Dissemination efforts aimed at more general audiences, on the other hand, have met fairly consistent failure. See Berman and McLaughlin, 1974).

(iv) Although there may be a low probability that any given recipients of a knowledge will follow up with a specific action, it is arguable that some of the most significant programs in education have resulted from improbable combinations of people and ideas. The Comilla program in East

Pakistan was modelled after the Land Grant College idea from the United States (Raper, 1970); in return, Governor Brown's educational philosophy vis-a-vis the University of California reflects the inspiration of "Buddhist economics" from Small Is Beautiful (Shumacher, 1973), inspired by the author's visit to Tibet. Colombia's impressive rural radio school program ACPO, derived from the fact that a rural priest happened to know something about ham radio operations. These are only anecdotes, to be sure; but significant change in a major educational systems are so rare that isolated anecdotal data are often all we have to work with.

B. The major shortcoming we have encountered in the dissemination literature and types of strategies implicated is the bias toward professional institutions as sources of knowledge and relative disregard for action programs as sources of knowledge. We have consistently encountered the idea of dissemination as connoting knowledge transfer from MDC's to LDCs, from academic centers of excellence to action agencies, from rich to poor communities, and from professionals to laymen. We found ourselves easily trapped by the same bias, even as we recognized and tried to resist it. Researchers based anywhere outside the poor communities themselves must constantly remind themselves that dissemination also refers to "bottom-up" knowledge transfers -- from action to new knowledge, from LDCs to MDCs, from laymen to professionals, and from poor to rich, (especially in connection with educational planning for poor communities. Our research has suggested that some of the best examples of educational planning derive from indiginous efforts in rural development. This indicates a major need for a strategic focus on dissemination outward from development actions, alongside more traditional networks of dissemination outward from centers of higher learning.)

3. We have attempted to define knowledge "dissemination" in such a way that criteria for success are not biased toward specific examples of networks. Nevertheless, we have found it unwise to divorce criteria entirely from past examples of success. First, the criteria of "success" suggested in the definition of "dissemination" are in fact distilled from past experience, and knowledge their derivation is important for judging their validity when applied to other contexts. Second, it has been observed that almost any criterion for program "success," if used in isolation from a larger context of program objectives and constraints, will tend to be "corrupted" by efforts to meet the specific criteria in ways detrimental to the more fundamental goals of a program. (Campbell, 1974). Third, diffusion of innovative practices -- whether specific educational programs, or improved devices for knowledge utilization -- seems to beassisted by the transmission of "intact images" of successful practices, rather than bits and pieces of performance characteristics in the abstract.

For these reasons we will tend to rely on definitions of "utilization" based on a range of examples, as well as definitions aimed at more abstract criteria of performance that might be used to negotiate projects or evaluate past efforts.

4. Our research confirms to us the importance of distinguishing "dissemination" from other categories of knowledge utilization, because it suggests its own appropriate design criteria for strategies aimed at better "use" of educational planning knowledge.

On the other hand, we have found it often unadvisable to consider the cost-effectiveness of various dissemination strategies in isolation: our case studies suggest that few knowledge networks are single-purpose, but often undertake knowledge dissemination alongside parallel functions

of knowledge exchange, application, and validation. For this reason, we have questions of cost-effectiveness primarily to Section II, which deals with specific (often multi-purpose) Network Systems.

5. While recognizing the importance of dissemination strategies, we have also concluded that our research efforts should be concentrated elsewhere, to focus more directly on the pragmatic consequences of knowledge applied to specific actions. (a) Dissemination strategies are a fairly advanced art, for the most part based on established media, and well integrated with institutional practices. (b) By definition, the ultimate consequences of knowledge dissemination cannot be traced to specific users or applications or even (in some cases) to specific media that may have combined to produce "ideas in good currency." This makes cost-effectiveness analysis very difficult, and puts it beyond the scope of this project. All that can be said is that we are dealing with low-probability events with potentially high pay-offs for events that do occur. Even in cases of demonstrable success, it is difficult to partial out the marginal contribution of knowledge from other circumstances that made that knowledge significant and operational for its users. Furthermore, the kind of retrospective analysis needed to evaluate the contributions of knowledge to social practices have been subject to important criticism. One problem is sample bias (investigation usually focuses on notable cases of success); another is historical bias (media, organizational practices, and the constraints on adaption of new ideas, will have all likely changed.) (See NBER 1962.)

2. Knowledge Exchange.

"Exchange" denotes a more interactive form of knowledge utilization, than "dissemination." As educational planning knowledge passes from the context of knowledge "producer" to "consumers," it requires various transformations: from general models to specific data requirements; from technical procedures to administrative ones; from academic paradigims to specific scenarios; from general goal statements to incentive structures operating in the implementing agencies; from procedures issues to political and ideological ones. Each of these transformations may also take place in reverse, moving from specific to general, from practice to theory, from ideological to technical. Thus, knowledge exchange denotes a mutual learning process, involving reciprocal feedback between producer and consumer. Knowledge "exchange" contrasts with "dissemination" in the following ways:

(a) The specific identity of the user is generally known so that clarification of specific user needs can become part of the exchange process. (eg, World Bank country studies; MSU anthropological field work underlying non-formal education projects; UCB exploratory field trips to identify potential clients; FSU's "iterative" approach to technical assistance on educational media, to stimulate reconsideration of client needs.)

(b) Knowledge becomes transformed in the process of exchange. This contrast with the case of dissemination, where knowledge can be treated as an "inert" substance, universally valid, and unchanging: there, it is assumed that new knowledge accumulates in publications and reference files and in experts' heads, and old knowledge gets weeded out, but it has an existence independent of whether anyone puts it to practical use or not. In contrast, knowledge exchange refers more concretely to distinct personal and institutional perceptions about what is "at stake" in the utilization of educational planning knowledge. In this view,

the meaning of knowledge is not contained in the words and formulas and information media that give it expression but in the ways it is applied and the ways it makes a practical difference for people who consume it for specific purposes.

(c) Knowledge exchange generally involves more than the intact, undistorted transference of information from one party to another: it may also require a shift in the conceptual framework of knowledge receiver and/or sender for each to understand the significance of information to the other. The exchange may be modified accordingly - either in terms of vocabulary, scenarios for depicting the ramifications of ideas, ideological references, level of specificity, or possibly even in the use of gamesmanship.

Compared to knowledge dissemination, exchange is likely to be more costly per "message unit," but this is the price of bargaining for a shared reality.

Some preliminary observations on knowledge "exchange."

A. There are several reasons why a person engaged in knowledge exchange may resist conceptual shifts: it may be seen as a form of weakness reflecting adversely on one's bargaining position or professional vulnerability (Caillot, 1971); it requires a departure rrom previous assumptions, perceptions and understandings built up with one's usual collea_ues, at both personal and institutional cost; (Lawrence and Lorsh, 1967; Nathan, 1973); and for some purposes, agreement on planned action might require that differences in ideology, and stakes in the outcome, be left implicit rather than thrown out as bones for contention. These limitations to frank exchange help explain (1) a significant difference between the problems of knowledge diffusion and exchange, (2) the relative costliness of the latter (psychic as well as monetary), and (3) the reasons why knowledge exchange is often unsuccessful, or else ritualized in such a way that the failure to communicate on fundamental issues undermines later efforts at knowledge application and validation in the context of policy actions.

B. In some respects knowledge dissemination and exchange may actually prove antithetical: sheer volume of information needing to be processed by technical assistance agencies may inhibit the efforts required to make stronger knowledge links on a more select basis. Lew Sleeper mentioned a survey he did at AID (and was blocked from replicating at UNESCO) showing that people in such organizations read only a small proportion of technical reports and policy papers that cross their desks, despite the fact that the sample of reports he used for this study were selected to be of recognized significance and related to the desk-persons' own work.[1]

C. Our research has not yet revealed objective grounds for determining how an organization can identify "critical" knowledge from the Volume it must routinely process. Yet most persons we have spoken with perceived an important gap (of the kind Lew Sleeper identified) between what academic institutions do with knowledge and what others do with it. Some see the answer in personality traits, perhaps what Robert Moses used to call "the thirst for the jugular" in the use of information for planning. Gabriel Carron at IIEP pointed out that a great deal depends on how the "expert" can work with people with differing world views: if he's typical (for example in teaching IIEP courdes) students will simply "turn off"; if he's good, they will at least force him to "clarify what the hell he is talking about." Particularly when inter-institutional linkages must span international and cultural boundaries, special conditions are present that inhibit the flows of knowledge - lack of proximity, large differences in organizational capacity and unfamiliar political environments. In the past, the medium of linkage was frequently the expertise embodied in people with the requisite combination of knowledge, skills and work experience for a particular situation.

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[1] Kenneth Boulding, the first law of information

However, a recent study done by PADCO in the area of networking for urban and regional development ("Feasibility Study for Networking in Urban and Regional Development", AID/ta-C-1140, Feb. 1975) surveyed LDC professionals in the area of urban and regional development and discovered that such embodied expertise has the lowest priority for networking among four types of resources; information, methods, expertise and experience. If not expertise, what else should we be looking for? Gabriel Carron at IIEP* suggested that "Personalismo is often treated as exotic or funny, but it is hard reality in many places, and one's impact is likely to be zero unless you work through it."

Among the more successful networks, special attention has often been given to the transfer of not just knowledge, but attitudes that will help professionals mingle directly with practitioners in the field, thereby developing mutual trus and two-way learning (as opposed to "preaching expertise" out of context). Conceivably, network success may hinge less upon a "grand organizational design" than it does on the programmatic details which shape attitudes of individual members (see Pitts, 1975).

A number of studies have remarked on the substitutability of leadership for elaborate formal structures, for the purpose of assuring committed participation in a network by persons who otherwise share little in terms of training, life styles, or higher ideological cohesion (see esp. Lambright, 1970; ICED, 1975; Cohen and Garet, 1975. Typical is Kenneth Johnson's assessment (from the ICED report, p. 6) "The chemistry of change may lie in individuals rather than in institutional structure (for the structure of effective programs varies widely." According to Johnson, the effectiveness of such leaders seems to depend "more on their commitment and on their status within the institutions than on the nature of their training" (p. 20). This is not a particularly new finding, yet not much has been done to identify what it might mean for technical assistance strategies in general, or for educational planning network design in particular. For

example, it might mean that a network should begin with a search for incipient leadership and strong support for programs such persons might develop outside the established institutional channels. (Examples would include the Comilla Project in East Pakistan; Accion Cultural Popular in Colombia; the Land Grant College System in the U.S.; the more intensively experimental and "comprehensive" social action programs of the late New Deal, such as the ARA; and on-the-job training -- perhaps seen in purest form in China following the 1958 directive requiring all schools to establisn production units and all factories and farms to establish integrated schools). Skirting established institutions has costs as well as benefits: in weighing one against the other, it becomes clear -- to repeat an earlier point -- that the "optimal" design for a network always revolves around the questions of educational planning knowledge for whom and for what purposes.

D. Language barriers, though significant, is not critical until policy becomes focused on local target communities, according to most of the literature and case studies we have examined. One Swedish informant noted that the United States does fairly well in this respect, despite the "bumbling American" stereotype: use of the English is far-flung, and Spanish - a relatively logical language - serves as a lingua franca for most of neighboring Latin America ("Our own tribal language doesn't carry as far," the Swede added.).

E. Bridging the gap is made harder by recent trends in educational planning subject matter away from the hard core of educational planning (man-power analysis, decision theory, econometric modelling) toward "qualitative" planning. "Evaluation," "attitude change," "self-reliance," "brain-storming," "problem exploration," seem to be terms very much in vogue; but they are frustrating from the standpoint of "delivering a package of knowledge" to a client. IIEP embodies this trend most clearly, in the tenor of its recent annual reports. Some observers find IIEP's

new approach confused and wishy-washy. Raymond Lyons (himself based at IIEP) remarked that "educational planning is dead" except in a few places tooled up with the people to implement it at all levels, and with the political preconditions for acting on the basis of rational means to ends. (Tanzania is at least trying, though with many problems.)

F. A number of mechanisms can be identified to facilitate knowledge exchange, particularly across organizational boundaries (and to some extent cultural ones). (1) One is to create specific "brokerage" roles, involving not only special skills in knowledge translation, but particular personality types able to deal with the stress of trying to reconcile different organizational expectations. (Kahn, et al., 1964; Lawrence and Lorsch, 1967).

There exist entire organizations which perport to carry out brokerage roles - for example England's Inter-University Council (IUC) - but when specific cases of successful international knowledge exchange are cited, informants often point to specific individuals who have "made the difference" by force of personality (Marjorie Mumford at Reading University; Geoffrey Oldham at SPRU; Shumacher at ITDG).

(2) Another means to facilitate exchange is the development of long-term relationships with specific clients, along the lines of university-industry collaboration in Cambridge, Massachusetts, Palo Alto, and the Raleigh triangle; or the University of California - University of Chile convenio. The U.S. General Accounting office has prepared a questionnaire for recipients of grants from RANN (NSF's Research Applied to National needs) that attempts to measure the strength of such relationships between universities (or analogous R+D agencies) and their clients. (GAO, TAG 29, 1974). Long-term links have other advantages, as well: more opportunity for training and research efforts to complement technical assistance in mutually reinforcing ways (Hannum, 1975); and greater opportunity for U.S. personnel to become at home in a foreign language.

(3) Role rotation is another useful device. The extreme case might be China, where bureaucrats are periodically sent out to live with peasants until they get their "priorities straight." Peace Corps service has a similar function, in its effects of educating Americans volunteers the problems of development seen "from underneath." Certain technical assistance organizations, including ACPO in Colombia and the Inter-American Foundation, typically rotate personnel between field-work and "home office" staffing positions.

Actual exchange of roles may not be necessary for all purposes: sometimes it seems to suffice that people trying to communicate can merely break out of role stereotypes, which impose a communication barrier. Patricio Cariolla once remarked at an airport farewell for him in Santiago, Chile that international conferences like the one he was about to attend offer three levels of truth: one at the level of formal presentations and discussions; another during the coffee breaks; and a third - the most profound, in the bar when everybody has finally relaxed enough to share their deepest personal thoughts.

(4) The use of a variety of media, in place of a single form of communication, may also facilitate knowledge exchange. ACPO has arrived at this conclusion over several decades of experience in communicating with peasants: starting with radio broadcasts, it has diversified to newspapers, illustrated pamphlets and books; face to face technical assistance, letter-answering services and use of special investigation teams. American Land-Grant colleges evolved a similar range of techniques, supplemented by classroom teaching and participatory learning

in the conduct of research.[1]

Theory supports the case for a mixed-media approach to knowledge exchange. Michael Polanyi and others have argued that much of the knowledge we rely on is tacit - never learned or used in explicit verbal forms - and therefore difficult to explain to others who lack the same background for absorbing such knowledge through tacit social inter-actions. (Polanyi, 1958) Visual media, visits to demonstration sites, illustrated materials, even novels and poetry may be required to convey such ideas, and to depict "colored" meanings which academic language is actually designed to suppress.

(5) A few informants have suggested to us a hazard in our attempt to identify specific mechanisms for more effective knowledge exchange - or any other form of knowledge "utilization." They point out that people always hear what they want to hear, or at least what they are open to hearing and responding to. In this regard the first step is always one of establishing between counterparts a minimum level of trust and respect - a sense that there is something to gain from open discourse that offsets the vulnerability which comes with candid inter-change. It is possible - goes the argument - that specific devices like role rotation or sophisticated communication media, or elaborate conferences can provide "mechanical substitutes" for trust without really taking over its functions. Bureaucratic requirements for meetings, clearances, protocols, needs assessments, statements of intent become increasingly relied upon to secure coordination between parties, who are increasingly cast as "reluctant partners." Indeed, planners themselves have pointed to the tendency of planning to become a ritual, a "facade," for the benefit of sponsoring agencies,[2] made all the more obvious by pleas for a more "mature partnership." It is not that the partners

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[1] On participatory research as a medium for knowledge exchange, see especially Caillot, 1971, pp. 161ff; Freire, 1970; Bruyn, 1970.

[2] See Faber and Seers, 1972, especially Vol. I, pp. 65, 91, 110. Caiden and Wildavsky, 1974.

are (necessarily) so radically different in their views; a problem of "bureaucratic idealism" taking over from personal relationships as a basis for reaching difficult understandings - a process that once started cannot be easily reversed.[1] We recognize that this danger arises in connection with all of the proposals offered in this report. But for that matter, it applies as well to any attempt at "rationalizing" technical assistance, or transfering experience from one set of actors where trust may have been operating to another, where trust may yet need to be established.

[1] The concept of bureaucratic idealism and its irreversibility has been developed by Michel Crozier in his study The Bureaucratic Phenomenon.

Knowledge Application

By "application," we mean the effective utilization of educational planning knowledge in terms of actual changes in educational policies and their implementation. Effectiveness is measured in terms of events beyond the planning process itself: knowledge effectiveness thus becomes defined in terms of knowledge in use. The focus shifts from educational planning outputs (reports, man-days of advice, training-hours provided) to planning outcomes. Guy Benveniste in a report sponsored by the networks project, defines outcomes as "the consequences of outputs as they interact with the environment." (Benveniste, 1975). Benveniste elaborates on some of the problems of using narrower "output" definitions of effectiveness as follows (summarizing from his report):

> There are many problems with using criteria and indicators of cost-effectiveness in a complex process involving knowledge generation, transfer and utilization. Great care need be exercised if these criteria are used to redirect action in new ways.
>
> Indicators include process, input and output indicators. When much is known about a system, it is usually controlled by input or process indicators. For systems less well understood, output indicators provide more valid feedback on the end product. Nevertheless, output indicators have the following characteristics which need attention:
>
> (a) When lead times are long, output indicators may be irrelevant, since the time involved makes it impossible to redirect action once initiated.
>
> (b) They reflect values about what is important today, which may not be important tomorrow.
>
> (c) They focus on intended outputs, often ignoring outcomes - "the consequences of the outputs as they interact with the environment"; yet it is outcomes that interest us.
>
> (d) Output indicators disregard important functions by limiting the scope of analysis to official goals.
>
> (e) Operational measures of outputs distort goals by shifting goals to actual measurements which are only one aspect of the goals.

(f) Output measures reduce secrecy, increase conflict and reduce risk-taking. In many planning situations, ambiguity of purpose and dissimulation of disagreement is necessary to permit social life to procede. The same applies to agreement on plans.

(g) Output indicators limit professional discretion: they control behavior, limit the possibilities for exploration and invention, intuition and second-guessing. This is particularly true in evaluating the outputs of intellectual institutions.

When they are selected with care, output indicators can be used to redirect action and thus become powerful instruments for change. Broad criteria are usually preferable to narrow ones because in research, it is always important to leave judgement and discretion to those who undertake it.

On the other side, there are problems with using outcome measures in place of output indicators. Delays in evaluating results are even longer. Planners have far less direct control over the result; which comes about through "interaction with the environment" (the distinctive feature of outcomes.) The question arises, how far should we go in attempting to partial out the effects of universities from the other agencies they work with. In fact, the more a university succeeds in going beyond one-way knowledge diffusion and exchange to engage in knowledge applications and validation in action, the less of a clear dividing line there will be between the university's own contribution and that of its counterparts. Thus, it is difficult to assess the cost-effectiveness of American universities because their roles are not isolable, but have become - where most successful - an integral part of the entire apparatus of American aid policies and programs overseas - achievements, blunders, and all.

In contrast, many European universities' impacts can be more clearly isolated through particular project involvements, but the net results have an air of being just that - isolated. Reflecting this concern the U.K. government prepared a white paper Government Research and Development (HMSO, 1972, Command 5046), which emphasizes the need for training scientists to be administrators (and training administrators to be scientists) in recognition

of the need for combining political and technical skills in public affairs. This strategy aims at the maximum "compression" of knowledge development and knowledge application by combining both functions in a single person. This is perhaps the ultimate way to short-circuit the gap between knowledge generation and use.

A slightly weaker integration may be achieved at the institutional level: IRRI, ACPO, and the Land-Grant College are all models of attempts to combine applied research, service to primary groups, and development of new knowledge based on feedback from on-going action.

The gap becomes broader when knowledge development is carried out by one institution and applied in another. An illustration of this process is provided in D. Lingwood and E. McAnany, "Scientific Information Flow and National Development: A Study of Brazilian Chemists", Institute for Communication Research, Stanford University, July, 1971. The geographical, organizational, cultural, and environmental differences between knowledge producers and users in this model are not prohibitive: but logically, the cost of making the bridge rises; there is more chance for knowledge to get lost on the way; and feedback comes slower if knowledge proves deficient.

A final point arises in connection with knowledge application: application is not something that we necessarily want to maximize, as we might want to maximize knowledge dissemination and exchange. Although universities have long considered the search for knowledge a good thing in its own right, the benefits of <u>applying</u> knowledge have to be weighed more carefully against the costs. For example, methods that would assure maximum utilization of knowledge would include forms of command planning that could eliminate democratic discussion of policy, and could take forms of action that would eliminate the possibility of experimentation along lines less grounded in solid knowledge

but nevertheless more directly addressed to the broader aims of development. We have to beware of doing things only because we know how. We also need to know why and to what effect.[1] This point has ramifications considered elsewhere in this report: in the discussion of cost-effectiveness concepts (Introduction, above), it was pointed out that we might have to shift our attention from policies of maximum response to need to policies of minimizing needs. Later in this report, we will also consider the issue of self-reliance in more depth, as it relates to strategies of technical assistance in education.

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[1] By way of an example: efforts to develop the Sehel region in Africa through the sinking of deep-water wells have resulted in the shift of the "ecological burden" from the limiting factor of water to the carrying capacity of the land: in effect, water allowed an increase in cattle population to the point where they destroyed the grass cover, creating small but spreading deserts around the points where wells had been dug. By analogy, one might ask what happens when knowledge no longer becomes the limiting factor in the activity of people in rural areas: where will the burden of the social ecology then fall -- upon fragile traditional cultures? upon the exploitation of unreplaceable natural resources? upon the capacity of the urban "commercialized" economy to absorb labor?

Knowledge Validation. Some will disagree with the contention that "validation" of knowledge is an important component of knowledge utilization. Good educational planning, however, is an iterative process, a long-term involvement in actions that need to be continually monotored, and reformed both for lessons of success and adaptations from failure.

Validation of knowledge may be addressed to any of several discrete issues, each with distinct ramifications for educational planning networks and the form and content of knowledge involved.

1. On one level, knowledge may be utilized to validate facts, or questions of pure efficiency in the relation between predetermined ends and means. Planning may thus attempt to evaluate the best (most efficient) way of expanding non-formal education, taking into account available media technologies, cost and financial considerations, and assessment of needs. (For a good example of validation of plans along these lines, see Arrigazzi, 1972).
2. On another level, planning may attempt to validate knowledge by the use of action programs as "live probes" into the underlying reality of development processes. Here, the focus is on causal relations. Doubts are not suppressed but made explicit, the object being to learn as well as apply what is known. The academic foundations of analysis may shift from economic models to other, more varied "systems of explanation." The "logical framework" used by AID is a significant step toward validation of knowledge regarding not only about a project but the environment which mediate its effects.
3. On a third level, planning efforts may require validation in terms of the range of outcomes at stake, including unintended second- and third-

> order consequences. Again, the style of planning must shift, this time to incorporate anthropological, political and ideological perspectives on the significance of planning efforts. The ostensible client is ordinarily assumed to make such choices rather than the planner, but who is the real client - the sponsor who provides the funding? educational officials? school children? Who decides whether educational planning should focus on the efficiency of the educational system itself, or extend to the relations between education and other social processes, or speak to the larger issues of development?

Such questions arise far more frequently in recent years than they did a decade ago, and were frequently voiced by planners interviewed in Europe, as well as participants in the Networks Project conferences held at Berkeley, Stanford, UCLA, and Harvard:

> --"even if we could measure cost-benefit ratios for knowledge transfers, how can we tell if we are being cost-beneficial from others' standpoints?"
>
> --"To say we are doing something well is not to say we are doing any good with it."
>
> --"Usually when we talk about cost-effectiveness, we are really talking about cost-feasibility, or cost-convenience, or cost-profitability from our own side of the transaction."

Carl Widstrand, interviewed at the Scandanavian Institute of North African Studies, raised similar questions in his paper "The Evaluation of Rural Development Projects" (p. 114)

> What does "improve the quality of rural life" mean? More fun? For whom? To make the elite stay? Making money?...more cows?...the new Embassy nightclub in Makutano?...the resident evaluator in Kapenguria?...A new busline, to be able to get out of the place?

Oscar Gise at IDS (Sussex) commented that especially since Dudley Seers' 1969 article, "The Meaning of Development," more attention has been given to the question of what outcomes follow from development programs. The 1975 Dag

Hammarskjold Report summarizes much current thinking, laying out development priorities in terms of

--the satisfaction of basic needs - beginning with the eradication of poverty - as the focus of development (food, habitat, health and education);

--self-reliance and endogenous action, geared to local strengths;

--harmony with the environment (e.g., recognition of "outer limits" to consumption by MDC's).

Recognizing that specific development programs must be accountable to higher level objectives, an AID evaluation manual proposes that program assessment go beyond considerations of efficiency and effectiveness to deal with the "significance" of outcomes with regard to over-arching goals and objectives (AID, 1974).

In some respects it is easier to envisage a role for universities in the validation of knowledge than in its application. There is a certain logic to this: it is sometimes easier to think critically about others' experience than to engage in action programs that improve on it in the field and this is especially true for an intellectual establishment like a university. On the other hand, it has been strongly argued that many forms of knowledge validation cannot be carried out by persons far removed from the actual site of action programs (Campbell, 1974). In the following section of this report, we have attempted to identify strategies that provide for a stronger integration of knowledge validation and application, tied in knowledge dissemination and exchange as well. Current practices of American universities are not very strongly oriented toward direct involvement in knowledge utilization, beyond mere generation and transfer of planning knowledge. Nor are university-based educational planning efforts significantly directed to issues lying outside the education sector itself.

to deal with larger issues of economic or social development. On the other hand, there are enough exceptions to the pattern, both historical and contemporary, to suggest that there are not any inherent limitations on university involvement in these issues; rather, the narrow focus seems to reflect the particular interests of agencies which sponsor educational planning efforts, and the prevailing bias of university incentives toward knowledge generation rather than utilization. These are not fixed but malleable determinants of university roles. Our analytical emphasis on case studies in this report also helps us to concentrate on the rare and unorthodox experiences of a few universities which might reveal under what conditions new practices can emerge that will better support the utilization of planning knowledge for poor communities and for objectives that lie beyond the educational system itself.

SECTION II. THREE TRADITIONAL NETWORK SYSTEMS

Rationale for Networks

In a recent study on the feasibility of networking in urban and regional development, PADCO suggested the following rationale for networks:

> "Networking achieves AID's objectives in a variety of ways. First, it must be a collaborative effort in which the LDCs are full partners and in which the ultimate planning and policy functions in the LDC remain under LDC supervision and control. Second, it is not capital intensive, but rather provides a multiplier effect at marginal cost on investments in research and programming made independently by many sponsors on a worldwide basis. It does this by capturing the results of this investment and insuring better dissemination thereby allowing others to take advantage of the positive results, to avoid negative experience, and to reduce duplication of effort thereby conserving capital and skilled human resources in the LDCs. Third, whereas networking is a process, its program content can be guided so that it focuses on the high priority issues and AID objectives." (PADCO, Feb. 1975, p. 2.)

The first and second points raised by PADCO are particularly relevant to this study. By our definition of networking (p. 6 above), we focus on collaborative institutional action and information transfer as the critical variables in establishing the necessary network linkages. This emphasis is consistent with two broad goals of system performance: effectiveness and efficiency.

Effectiveness is the extent to which the network achieves its purposes, which include the double objectives of users gaining access to the knowledge resources they need and knowledge generators producing knowledge relevant to a significant community of users. Thus institutional linkages must provide for information transfer in both directions between knowledge producers and knowledge users. Such linkages have traditionally been most difficult to establish and maintain at subnational levels, district level, and among primary groups. The particular problem is the filtering out of transferable knowledge from below and the transmission of schemes of abstraction from above.

Efficiency is the delivery of effective service at minimal expenditure of time, money and human energy. In PADCO's terms, the objective consists of "capturing the results of [existing] investment and insuring better dissemination thereby allowing others to take advantage of the positive results, to avoid negative experience, and to reduce duplication of effort thereby conserving capital and skilled human resources in the LDCs." This involves communication between networks or sets of linked institutions involved in the knowledge production-to-use chain in order to avoid duplication of effort. It also involves inter- and intra-national institutions whose mission it is to capture, record and disseminate information from knowledge applications in order to avoid the loss of relevant experience. Of particular concern is the dimension of intra-national LDC experience wherein each agency structures data and experience for its own needs, foregoing the economies of inter-agency cooperation and collaboration.

Literature on the Dissemination and Utilization of Knowledge

There is practically no analytical literature on knowledge networks per se. However, models of the dis emination and utilization of knowledge are related to various dimensions of networks on which we have focused. Therefore we have drawn insights from the dissemination and utilization literature in constructing the conceptual models of networking presented below. This section does not attempt to present a comprehensive literature review, instead it briefly summarizes the main findings and issues relevant to an analysis of the networking process.

There are three main traditions in the dissemination/utilization literature, labeled by Havelock (1973) as social interaction; problem solving; and research, development and diffusion. "Social interactionists" study

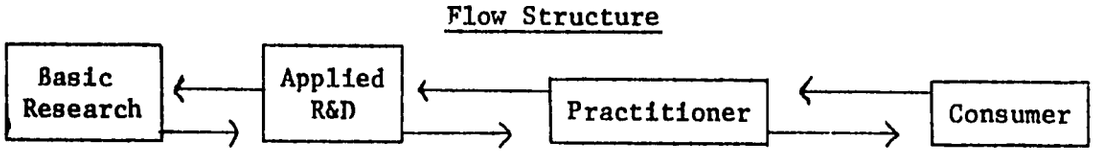
innovation diffusion, usually on a product or practice for which the research and development has previously occurred outside the scope of the model. The various stages in the diffusion and adoption process are modelled. This school is closely identified with Everett Rogers but also with Lionberger, Wilkening, Holmberg, and others. The primary substantive focus has been in the diffusion of agricultural products and practices.

In the "problem solver" perspective, the knowledge user is active, seeking innovations to solve his own problem. Change must be desired by the receiver and he participates fully in bringing change about. The model focuses on strategies of the agents of change and on the stages of change in the client system. Such models have their primary application in particular client systems at the local level. The locus of research in the development of these models has been the education system and the major authors are Lewin (194 1951, and 1952), Watson (1966, 1967a, 1967b, and 1967c), and Lippitt (1958 and 196

The "research, development and diffusion" model (RD&D) most closely approximates networking in the AID context. This model includes all stages of development of an innovation, based on scientific knowledge, adequate to solve a particular problem. There is a rational division of labor between researchers, developers, diffusers and adopters. Adopters are characterized as passive knowledge users acted upon in the diffusion process. This is analogous to MDC university researchers networking with LDC policy makers and practitioners toward the goal of improving the educational levels of regional populations. The research, development and diffusion model is compatible at the adoption stage with the stages of adoption of the social-interaction model. The RD&D perspective best describes the process of innovation at the national level. Authors associated with this perspective are Benne

FIGURE 1. The Knowledge Utilization System

Useful for overview of KU -- shows the number and variety of roles and subsystems in a utilization chain and gives an idea of how utilization fits into the structure of society as a whole.



Generates K without concern for its possible applications	Generates K explicitly for the use of practitioners or consumers	Gives direct service to the consumer as major part of his role; people who apply expert K in the course of their service	
University	Research corp. R & D Labs University Bureaus or Institutes for government research	Hospital School	Labor Unions Student Assoc. Consumer Organ. Political Party
		M.D., nurse lawyer social worker teacher	farmers, students } ultimate consumers

Havelock, Ronald (1973) Planning for Innovation Through Dissemination and Utilization of Knowledge (Ann Arbor: Institute for Social Research, Center for Research on Utilization of Scientific Knowledge).

Havelock's version of a knowledge utilization system has been the primary theoretical framework used in developing our conceptual approach to networks. The flow structure of the Havelock model is depicted in Figure 1. The model predicts that effective knowledge usage is correlated with a two way interactive linkage between sender institutions and client institutions throughout the RD&D chain. This is an extremely difficult characteristic to achieve in practice, particularly when the total chain spans national boundaries and cultural levels. Such linkages to the LDC primary groups could achieve the largest benefit but they are also the most difficult to establish and maintain. USAID officials have remarked in private correspondence and at our network conferences that, in their capacity with AID, they frequently have a difficult time ascertaining even the characteristics of the ultimate client, let alone needs and priorities. The issue of two-way information flows is important in all of the network systems presented below. Linkages extending all the way to target populations are given special attention in regard to Network Systems type III, covered later in this section of the report.

In practice, the knowledge production-to-use chain can be accomplished in one of two ways. The first is by internalizing into an institution the linkages between the separate functions in the chain, as in the Western Electric-Bell Telephone relationship or in the agricultural extension process in which the Land-Grant Colleges were linked to the farmer and local farm organizations via the cooperative extension service. The second approach is coordination of the various specialized institutions that are individual contributors to the successful generation to utilization of knowledge. In our analysis of international networking in educational planning, we have emphasized the latter approach.

NETWORK SYSTEM I: USAID-FUNDED UNIVERSITIES

Communication among Knowledge Generators might be described as a means of combining the resources of researchers, research-involved departments, and even whole universities so as to achieve greater results through both synthesis and synergy. In effect, it means helping the universities become more effective at their traditional activities. As such, it is an approach that is usually advocated or described by Knowledge Generators when asked about their networking needs, perhaps because it implies the least change on their part.

The importance of communication among MDC Knowledge Generators should also be seen in the light of the current tendency for social science research to deal more often with policy questions, and less often with basic research. The former especially characterises efforts at knowledge generation sponsored by USAID and many other government agencies with little interest in the creation of knowledge as an end in itself. Whereas basic research was very capable of being done by isolated researchers (who are working on isolated problems, focusing on a small number of variables with a large number of controls, and on the methodical development of paradigms), policy research by contrast is often a collaborative effort drawing on talents across disciplinary lines, is based on fairly broad problem definitions, examines whole galaxies of relevant variables, and is focused on discovering policies that work under broad ranges of conditions rather than discovering things that are 'true' under narrowly defined conditions (Corwin, 1973, pp. 5-6; Hudson, 1975; University of California 1974). Whereas basic research might benefit from collaboration and communication among researchers, in policy research these become virtually necessary.

We have essentially limited our research on universities to those funded by USAID in support of educational planning under the 211d grants or similar contracts. The MSU Program in non-formal education is funded by USAID under a different program). We felt that it was especially important to network 211d universities because of the long-term commitment and response capability they represent in knowledge production and the expected outcome in respect to educational planning. The institutions involved are Stanford University and Florida State University in educational technology, the University of California at Berkeley in education cost and finance, and Michigan State University and the University of Massachusetts in non-formal education.

We recognize that the 211d grant is assigned to particular departments or institutes within each of the universities but as a form of shorthand we refer to each grant holder in the name of the university and not the particular program. We use the following abbreviations when refering to each university; Stanford, FSU, UCB, UCLA and U. Mass. Furthermore, we recognize that the 211d grant funds are not the sole source of financial support in the programs being networked, or the sole recipient of USAID funding for educational planning by universities.

The material presented below is drawn from personal interviews of administrative and research personnel working under each grant, annual reports distributed by each grant, participation of selected individuals from some of the universities in our seminars and by independent field investigation. The investigation was intended as a survey of strategies used by each program and was not exhaustive of the complexity of each program. We believe our investigation is sufficient to allow adequate description of the various tactics currently involved in the inter-university USAID educational planning network.

Networking between universities is effective primarily in terms of the diffusion category of knowledge use. Diffusion achieved via two way information flows between universities can achieve synergistic effects even though the universities may be in different facets of educational knowledge generation.

Diffusion does not relate directly to the ultimate use of knowledge (in the sense implied by knowledge application and validation), so that efficiency considerations dominate in this network system. Therefore we can ask whether diffusion of knowledge among the network members occurs at minimum cost. Specifically, one must ask whether duplication is avoided in both the development of concepts and the generation of data. One must also ask whether economizing seriously affects performance, such as might occur from cut-backs in expensive field trips.

We do not attempt to answer these questions in relation to least cost tactics for the universities involved in our study. We have sought examples of currently operational tactics which address these questions, in order to establish a framework for the cost-effective analysis of networks. Actual assessment of cost-effectiveness must be left to future studies.

The most direct evidence of inter-university communication toward achieving synergistic effects and avoiding duplication of concepts and data is the collaborative project, e.g., researchers from cost and finance joining with others in non-formal education and educational technology in one project. No evidence was found for this degree of collaboration among the programs we have reviewed. The following are tactics to achieve knowledge diffucion that were found.

Academic publication. For instance, for the coming year, FSU projects the publication of 4-6 research reports, 8 monographs, 8-10 PhD dissertations and

8-10 journal articles. Similarly, during the first 3 years of the UCLA program, 10 books or monographs and 15 papers were published (about half the papers were originally published or translated into Spanish).

The quantity of output is what is measurable, not the quality of output, nor the readership, nor the impact on the readers. For these reasons, networking within this strategy remains somewhat an article of faith. It's demonstrable utility relates more to other knowledge producers than to persons in action networks. Such tactics have a plausable impact on general awareness among professionals regarding current conceptual developments as well as on-going field experience (via published case studies).

Another approach to knowledge diffusion that could result in economies in data generation is a modified form of research collaboration exemplified by UCB-Stanford cooperation in sharing a research investigator between the two programs. Budgeted 50% by each university, this arrangement provides a concrete link between the two educational planning programs. It is unfortunate that the individual involved left for another position before potential benefits from such a relationship could be fully developed, but the idea may be sound enough to emulate elsewhere in the future.

Another tactic consists of linking the 5 universities in the system by a newsletter that could carry a great deal of interdepartmental information. For example, information on the data resources available in educational planning at each university library size and new acquisitions, backgrounds and expertise of graduate students and faculty, pertinent information about ongoing projects and problems and insights into field operations. The newsletter recently circulated by UCB (first issue June 1975) is an example, as is the CET Newsletter from FSU. A collaborative newsletter, on the other hand, might insure that information disseminated has maximum

appeal to other 211d-type program participants. A newsletter sent out from one institution can easily be filed unread, whereas one written jointly requires a more directly exchange among the various authors.

Similar tactics include seminars and meetings with other academics and related professionals and also the exchange of faculty or guest faculty lectures. There are numerous examples of this within the AID 211d network, many of them informal. An example is the following quotation taken from the 1973 "Report of Activities of the Program in International Education Finance, UCB School of Education":

> Contact was established with other recipients of 211d grants from the AID agency. We therefore discussed our research plans with the relevant persons at Florida State University, Stanford University, UCLA Latin American Center and with the staff of the International Education group at Michigan State University. (This last group is under contract with AID). Since informal education is of particular significance, we were fortunate to be able to arrange for a one-month visit at Berkeley of Dr. Manzoor Ahmed of ICED in Essex, Connecticut who has been working with Mr. Philip H. Coombs on two major studies of informal education for the IDRC and UNICEF. In early December, Drs. Guy Benveniste and Stuart Wells attended a two day meeting at Stanford University on educational technology. The purpose of that meeting was to explore potential areas of cooperation between 211d recipients interested in the uses of educational technology in developing countries. The meeting brought together Florida State, Stanford and Berkeley.
>
> Other persons assisted us in this early planning phase and some came to Berkeley to consult with us. Dr. Tyrell Burgess came from England. We consulted with our colleagues at the SIDEC program at Stanford and brought Dr. George Nihan who had been working with the 211d grant to the Latin American Center at UCLA for two days at Berkeley.

Since the 211d grant money is to go towards constructing an institutional response capability, the acquisition of relevant printed materials and the compilation of bibliographies are important endeavors. There seem to exist both opportunity and willingness to share these materials among universities in the network but little actual sharing appears to have been accomplished. This may be because information about each library has

not been well disseminated, and if that is the case, newsletters such as Berkeley's should create the necessary awareness. Sharing of these library resources in the several areas of educational planning represented in the network may prove to be under-utilized, however, unless lending arrangements are actively promoted.

Information Analysis Center (IACs) may prove significant for the preservation of field experience, the review of current conceptual developments, and in some cases even the shaved access to data. The IAC concept will reappear discussion in Network System III (see the AED Information Center on Instructional Technology). Perhaps the best-known example of an IAC in Network System I is ERIC, the Educational Resources Information Center. ERIC was established in the mid-1960's by The U.S. Office of Education established to provide access to literature in the field of education. There are now approximately 20 centers linked into a national information system. Each center is responsible for a specialized educational area: the information is monitored, acquired, evaluated, abstracted, indexed and listed in ERIC reference documents, which are made available commercially. Each ERIC center or clearing house generates newsletters, bulletins, bibliographies, research reviews and interpretative studies on educational subjects. Users are not required to be familiar with ERIC. Evaluation of ERIC to date indicates that no majorities of ERIC users are graduate students and teachers. Other, more modest information clearinghouse functions are provided by the University Microfilms program, and the Council of Planning Librarians, particularly in regard to bibliographical compilations spun off from graduate student thesis and dissertation research, yielding good updates on the "state of the art."

NETWORK SYSTEM II: UNIVERSITY-SPONSOR LINKS

Effectiveness in this system is measured primarily in terms of the "exchange" category of knowledge use, involving two components: Sponsors informing Knowledge Generators about such things as the problem, the constraints under which the Sponsor operates (e.g. its legislative mandates and administrative guidelines), and the environment of knowledge utilization; and Knowledge Generators 'educating' Sponsors about research findings, theories, and the environment in which knowledge generation takes place. Paradoxically, such communications often embody criticism, or even distrust toward the other, as is illustrated by the following except from a Peace Corps report:

> ...the university is an institution that is...uncommitted to social and political action, interested in research and publication, dedicated to long term specialization...in many ways the antithesis of...the Peace Corps. The system of rewards and promotion places a premium on care and thoroughness in scholarly production, not on administrative accommodation or social service. If the university has accustomed itself to outside contract research, it has done so in large part on its own terms: those of scholarly sifnificance, reasonable deadlines, and freedom to publish. (Peace Corps, 1969, pp. 26-27)

Conversely, Sponsors are often criticized by Knowledge Generators for wanting results in too much of a hurry, for failing to appreciate the long-term value of basic research, for using research for impure ends, and restricting the circulation of research findings.

Universities also encounter difficulty in dealing with the Byzantine intricacies of USAID as an organization, described in part by Barkenbus (1975). Our own research turned up the following two commends made by a university administrator in reference to the <u>same</u> USAID contract and they illustrate both the strength and weakness of the USAID institutional structure:

1. "Communications with AID have been a problem. The staff has had to deal with three branches of AID; the Budget Office, The Grants Office and a Regional Board. Communications among these departments of AID was not very good and consequently university staff would find that, in spite of sending their written communications in triplicate, information did not reach all pertinent individuals at AID."

2. "A meeting of some AID field personnel (missions) and university staff was held in Washington at the beginning of the grant. The meeting was a particularly useful way to involve AID Missions personnel in problem identification and inform them of the areas of expertise available at the university."

Given the divergences and potential misunderstandings between Sponsors and Knowledge Generators the processes of knowledge exchange often requires a need for mutual education, diplomacy, and patient negotiation. Each must understand that the other has different perceptions for good reason, and that the complexity of educational development problems requires such a diversity of views.

> Barkenbus (1975) has pointed out the diversity of views existing even with AID, between USAID missions in the field, the regional bureaus, and the technical offices which cut across them. Barkenbus inclines to side with one faction or another on various issues; nevertheless, as Lawrence and Lorsch have cogently argued (1967) dynamic organizations must be able to tolerate widely divergent modes of interpreting reality and relative priorities: there are no "right" and "wrong" answers, but only intelligent compromises and syntheses between different time frames for analysis and different locational i ci, tasks, and objectives.

Knowledge Generators have no monopoly on the "answers." All they can do is to improve the Sponsor's capacity to recognize new sets of constraints and opportunities, to ask the right questions, and to put new knowledge into wider use. In the longer run, such knowledge may exert a formative

influence upon sponsors' policies in such areas as redefining missions, applying new criteria to project selection and evaluation, and using new methods at the individual project level. Nevertheless, if the goal is knowledge utilization in the field, knowledge must be guided not only by theory, but the operational dictates of practice, and the motives that lie behind sponsorship of particular planning efforts.

It is true, however, that in recent years, research findings have tended to call into question many of the assumptions under which LDC's have made heavy investments in formal education. This is especially true with respect to the contributions of formal education to economic and social development, and in promoting equity and social mobility. Inputs such as 'better' school buildings, enriched curricula, libraries, and more highly trained teachers have been shown to have less impact on academic achievement then previously supposed, once socio-economic and other environmental factors are controlled for. For that matter, academic achievement in school seems to relate poorly to income after graduation, according to some of evidence coming to light. (Simmons, 1973), (Simmons, 1974). For this reason the attention of Knowledge Generators has been refocused, in many cases, upon outlying and seemingly maverick education programs in efforts to find cases in which education has had some of the hoped-for impacts. If these efforts are successful there will be a clear premium on the speedy and efficient communication of research findings to Sponsors and other development agencies.

In addition to direct contact between AID officials and university researchers, the tactic of AID publishing technical reports and papers through the Government Printing Office provides another opportunity for knowledge exchange. While not useful for improving efficiency in data

generation, these reports can be useful to academics by communicating to them the state of the art in USAID's program of field analysis and on internal policies with potential impact on universities. Staff interviewed at Britain's Overseas Development Mission cited USAID's dissemination of technical reports as a useful practice that ODM itself intends to adopt in the near future.

NETWORK SYSTEM III: MDC-LDC LINKAGES

Communication between MDC and LDC institutions and individuals poses some of the most difficult problems to be dealt with in international efforts at educational planning. This is so because this pattern of communication crosses problematic boundaries such as language, culture, national interests, and ideologies. Another source of difficulty lies in the great diversity to be found within most LDC's. In most cases, the gap between the modern and traditional sectors within an LDC is far wider than that between international participants in educational planning knowledge exchange.

This communication pattern has two aspects, the first being the transfer of information about problems and the environments in which they are to be solved from LDC institutions to MDC institutions; the second is the transfer of research findings and problem solutions back to the LDC's. The first aspect creates problems in that it is often necessary to convey to MDC Knowledge Generators holistic knowledge of an environment which they have never experienced. Some measure of this problem can be seen in the Peace Corps' efforts in training volunteers. Despite the use of returned volunteers, LDC nationals, and media presentations to prepare trainees for LDC environments, involving over hundreds of hours per trainee, there is an abiding sense of frustration at not being able to do a better job in this area.

Transferring research findings and problem solutions back to their recipients in LDC's also creates its share of pr blems. The recipients must often be identified, and then motivated to use or pass on the knowledge. Often the knowledge is not in a directly useable form, and must be modified, or must be stored until conditions conducive to its use can be created. Opportunities are numerous for knowledge to become distorted or lost, or to simply gather dust on a shelf.

SECTION III: TECHNICAL ASSISTANCE FOR SELF-RELIANCE--PARADOX OR PROMISE?

"Self-reliance" has become a very fashionable term in discussions on development strategy around the world. (See, for example, the 1975 Dag Hammarskjold Report, largely devoted to this theme, and summarizing much of the current thinking on the subject.)[1]

The notion of self-reliance, however, is full of ironies and contradictions as a basis of strategies for technical assistance. One hears the phrase, "the best way to get money from sponsors these days is to say you want to be self-reliant." But the anomaly is an old one. In the 1960s a CLACSO policy research group came together in Latin America to discuss the issue of research dependency on foreign funding. Planning a conference to discuss the problem, they found themselves in the paradoxical situation of choosing whether or not to accept a Ford Foundation offer to underwrite the conference. (They accepted.)

Can one indeed provide technical assistance of a sort that helps developing nations to become self-reliant? Is there such a thing as educational planning assisted by <u>gringos</u> that helps others escape from our influence? Or does the logic of self-reliance force us to conclude that LDCs are better off altogether without foreign university help, however well-meaning? Obviously the answer depends on how one defines self-reliance and how one defines technical assistance. It also depends on the specific arguments

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[1]The Hammarskjold Report was prepared primarily for the United Nations as audience. Published as a special issue of the journal, Development Dialogue, and entitled "Another Development" it stressed (1) shift of attention to satisfaction of basic needs as the focus of development processes; (2) strengthening self-reliance in the Third World, both on the level of international collaboration and local self-help; and (3) recognition of environmental limits on growth, along with equity issues that arise from this, and the need for ceilings on resource exploitation by the rich in addition to floors for the poor.

that one might entertain about the possibility that technical assistance--say in educational planning for poor communities--is ultimately counter-productive.

In most of our research, we have found people aware of this issue in various forms and we have observed responses on a number of levels: there has been considerable rhetoric calling for a more "mature partnership" between donors and recipients; there have been efforts to improve "needs assessment" through improved data on the "have-nots," application of new techniques like sector analysis, and more tactics aimed at a "client-centered" dialogue (e.g., presentation of a broader range of technical options; brain-storming problems prior to development of solutions; training of clients to take over key roles more quickly). On the other hand, it is difficult for anyone in the business of technical assistance to seriously consider the possibility that there is a fundamental contradiction between what he or she is doing and the fundamental interests of the target community. Consequently, strategy options that we have encountered in our research deal with tactical options within the framework of traditional strategies, along the lines of Network Systems I, II, and III considered earlier. Given who we are, it is easy to say our job is to "work ourselves out of a job" for a particular mission, but almost impossible to say, "we shouldn't be here in the first place."

The "self-reliance" argument begins from the other end. We start by reviewing the arguments in favor of a "pure" strategy of self-reliance--based on the reasoning that technical assistance engenders forms of dependency that defeat its own purposes. Then we attempt to respond to these arguments by way of a search for the conditions under which the self-defeating nature of technical assistance can be overcome. In so doing, we seek to re-establish a case for educational planning on behalf of poor communities involving American universities. Hopefully, we end upon firmer ground than the

traditional faith in our profession--that "because we are doctors, we must be healers."

Why go this route? Why start from the viewpoint of our severest critics? First, this is as close as we might ever get to a "scientific" assessment of technical assistance. The real test of a scientific proposition is not that it is verified in successive experiments but that it resists falsification by tests which attempt to establish rival hypotheses. Our faith in the role of American universities can be made scientific to the extent that we are willing to expose it systematically to the doubts posed by rival beliefs.

Second, as should already be clear, our discussion of Network Systems I, II, and III are not fundamentally threatened by any conclusion we might reach here. Self-reliance is by no means an exclusive goal for development efforts. In fact, it is probably a minor concern of most educational planning efforts.

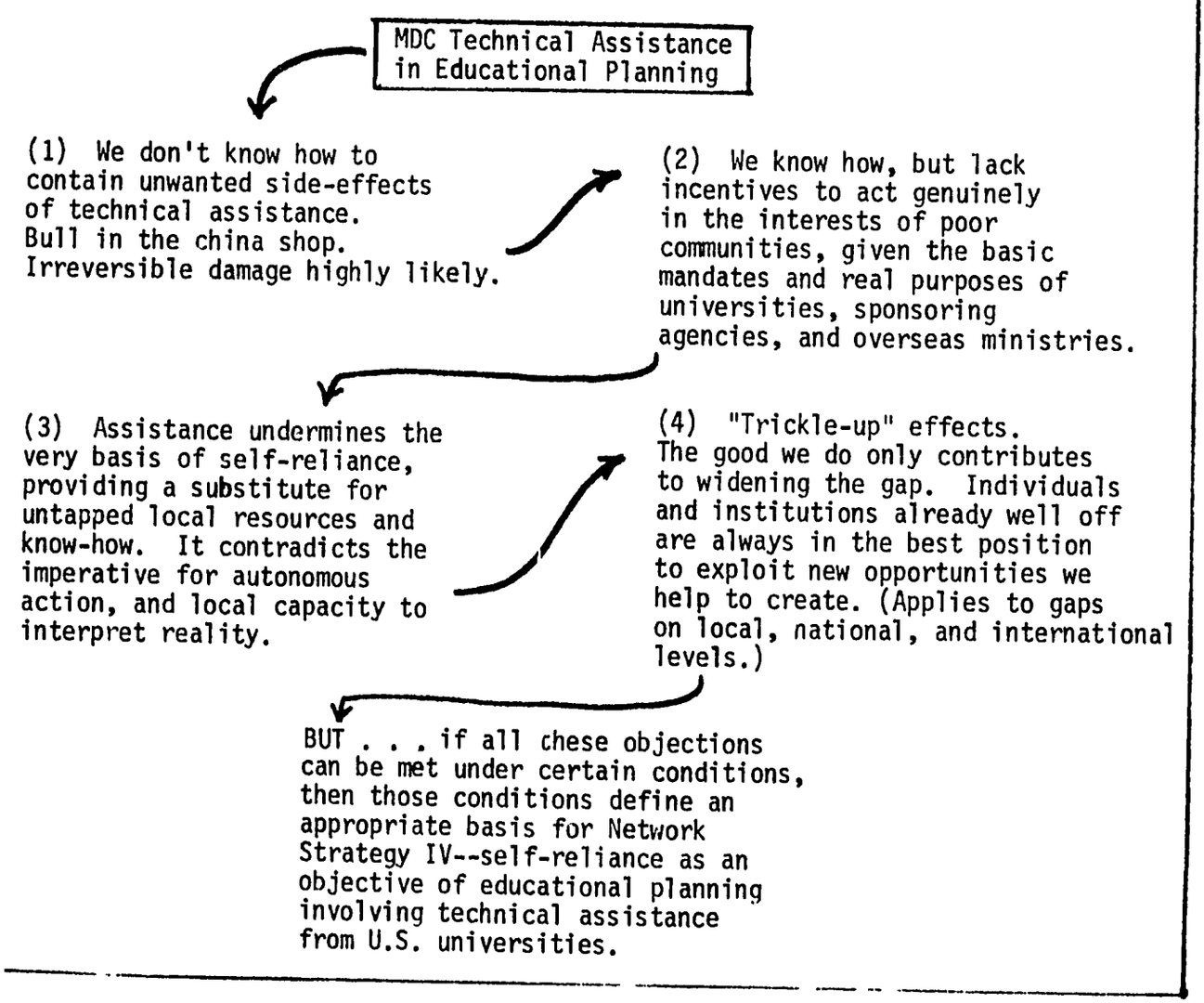
Third, the arguments to be reviewed here lean heavily on faith and anecdotes, just like most of the other beliefs that guide our professional work. No one knows enough to guarantee success in this business, but by the same token, no one knows enough to guarantee that technical assistance is necessarily harmful to recipients. What the review might help us with, however, is to recognize some of our worst mistakes, and to provide a sketchy map of where the deepest pitfalls lie in the mists of our collective ignorance.

Fourth and finally, the exercise in stating criticisms and responding to them can result in a new set of design criteria that might revalidate some of our earlier strategies.

Figure 1 depicts four separate (though interrelated) arguments addressed to the possible counter-productivity of technical assistance efforts. Each argument will be briefly stated; possible responses will then be outlined, and policy implications drawn. The intended result is a set of design criteria directed toward elements of an educational planning appropriate for more self-reliant forms of educational development for poor communities, as guideline for educational planning strategy.

Figure 1. NETWORK STRATEGY IV: SELF-RELIANCE

"Is Technical Assistance for Self-Reliance Self-Defeating?"



First argument: "We don't know how" is the title of a recent book on American foreign aid, highly critical of USAID programs, and concluding on the note that we ought to solve our problems of poverty at home before imposing non-solutions on others. But these authors are really not getting at the basic problem: all they are saying is that our claims of success have been exaggerated (which is possible, but only anecdotally substantiated). The more important question is whether our efforts, successful or not for what they intend to do, are also producing unintended side effects of an even larger magnitude inflicting irreparable harm to the intended beneficiaries. That case that this is so has been made along roughly two lines:

(a) ecological arguments stress the interdependence of social processes, the importance of secondary and tertiary impacts (See Appendix D), the difficulty or impossibility of foreseeing unintended consequences or planning accordingly, and the likelihood that such effects will be negative rather than positive in a richly ordered eco-system. Much of the evidence here comes from biological eco-systems--for example the mounting evidence that livestock development programs supported by USAID in Africa were directly responsible for the Sehelian drought (Ormerod, 1976); Wade, 1975). Models of development emphasizing social (as opposed to economic) structures also point toward the fragility of cultural, moral, and organizational infrastructure in the face of large scale non-indigenous interventions. (Indeed, we have all been calling for "change of structures" as if this were an unalloyed good, with nobody getting hurt but the "bad guys.") "Structural" analysis of the role that education plays in social development and breakdown of indigenous capacities for autonomous action, have also begun to emerge (Simmons, 1974). USAID and other sponsoring agencies have begun to respond to these arguments--in fact acknowledged these arguments (often sponsoring the research which has led to these conclusions), but how to respond to the arguments is not clear. USAID's attempt to plant educational assistance in a more holistic framework of social processes through the use of

sector analysis has led to what some have called "disasterous" results in terms of resulting policies.[1]

(b) The second line of reasoning is a more general premise that American foreign aid cannot escape its fundamental bias toward inappropriate technological solutions. In the broadest sense, this reflects the general treatise developed by Heilbronner (1974), Dickson (1974), and others, to the effect that even at home, we are trapped by the technological structures we have created: not only does the present infrastructure make any basic changes impractical (from a purely utilitarian calculus), but it destroys our capacity even to consider seriously any alternative philosophy of what constitutes social worth.[2] (This is an old idea in Marxist philosophy - that thought is governed by existing relationships of production; but it has a new revival on somewhat different grounds in E.F. Schumacher's concept of "Buddhist economics.")

Just as adaption of cities to the automobile culture lead us down a one-way street toward high energy consumption in our everyday social interaction, so adaption of minimum standards of education lead us to a educational standards of skill and socialization making us dependent on these skills for our minimum sustanance. If education teaches us these standards of conformity and inter-dependence in our own society, how we seriously plan for greater self-reliance on the part of theirs?

What does all this mean for the design of Network System IV? The point is not to support or refute the arguments just cited but to consider what if they do have some validity - where would this lead us for re-constructing an "appropriate technology" of knowledge networks?

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[1] Opinion expressed by one Eurpean consultant on sector loan programs in Colombia, interviewed in summer 1975. See also Hudson, 1974, "The Sector Approach: Some Promises Still to Keep."

[2] For a review of several works on the subject of technology and politics, see Obler, 1971.

(2) Appropriate technology. Even if we don't yet know how to asist other countries in self-reliance, we are learning fast about ways to deal with the inherent paradox of that task. In particular, some of the most advanced work on "appropriate technologies" is being done in the United States, in fields ranging from local solar energy development and energy-conserving farming, to paramedical health services and cheap hand-powered refrigerators for food. Some of this effort involves genuine invention (see for example Papanek, 1972), but much of it involves rediscovery and dissemination of traditional methods. USAID, for example, has helpe to promote hand-made bricks for housing construction in Guyana, aimed at replacing in part the need for cement imports to that country. (HUD International. Information Series 8, April 12, 1971, p. 1.)

The notion of "appropriate technology" applies to education as well. Non-formal education has also been advocated as constituting a form of appropriate educational technology in the sense that its advocates may to the extent that it is designed to avoid heavy bureacratic structures that prevent its on-going adaptation to local needs. Even sophisticated technology may be "appropriate" to the needs of poor communities under certain conditions. One major consideration is keeping per capita costs low enough so that coverage can extend beyond pilot programs benefiting traditionally favored communities. Another factor is designing programs to suit the intellectual, and cultural absorptive capacity of students, rather than requiring students to meet entry standards that have tended to discriminate against poor communities. A third factor is designing programs realistically geared to the adaptive capacity of the teaching force (a point well developed by Clarence Beebe in his Stages of Education Growth). On these grounds one can identify cases where USAID has helped to promote "appropriate" technology in education--the Comilla Project in Pakistan, ACPO in Colombia--and also some fairly "inappropriate" technologies, such as the comprehensive high schools in Colombia.[1]

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[1]There may have been other good reasons for this comprehensive high school program, of course.

(1) The "Hard Line": Protectionism. Taking the previous arguments at their face value, we might agree with certain of our critics that it is time for us gringos to simply pack up and go home. Actually, this is not such a radical idea. It is only radical because it means we go home now rather than later when LDCs will presumably be more "ready" to fend for themselves. The case for protectionism from MDC assistance is in some ways analagous to the case for economic protectionism in contrast to free trade. For those who view LDCs as locked in archaic economic, cultural, and political institutions some sort of intellectual free trade is perhaps the only answer. On the other hand, others look at the same evidence and conclude that the central problem is in fact underdevelopment defined as the persistence of unequal relationships between countries and between sectors within a country. An economic example of under-development would be the British use of cheap manufactured goods sold through free markets to undermine indigenous cottage industries in India (and once this process had advanced far enough, establishing legal monopolies in many commodities).[1] Examples of under-development in the field of education could include establishing dependence on MDC-style education systems, educational technologies, or educational planning methods, at first because their LDC counterparts do not exist, or are apparently inferior, but ultimately because the MDC ways of doing

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[1] Western trade with China and Japan was initiated in each case by force of arms. Treaties imposed on China included the right of Western powers to trade in opium, as well as introduce cheap goods on a scale that virtually wiped out many classes of small merchants, craftsmen, and transforming them into a new class of indentured laborers. It was a sorry chapter in American history, at least from an Asian perspective. Presumably American foreign policy has changed since then, but hardly on the basis of repentance or explicit recognition of harm done (or the harm we may be doing now). Few of our history books give an honest account of our role in forcing trade upon Asia, and fewer still interpret the encounter from any perspective but America's. For that matter, nothing really fundamental has changed in our basic philosophy of trade and aid: the doctrine of free enterprise, based on the utilitarian pursuit of self-interest continues to stand for the ideal we defend on moral and military grounds around the world today.

The point here is not to make a moral judgment about what America exports, but raise the important question of how much can we deal honestly with the nature of our own actions, and learn from past mistakes. Undoubtably some of the people can do it some of the time; but judging from the way we write history books, it seems that most of the people cannot do it most of the time.

things become ineradicably established in LDC's, and develop their own logical unfoldings and interest groups. A similar state of underdevelopment may exist in the relationships between modern (well-off) and traditional (poor) sectors within an LDC, or even a community. Some of the penalities of underdevelopment are that it becomes increasingly difficult and expensive for underdeveloped countries or communities to develop indigenous solutions for local problems as their dependency on outside resources increases, and that they may become increasingly attached to the institutions providing these resources in order to pay back earlier loans. This is a crucial point: the "protectionist" argument rests on a sophisticated appreciation of the "ratchet effect" in dependence: assistance is addictive in the sense that if anything seems to go wrong, the immediate reaction is to go for a larger dose. By the time that fundamental doubts are raised about the value of the treatment, the client has lost the power to say "no."

To the extent that is a valid picture of technical assistance "dependency" it calls for severe measures. The slightest compromise injects the seeds of future irreversible addiction. Such is the "pure" theory of protectionism - the null hypothesis to be confronted with any other version of Network System IV that we might propose. It is mutually exclusive with any of those alternatives.

(2) LDC - Based Knowledge Networks. The first use of imported knowledge in LDC's is likely to be of the nature of a pilot or demonstration project. After that its use on a more everyday basis depends largely on the extent to which LDC nationals in various roles exchange this knowledge among themselves. There are a number of barriers to this process in LDC's which may prevent this from happening naturally, and which may require the devotion of special attention and resources to this problem. Foremost among these barriers may be poor communication and transportation system that all but isolate LDC knowledge generators, knowledge utilizers, and officials not located in major cities. Scarcities of various resources, including funding, may prevent conferences, newsletters, and broadcasts from happening unless

special provisions are made. Finally, given the deeply-rooted traditions of stable technologies and ways of doing things in general that still persist in most LDC's, the need for contacts among knolwedge utilizers and other categories of people may simply not be seen, even by those to which it might be expected to be obvious.

Besides their function of spreading knowledge beyond isolated pilot and demonstration projects, communication about knowledge in LDC's is valuable in that it can aid the process of adapting knowledge to fit local needs and resources, and in disseminating such adaptations. The importance of this step may be very great. For example, the researchers of the process of educational innovation in one project stated that knowledge that has not been modified to fit local conditions can safely be assumed to be knowledge that is not in use. (Berman and McLaughlin, 1974).

LDC-based knowledge networks have several other advantages. First, they offer a medium for developing new knowledge in a geographic and cultural context close to the situation where knowledge is destined to be applied and validated. In this sense, long-term development strategies can develop a capacity to learn from past successes and failures — in effect a memory, which is often lacking in a succession of externally funded technical assistance projects. Second, knowledge networks can provide a medium for 'on the job" training of LDC technical assistance experts within their own countries, localities and international regions, avoiding costly scholarships to MDC institutions, and the associated effects of brain drain. Third, knowledge networks within LDCs facilitate on-site visits to successful projects, face-to-face exchange of knowledge, and stronger endorsement by locally prestigious experts - all of which help in diffusion of innovation. (Rogers, 1962, pp. 50, 311-12). Fourth, local networks allow a country or region's most qualified people to become involved in the process of broadening the application of available knowledge, whereas involvement in international networks often requires people who are fluent in other languages, or who are "unimportant" enough in their own country to be "dispensable" for extended trips abroad. Fifth, LDC networks - unlike traditional international linkages - have the potential for being centered

within the actual target community, helping to keep the focus of planned action on intended clients, and avoiding the diversion of efforts toward more "entrepreneurial" clients in other sectors. On a more theoretical level, an analogy can be drawn between the need for LDC-based knowledge networks and the function of lower-level perception - action circuits found in the biological systems of all advanced forms of animal life. Lower-level circuits are in effect reflex arcs, which provide coordination in accordance with mechanical rules. Typically, these are invoked far more often than circuits involving problem-solving or problem-seeking though processes. Planners - particularly those from academic backgrounds - tend to think that explicit rational thought should guide all action, but in fact this is extremely inefficient. Thinking as we all know, is hard work, and pondorously slow. Progess comes about in science and industry and social relations not really because we have become more "thoughtful" but on the contrary, because we have been able to consign so much to unselfconscious processes whereby things become standardized, routine and carried out without need for conscious attention. Thus, the successful operation of a development project, and its assimilation into the LDC context may require its comprehension by LDC nationals, not only on the level of conscious knowledge, but also on the level of reflexes and mechanical rules to be followed when various circumstances arise. In a sense, the bulk of operations must be not only learned, but 'overlearned' to the point where it becomes second nature. In contrast, these lower-level circuits may be largely rendered ineffective in a cross-cultural/language/technology/political context because the unwritten and largely unperceived rules by which they operate may not be jointly followed by both sides of the interaction. This in turn has the effect of throwing an unusual number of decisions into the realm of conscious thought and continual reinvention of social rules.

The development of local knowledge networks would not necessarily replace international networks, but would likely require a shift in foreign assistance toward more specialized supporting roles, which giving more explicit recognition to the importance of indiginous solutions. Along these lines, The Dag Hammarskjold Foundation (Uppsala) is shifting its main efforts from research to communications as the

source of knowledge for educational planning. New publications are appearing along the lines of Andreas Fuglesang's Applied Communications in Developing Countries: Film-Making.

Other ways in which MDC agencies can assist in bringing together knowledge production and use within LDCs can be illustrated by model organizational practices such as the following:

--The Innotech Center of SEAMEO (Centre for Educational Innovation and Technology, Southeast Asian Ministers of Education Organization). This Centre assists member states in the identification and resolution of common educational problems, undertaking research, training and experimentation programs, as well as publishing.

--ECIEL the Latin American network developed to coordinate research efforts within Latin America on problems of economic integration.

--ALER (Latin American Association of Radio Schools) a forum for exchange of experience and basic knowledge, ACPC being a key member.

--CSED/Harvard project on Utilization of Educational Specialits in LDCs. This is an AID-financed project to identify specialists, analyse the status of their present utilization, and develop a plan for their more effective utilization through directories and possibly other means.

--SIDA (Swedish International Development Agency) because of its limited resources and recognized areas of specialization (eg in cooperatives), SIDA tends to work through world-level agencies (like IIEP) so as to maximize the "reach" of its technical asistance capacities.

--Great Britain's Inter-University Council (IUC) serves as a world-wide broker for universities seeking technical assistance from British institutions of higher learning.

--Recently, a combination of foundations, international development banks, MDC governments, and the UNDP contributed to the establishment of a new network of research centers, the Consultative Group on International Agricultural Research

(CGIAR). As an umbrella organization for such institutions such as IRR* and CIMMYT, CGIAR may not invest as much effort in strengthening national programs as its member institutes, but CGIAR at least extends the potential of responding to a broader variety of requests for spreading the Green Revolution to new crops and previously neglected climates and soils. As such, it suggests a model that might equally apply, to education, for example as an international clearinghouse for significant efforts like ACPO and Comilla. (See Wade, 1975).

--Along more modest lines, ODM (the British Overseas Development Ministry) is moving to overcome its past stinginess in supporting information diffusions, and intends to publish research abstracts, emulating current practice ascribed to USAID Washington.

Europeans interviewed in connection with our own research at UCLA noted two emerging problems of international "support services." One is the proliferation of information, for which the SIDA approach seems the right answer (dissemination through a few, specialized world-wide institutions, or regional centers where appropriate). The other problem is the shift (noted both in IIEP Reports and in the 1975 Dag Hammarskjold Report) from quantitative to qualitative emphasis in education planning. The shift is toward issues of quality and relevance of education; equity, innovation, integration with new development priorities, evaluation methods, "planning by brain-storming," social mobilization and participatory planning. As a result, old planning categories have broken down, and information can no longer flow easily through the old channels. Of course there remains a residue of internationally valid methods, schemata, planning models and data requirements. Some Europeans, however, are suggesting that as planning becomes more sophisticated, less clear-cut, and more "realistically merry," meaningful knowledge will have to be generated, taught, and re-applied in the form of <u>case studies</u>, addressed to specific political, cultural and economic environments. (Raymond Lyons at IIEP remarked that ten years ago we know what "educational planning" meant. Now we don't, anymore.) One implication might be the need to search for case studies at the level of <u>local</u> knowledge networks, using process skills provided by the international avant guard, but solutions that

are more strictly home grown.

(3) Voucher systems to replace "tied aid." Britain has recently moved away from regulations tying assistance to purchase of UK products. More modestly, the U.S. may be moving in the same direction. At least some of USAID's programs in Colombia under the "sector loan" formula have allowed local decision-makers greater choice in how to spend funds and whom to ask for advice than in the more narrowly focused project and program loans of the past. An outright system of internationally accepted "technical assistance vouchers" would logically force experts to respond more attentively to clients' felt needs.[1] In effect, such a voucher system would create a buyers' market for technical assistance alongside the traditional sellers' market.

Jack Massee at UNESCO and Michel Dubeavais at OECD both suggested that 80 per cent of USAID funds should be spent directly in LDCs. Lew Sleeper (USAID liaison officer to Unesco) responded, "Why not 100 per cent?" Almost everyone interviewed in Europe saw a shift in this direction.

The idea of educational vouchers has been around for some time, and the U.S. Office of Education has promoted experimental programs in their use, for the purpose of giving local communities more autonomy in chosing alternative educational programs. The Rand Corporation is currently evaluating the OE-sponsored programs. Staff interviewed at Rand have identified some possible problems: normal resistance to change on the part of various sectors of the community; lack of interest by traditional administrators in genuinely innovative programs; and ambiguity about what constitutes a legitimate range of choice.

A closer analogy to educational planning vouchers are

Vouchers for education. (HEW has also sponsored a "Community Service Voucher Program" under Title One of the Higher Education Act of 1965). Under this program, community groups are issued $10,000 each in vouchers which they redeem in the form

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[1] Of course, there are always strings attached to any assistance program: countries which chose the "wrong" advisors might not get as many vouchers on the next round. Furthermore, instructions on "how to apply" for vouchers would probably require a good deal of technical advice from the donors (as is currently the case with "national planning" required to qualify for some forms of World Bank assistance). In any case, the client may genuinely need help in translating "felt needs" into operational priorities and appropriate choices of program lists of policy alternatives, reasonable lists of policy alternatives, and appropriate technical assistance to make these choices.

of purchases of university specialists in areas where the organizations need help. Some good reports have come out of Northwestern University's experience with the program (Pitts, 1975; Ward, 1975). One finding is that it requires an unusual amount of soul-searching, mutual learning, and diplomacy on the part of both client and provider. This raises an interesting point: are such negotiations to be considered a cost of the program, or the mark of its effectiveness? As we see it, the answer goes back to an earlier point: that one must make an initial choice between the objectives of knowledge dissemination or knowledge exchange, and between knowledge application and validation. The Northwestern program in Community Service Vouchers seems to be an appropriate and successful model for knowledge exchange and validation as we have defined those terms; and it speaks directly to the issue of a technical assistance strategy that is "client-centered" in terms of responding to the communities own priorities. But as the Northwestern evaluation readily admists, it is not a cost-effective way to deliver pre-conceived solutions, or disseminate pre-packaged knowledge to a large audience.[1]

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[1]The Northwestern vouchers wer used for programs that were fairly a typical for the university, though often relevant to the kinds of needs met in an LDC. Among other tasks, Northwestern undertook (a) a survey of social needs in a local neighborhood; (b) the launching of an automobile repair enterprise and an educational referral service for the Illinois Congress of Ex-Offenders (an organization of former prisoners); and (c) rooftop solar greenhouse development in West Chicago, to grow food for low income families. Longer-term involvement in such programs might streamline delivery of university services, making the effort more efficient but reintroducing a bias toward "standardized" solutions. These trends are evident in the history of Land-Grant colleges.

Second Argument for Self-Reliance: Lack of Incentives for addressing the real needs of poor communities.

This is a complex subject, prone to polemics, so only a brief treatment of the "incentives" issue will be attempted. Disincentives arise on several levels including (a) university structures, (b) international relations, and (c) "supplier effects."

(a) University disincentives to knowledge utilization are seen to include: pressures for publication (specialized, theoretical and original work, rather than practical synthesis of available knowledge to problem-solving in particular settings); lack of economic incentives (particularly in competition with private-sector consulting, where practical work is more highly rewarded); prestige and status rewards that are provided by professional organizations, but missing in the field; dominant academic paradigms that refer to conditions of industrialized nations but are less applicable to LDCs or poor communities; political pressures (from outside the university) against support of unorthodox approaches to social policy; and organizational distrust by the university of faculty members taking on personal commitments to groups on the outside (true of most organizations, except that a university has less moment-to-moment control if its faculty's behavior, and must therefore rely more heavily on "socialization" in conformity with academic goals.)

One of the activities sponsored by the UCLA networks project was an informal conference at Harvard's Center for studies in Education and Development (July 8, 1975), bringing together a number of scholar/practitioners particularly concerned about how planners deal with knowledge with respect to the "Primary Groups," i.e., how knowledge was generated and transmitted to the PG's, and how the PG's transmitted knowledge about themselves and their needs to planners and scholars remote from the immediate problem context. In ensuing discussion it was brought out that this concern was shared by all present. There was doubt whether the US university- especially the high quality academic ones - and some of the scholars who inhabit such domains

were interested in, or capable of, dealing effectively with this problem. That there was a problem was agreed. Nobody could produce many success stories about professors, or institutions, who made their reputations by handling immediate, situational, unprocessed, and often ungeneralizable knowledge of the field. Field men do not prosper; at least the Harvards did not think so.

The same has been observed in connection with university roles in public service within the United States. (Galovin, 1969, pp. 471-473). An All-Campus conference of the University of California, addressing the theme "Applied and Public Service Research," (1974) provided some remarkably frank testimony, both among faculty and clients of U.C. public service, in regard to the tensions between university interests and those of particular clients. Problems include:

--faculty willingness to engage in politically risky effort potentially embarrassing to the university;

--lack of on-going communication with communities outside academic circles; consequently a lack of "realism" in problem-solving efforts;

--the traditional university view that applied research tends to be "short-sighted" relative to basic research, and can just as well be done by governmen or industry;

--a concern for esoteric treatments and problems in professional schools (notably medicine), rather than the more common problems found among poor populations;

--promotion and tenure requirements insensitive to public service;

--academic freedom, including the freedom to be irrelevant.

(b) International relations. International technical assistance represents a monumental achievement of the Twentieth Century the development of organized attruism on a global scale. Yet history teaches us that every crusade becomes a vehicle for a diversity of interests, some explicit, some covert, some unconscious. USAID's own mandate is full of ambivalence, reflecting in part the diversity of public opinions represented in the American congress and presidency. Along with its genuine interest in serving poor communities, USAID must respond to other expli provisions of its mandate: to maintain peaceful relations with foreign governments to protect American commercial interests overseas, to export American values and

resist communism, to learn from others (apart from what we might teach in return), and sometimes simply to move money quickly (for balance of payments and political purposes) - sometimes in a way counter-productive to real needs.

It would be a tragic mistake to deny the genuine concern for poor communities that underlies much of technical assistance; but it is equally naive to deny the variety of obligations that international agencies must respond to from other quarters. Similarly, it would be a mistake to assume that the major conflicts arise from national self-interest: they may just as easily be ranged along multi-national lines, or along class and caste and geographic lines within a particular country. Geoffrey Oldham feels that national interests may prove fairly superficial and possible to overcome if discussions can take place in a setting where such roles "don't work." He cites the case of an outstandingly successful international conference held by SPRU (Sussex University's Science Policy Research Unit) in Barbados. At this conference, accommodations were designed to be very modest, with two persons to a room. Being high-level officials, most participants were appalled; but thrown together, people began to chat more informally personal friendships developed, and major difficulties in the formal meetings were successfully attacked with a spirit of "we shall overcome" very unusual for such meetings. Other Oldham seminar tips:

--Get the right people - committed, knowledgeable, and critically placed in policy making.

--Distribute background material, concisely defining the state of the art.

--One member of the group should have a specific research project in mind. (Plans of action do not come out of general discussions.)

--Use of "old boy" networks - especially graduates of the same training program, but possibly members of past task forces. (In contrast, UNESCO designs its teams precisely to prevent members from thinking too much alike.)

(c) Supplier Effects. To the extent that educational services are supplied by organizations outside the target community, the delivery system may evolve a set of organizational purposes that diverge from official goals. (Benveniste, 1975, pp. 12-14). It is not usually possible to directly assess the motives of the

suppliers of educational plans and educational services; nor is it really necessary. It is only necessary to look at the objective interests served by specific plans and policies and assume that most organizations sensibly pursue their own interests as diligently as they do others'. This does not exclude altruistic behavior, in that philanthropy constitutes an intrinsically rewarding experience for many people. But if we are to be open-minded about altruism, we must also be open to the other kinds of rewards that accrue to organizations and people in the business of educational planning.

The supplier and the consumer of services are not equal partners in negotiating policy priorities and program options. It might be supposed that the client being more numerous has the edge, but in fact this may constitute the clients' very weakness. A target community is likely to be more diverse than the organization that supplies educational planning or other technical services, whereas the supplier can act with a single mind. The community is not in the "business" of education full time; the supplier usually is. The client is not trained to deal with suppliers, but the supplier is usually experienced in dealing with "lay" clients. The community's state in one or another form of education is likely to be problematic; for the supplier, it often comes down to an immediate contract, a turning point in a career, or perhaps the jeopardy of livelihood if a negotiation falls through.[1] The supplier is typically an expert in the rational calculus of means and ends; the client may have accurate perceptions and intuitions, but lack the vocabulary and experience and accepted logic to protect the community's own interests. The supplier often has more immediate access to financial resources and expertise and delivery capacity for a favored policy than the community is likely to have for any alternative it might propose.

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[1]Performance contracting in education brought many of these issues into the open.

The supplier is also likely to have well-established channels of communication to persons of influence in specialized areas of policy: thus, a community may have educators and political representatives and organized interest groups; but the supplier - say of a particular piece of educational equipment - will have focused its influence on key officials in charge of educational equipment, whom no one else may ever have heard of.[1]

The point is not that suppliers are likely to be unscrupulous, conspiratorial or cynically self-interested, at least any more than the community pursues its own interests. Political lobbying is usually an open and legitimate forum for professional and commercial interests in most countries. The point is rather that supplier self-interest, if it exists, can be pursued successfully in ways that appear to be, reflect a "mature partnership" with representatives from the target community, when in fact the relationship may be quite unequal. It is not so much a question of who has the power, but who controls the "legitimate" expression of a particular reality. Educational planning - which necessarily begins with a "stripping down" of reality to manageable dimensions - has an inherent tendency to favor the legitimacy of places as seen from the perspective of the supplier - the expert and the provider of thought-out solutions to problems.

Possible distortions by the supplier effect upon educational policy are not easily demonstrated, because a case must naturally exist for at least a partial overlap between supplier and community interests. The real issue is how partial or how complete is the overlap? and what other consequences might result from a particular policy besides the costs and benefits already made explicit? Here no agreement might exist, insofar as suppliers most usually abstain from treating the community's reality as a totality, while the community does not have the experience to judge the ultimate consequences of policies in a particular problem area.

Operating with such a wide margin of uncertainty, the target community has two

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[1]The argument regarding the particular strength of supplier effects is developed further in Hudson, 1972.

choices. It can make a decision that the basic motives of the supplier - whether unconscious or covert or explicit - risk too much of a divergence from the interests of the community and fall back on a strategy of "pure" self-reliance. (Elements of such a strategy will be addressed later.) Such a policy requires courage in that it is usually difficult to appreciate the value of "nothing" over "something" if given the choice. More often than not, self-reliance is imposed by default of the supplier. Kenya's present emphasis on "self-reliance," for example, rests strongly on a self-help tradition fostered by a long period of denial by the former colonial government. Groups seeking independent nationhood saw the need for an educational system separate from government and missionary authority. (Anderson, 1973) The Kenya tradition was therefore established with little "opportunity cost" incurred by way of abstaining from services offered.

The alternative to "pure" self-reliance would be the development of a knowledge network strategy reasonably "dis-connected" from the outright providers of educational services. The idea is analogous to having the noise in one's car diagnosed by a mechanic who is not in the business of actually repairing cars. Where are "honest mechanics" to be found in educational planning? One place might be an institution like ITDG, which has the following interesting characteristics:

(a) it operates on a minimal budget (about $130,000 financed from a variety of sources) and its modest size - consistent with its "small is beautiful" credo - helps preserve its identification with groups distrustful of expensive complexity.

(b) It is explicit about its ideology, in the sense of providing a consistent operational framework for assessing priorities: unlike most aid agencies, it warns its clients about the dilemmas inherent in all development efforts. (Jacques Hallak, an IIEP staffer, expressed the same concern about traditional planning and radical rhetoric alike in his book A Qui Sert L'Ecole? As Hallah expresses it, "there are no technical solutions to political problems."

(c) ITDG also relies heavily on university personnel, counting on their relative non-commitment to particular development programs, the moral idealism that a university can sustain and its cosmopolitan connections. ITDG relies heavily on "panels of experts" who conduct occasional seminars on selected problems. Panel members include a large proportion of university-based contributors, often non-remunerated.

This suggests a model that might apply to other forms of knowledge networking addressed more specifically to policies of self-reliance in the educational field. A small, tightly knit institution, provided with minimal funds to work on a delimited but significant problem area, might be able to draw on university staff on a part-time basis with fairly modest honoraria. There are many "ifs" - good leadership, a suggestive but well-defined problem focus, an outlet for idealism strong enough to permit minimum remuneration and weed out persons primarily in it for the job; a good publishing outlet (ITDG has its own journal, Appropriate Technology) and links directly to primary groups in the target communities. At its best, such an effort might constitute a "university without walls," drawing on the best traditions of higher education without some of the distorted incentives found within academic institutions themselves.

Third Argument for Self-Reliance: Aid Contradicts the Imperative for Autonomous Action.

In recent years, there has been growing recognition of resources for development which are not traditionally "counted" as social assets, and which have either been underexploited or thoughtlessly squandered in traditional development policies. Such resources include:

--"Human capital," identified in the late fifties as a major component of the "residual factor" in growth (though later proving somewhat disappointing as a policy tool for manipulating growth rates).

--technology (Denison, 1962).

--social organization particularly at the grass roots level.

--non-renewable resources (Schumacher, 1972--the problem here being over- rather than under-exploitation).

--on-the-job training (estimated to contribute as much as formal education to total human resource development.

The growing pattern of recognition that conventional development programs only touch a fraction of the resources a community can muster on its own behalf raises another, more basic question: how much do present development efforts actual suppress the current, incipient, or potential use of indiginous resources? Experts - particularly foreign educational experts - often bring to bear quite specialized views of the goals that a particular program is designed to achieve, often in response to directives from international sponsors that operational targets need to be unambiguously defined.

The problem of "what is lost" can be approached from several angeles. From a strictly economic standpoint, the loss may be expressed as our "opportunity cost" of underexploited resources. From a cultural and anthropological perspective, the loss may be more serious - the infliction of irreversible damage to social traditions that will require permanent and costly substitutes in the form of social legislation, formal education, legal institutions, long distance communications,

monetized work incentives, and a range of social services for persons uprooted and no longer able to care for themselves. (It should be noted that in most forms of social accounts, all these phenomena become positive indicators of development rather than symptoms of break-down in traditional social mechanisms for self-reliant coping with basic needs.) Convinced of the power of new solutions, international agencies pursue them through a "useless proliferation of techniques," undermining the creative spirit necessary for continual evaluation and re-adaption at the local level. (This is the view expressed by Michel Dubeavais at OECD.) Bert Oram at ITDG insisted that invention should play a lesser role in technical assistance than revealing and adapting "from the past," which can only be carried out in intimate touch with local conditions. Lew Sleeper (USAID liaison to UNESCO) notes the usual tendency of international agencies to overlook the seeds of success in traditional institutions. In North Africa he points out young children memorize the Koran - why not other kinds of knowledge? There already exists a "fantastic array of means to ends," says Gabriel Carron (IIEP). "They are sitting there, like birds in the trees." What's needed is not more R&D in the developed countries, but applied research by ministries of education, as a way of exposing them to the options, and evaluating what's available. Echoing Carron is a statement in the 1975 Dag Hmmerskjold Report on Development and International Cooperation, p. 94:

> The root of the problem lies not in the importation of techniques - the Japanese experience demonstrates that - but in a lack of selectivity.

And Raymond Lyons (IIEP) says, "In the past five years there's been a tremendous emphasis on innovation. We're neglecting to take a sober look at what each country has gone on doing."

In several interviews, planners noted that there is sometimes tremendous bureaucratic pressure to "get the money spent." The need for resources is usually demonstrable, but there is a tendency for it to be dealt out in "quantum jumps," in phase with congressional (or other donor) convenience, but grossly out of step with the absorptive capacity of the recipient agency. The result is not mere inefficiency in the use of funds but sometime serious distortions of priorities.

Thoughtful testing and experimentation gives way to lavish brick and mortar projects setting standards of excellence bound to widen the gap between haves and have-nots in the system. British advisors to overseas university programs now talk about the near impossibility of overcoming the "oxford gold standard" needlessly exported in decades past. American, European and local advisors associated with the USAID-sponsored comprehensive high school program in Columbia have expressed their own misgivings about what they have collectively wrought. Each school costs more than U.S. $1,000,000 each - impossible to provide to any more than a "new elite" of children in that country. (Reflecting on that program, one expert concluded that we have come up against such an acute crisis in our technical assistance policies that we should send all the experts home and let the younger generations of better-trained host-country leaders take over.) Anderson (1973(makes a similar point in rega to self-help schools in Kenya. Community contributions once liberally donated have tended to dwindle in recent years with the proliferation of government imposed standards and controls over local education. Pressure put on communities to "build to government standards" has resulted in delays of locally initiated projects, forced a shift in contributions from labor and materials to cash payments, and threatened to undermine the cooperative spirit which sets the tone for development action on other fronts as well.

Clive Smees at the Overseas Development Mission (London) relates another anecdote about the possible "kiss of death" effect of foreign aid: A number of countries (U.S., U.K., Germany, Russia) were invited to each enter into an assistance partnership with one of India's Institutes of Technology (IITs). (AID's contribution to its IIT was made through a consortium of U.S. universities.) Subsequently, a review team did a summative evaluation of the effectiveness of aid from the various countries. The most successful program, however, was found to be the "control case" - the IIT that had received no outside aid at all and had no pretensions of producing 80 top quality Ph.D.'s in physics for subsequent employment by NASA (as one of the IITs succeeded in doing). Instead, the control IIT had to

rely on funding from local government, which insisted on program development along lines directly appropriate to meet local needs. It is of course possible that NASA ended up doing more "good" by satellite ETV than the control IIT did with its emphasis on "relevance and self-reliance," but the evaluators judged otherwise. (Lest the universities come in for all the blame, it was a university group which made this IIT evaluation).

Considerably more research would be needed to pin down the effect of foreign aid on the "tacit" resources of a community - either in terms of undermining their potential or helping to foster them. The following dimensions of the self-reliance deserve particular attention in regard to the impact of educational planning assistance:

--capacity of the host country to mobilize not only its own financial resources, but also contributions of labor and local materials (Guyana has developed model self-help construction progrmas, with volunteered labor and certain equipment donated by USAID).

--capacity to take initiatives in the design and implementation of local projects (models for action here might include the political support given to projects undertaken by local sheikiats in Tunisia, using streamlined channels of communication through the Neo-Destour Party rather than the more cumbersome formal bureacracy. Canada's Local Initiative Program operates in somewhat analogous fashion).

--capacity to define needs and priorities at the community level relevant here is the work of Freire (1970) and Caillot (1971).

--capacity to evaluate program outcomes in a manner that builds on exchange of experience with other communities facing similar problems (Comilla, ACPO, and the Land-Grant Colleges provide excellent working models for carrying out such an exchange - far better than most of the available literature on diffusion of specific innovations.)

Fourth Argument: "Trickle Up Effects"

It is hard to argue with the fact that the traditional beneficiaries of educational investments in most LDCs have been the elites. The same has been true, historically, in the more industrialized countries. Regardless of how evenly educational opportunities and resources are distributed, children of families from higher social and economic status are almost always better qualified for advanced study, based on academic criteria of promotion. So rare are the exceptions to this pattern that we must be prepared to look well beyond traditional educational structures to find significant exceptions to the rule.

It is also increasingly evident that "trickle down" benefits to the poor are being affected by "trickle up" effects--for example, the tendency of resources to become diverted from poor regions, or captured by the minority of successful people who tend to move out of the target community. In fact, there is some evidence that the gap between rich and poor communities may be widening in the wake of the First Development Decade (Faber and Seers, 1972, Vol. I, pp. 80ff.; Simmons, 1974; Society for International Development Newsletter 13:1, January-February 1976)

Caiden and Wildavsky (1974) describe in some detail the problems of technical assistance for the poorest nations: those who need it most are precisely those who lack an absorptive capacity for the knowledge and resources we have to offer. Thus the basic paradox: we can bridge the narrowest gaps but not the broadest ones. We can build bridges where there are already bridges. What we take to be the objectives of planning--the training of key people, the mobilization of resources and political support, the partnership between autonomous equals--these things also turn out to be the pre-conditions of effective planning. So we aim our assistance first

(and almost always) at those who are already most advanced, whether at the level of the village, the nation, or the international community of LDCs. Of course this is not <u>always</u> true, but we have to look hard for the exceptional case of helping the "worst first." To illustrate this point, Table 1 gives a general idea of trainees attending 211(d) sponsored universities, according to the type of country they came from. There are <u>many</u> qualifications that need to be made before any proper inference can be drawn from this table,

Classification of Country of Student Origin	Stanford	UCB	UCLA	FSU
Petroleum exporter	0	1	13	1
Industrial (U.S., etc.)	-	-	--	60
High income (>$375/cap)	3	3	36	48
Middle income (>$200/cap)	4	1	3	36
Lower income (<$200/cap)	2	1	0	1

<u>Data Sources</u>

Stanford	LDC Projects and inquiries of Stanford ICR, 9/1/73 - 8/31/74
UCB	Field Contacts UCB IEF, 1974
UCLA	Research Projects UCLA LAC, 1970-73
FSU	Center for Educational Technology

and the data itself has not been checked carefully. The table is intended to <u>raise the issue</u>, not provide any answers to the question of who benefits most from technical assistance aimed at "poor communities." (For all we know, it may be elites from the richest countries who are most dedicated to helping the genuinely rock-bottom poor.)

Not much serious research has been undertaken on the redistribution effects of public policy. James Bonnan (1970) has reviewed several studies of long-term programs aimed at providing more equal opportunities in the U.S. (farm subsidies, higher education, land reclamation). He concludes: (a) we don't know much; (b) what we can measure turns out to be surprisingly

regressive, contrary to intentions; (c) much of the regressive effect stems from a factor that cannot be easily anticipated, or easily measured--namely, the superior ability of people who are already well off to adapt their behavior more effectively than the poor, to maximize their access to whatever benefits are provided; and (d) once this behavioral adaptation takes place, it creates institutions which protect those interests, making any significant corrections in the system politically unfeasible. (This is a good example of "third order," or institutional effects, which are less visible, but ultimately more determining of outcomes, than the transient resource flows involved in "first" and "second order" effects.)

What are the implications of the "trickle up" process for the design of knowledge networks? First, we might fall back on the old strategy of pure protectionism, and wash our hands of the matter. But this assumes we do less harm by withdrawing from the scene than sticking around to put a finger in the dike. On the other hand, we may have learned enough about the nature of trickle-ups to know where rear-guard action can do some good. We can point to it where it appears, and may eventually find ways of stemming the flow early enought to prevent its getting out of control. Michael Lipton, for example, has pointed out a situation where discrimination in favor of the <u>least</u> advantaged might pay off, even economically in the short run: such might be the case of small farmers in India, whose yield per acre is actually higher than for larger commercial farms. At present, substantial resources are not allocated to small-holders, because politicians are more interested in the big enterprises which sell their output on the market (Reported in Faber and Seers, 1972, Vol. 2, p. 60). International assistance agencies cannot openly meddle in the politics of another country, but they make more self-conscious decisions about the support or resistance they bring to bear on trickle up

policies of this kind. The very act of breeding discussion--within an agency or between them--can at least keep us from repeating major unconscious mistakes of the past. European interviews, seemed to indicate a growing interest in examining the role of MDCs not simply in terms of their ostensible aid to development programs, but also in terms of the unintended hindrances that they pose to development, through trade policies, technology biases, consumption standards, political interference, arms exports, control of media, and so on. Although much of this is simply rhetoric (not new to USAID and the World Bank), some agencies seem to be focusing their operations directly on some of these issues, notably the Intermediary Technology Development Group (London) and the Science Policy Research Unit (Sussex). AID as well, there seems to be growing attention paid to systemic analysis of assumptions underlying alternative strategies. Procedures for assumptions analysis exist: the logical framework (in standard use at AID, among other agencies); dialectical scanning; investigative journalism; participant observation methods; and the so-called "transactive" style of planning with its emphasis on dialogue with the persons ultimately affected by planned systems.

As an alternative to protectionism-through-withdrawal, an appropriate networking strategy might begin by establishing a clear and unambiguous focus on specific target communities.[1]

It is increasingly fashionable to talk about McNamara's"lowest 40 percent" or the "Fourth World" variously taken to mean the "25 poorest"--which are characteristically small and landlocked--or the "35 most seriously affected," those which do not share the growing political strength of the Third World

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[1]See the earlier discussion on "target efficiency," Introduction, part four.

because they haven't the oil and mineral resources to bargain with). Recently we have discovered the NOD countries (or "non-oil" developing nations (see AIDTO circular A-90, 2.18.76). On the other hand, there has been less progress in applying specific standards of equity either within a country or on the level of specific projects.[1] Several commentators at the various network conferences converged in their view that knowledge networks which function internationally tend to break down most seriously in attempts to link up within LDCs to primary groups in target communities. With this in mind, we have attempted to define the target of knowledge network strategies in a fairly precise way.

The term "poor communities" has been chosen for several reasons. (1) The term is more target-specific than "LDC," which includes rich as well as poor people. (2) International comparisons can be more usefully drawn if we concentrate on populations faced with similar objective conditions of poverty. For example, Peace Corps experience overseas has carried over to strategies of community action in the United States, just as Land Grant experience with rural development in this country has served as a model for agricultural programs operating under similar circumstances in other nations.

(3) The focus on poor communities is chosen to avoid certain problems that arise from dealing with poverty as a phenomenon involving atomistic individuals. One such problem is the familiar brain drain phenomenon or "rural backwash" effect that results when individual social mobility is facilitated by education without regard for the community left behind. Another problem is the limited effectiveness of educational programs that attempt to compensate for "disadvantaged" backgrounds, without operating

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[1]The U.S. General Accounting Office has taken some major steps in this direction, however, in some constructively critical evaluations it has made of the distributional aspects of certain USAID educational programs in Latin America

on the social and economic environment that constitutes the disadvantages. A third consideration is the dubious wisdom of giving individuals equal "opportunities" within the school system without giving them equal opportunities to exploit the benefits of education in the social system at large.

(4) The term "poor communities" also avoids an exclusive preoccupation with either rural or urbar settings. The problems of marginal existence in the city and the country are interdependent, particularly in light of recent data which shows a mingling of rural and urban populations through reverse migration to a greater extent than previously supposed.

(5) The term "poor communities" does not presuppose any particular ideological set, or theoretical interpretation of how poverty arises. Whether the causes are structural (arising from economic and political institutions) or more predominantly attitudinal--a failure among individuals to seize real opportunities for self-help--is left an open question for purposes of this study.

(6) Finally, although poverty is usually recognized as a relative term, for any given time and place it is usually possible to provide an objective measure of what it means to be "poor." It might mean, for example, income levels below a minimum standard, such as one half of the regional median. Or it might be measured by the net flow of resources out of poor areas toward the modern sector (versus reinvestment of profits or economic surpluses in the target area).

SOME TENTATIVE CONCLUSIONS FROM OUR WORK THUS FAR

1. Role of Cost-Effectiveness Analysis in Evaluation of Technical Assistance Programs.

Given the multiple purposes of long-term development programs, it is probably a mistake to apply the same standards of cost-effectiveness in educational planning to poor communities as are applied to rich ones. Economic efficiency often favors investment in the modern sector; and educational planners will generally find it easier to think of solutions that reflect what the modern sector has to offer. Most of their work is carried out, after all, in the major cities where government offices are to be found, and where the needs of poor and rural communities are not very visible. Education is generally provided by the middle class, for the middle class. By middle class standards, the poor are almost by nature "disadvantaged." From the strict standpoint of cost-effectiveness, it will probably be more "efficient" for educational planners to accept and work within the orthodox structures of education that serve the middle and upper class, than to deal with the more fundamental problems of education in poor areas. In order to avoid this bias, other standards of effectiveness have to be brought forward, that can justify experimentation, and the remolding of educational structures, new levels of political debate, and other reforms which would seem "inefficient" from the narrower standpoint of simply getting resources allocated and plans implemented. By the same token, strategies and criteria of networking effectiveness may have to seek out unorthodox measures of planning "output" if service to poor communities is to be an operational priority rather than just a pious wish.

2. Knowledge Networks and University Roles: The Need to Build on "Intact Experience" Based in Poor Communities.

The problems of working with poor communities are of such a complexity that solutions are not likely to come from general principles but from detailed study and dissemination of specific success stories. This requires a stronger emphasis on learning about past experience and experimenting with the adoption of prototypes to new conditions, with less pure reliance on one-way consulting from the more to the less industrialized countries. It also means casting further afield for indigenous and unorthodox approaches to education designed specifically for poor communities, among countries which place particular emphasis on egalitarian objectives.

The problem of direct contacts with poor communities became a focus of discussion at all four network conferences sponsored under this project. Rodrigo Medellin argued forcefully that there is not a smooth transition between knowledge supplied from MDCs and universities on the one hand, and seeing things from the point of view of the people affected in the countryside. To an outsider--an international sponsor or technical expert--the Green Revolution work of CIMMYT looks totally adapted to Mexico's needs. From the standpoint of someone living in the countryside, however, it spelled ruin for a class of ejidos swept aside by the commercialization of agriculture. There is no way to reconcile these views about the role of knowledge: The contradiction arises from basic differences in assumptions about the organization of social relationships; there is a watershed between perceptions of the same phenomenon that can never be reconciled. The contradiction cannot be posed in terms of social science as it is practiced. Perhaps it can only

be seen by living the other side, as portrayed perhaps in Steinbeck's Grapes of Wrath.

Similar issues but different conclusions were forthcoming from the network conference held at Harvard's Center for Studies in Education and Development (Russell Davis as co-convenor and -rapporteur):

A major quandry is getting direct contacts with the people who deal directly with the problems. One difficulty is selection. The countries usually send VIPs to seminars and even training programs, rather than the people who matter. The problem was to get to the "camel driver." (This was a reference to one of the great network transmissions of all times, when Lyndon Johnson picked a camel driver out of a mob in Pakistan and had direct and much publicized follow-up contact with him.) There is a need for contact that goes down and across. Most of the international exchange is just across at a very high level. One schema suggested by Davis and Kline was to get a team that went down from national to primary group level and to have this team meet with other teams, similarly structured from other countries. Nobody thought this would be easy, given the selection controls exercised by governments in most countries, but it might be the only way to get an exchange that goes deeper than most of those that took place at International Conferences-where the exchanges were abstract and lacking situational reality. The model would be something like this:

	Country A	Country B	Country C
↑	1. National level Rep. (Minister)	⟷ National Rep.	⟷ National Rep.
	2. Sub-National, State, Regional	⟷ Sub-National	⟷ Sub-National
	3. Local or Institutional	⟷ Local-Institutional	⟷ Local-Inst.
↓	4. Primary group member(s)	⟷ Primary Group	⟷ Primary Group

The problems of accomplishing this are no small ones. The size of the group, if many countries and governments were involved, would make things expensive and unwieldy. A lot of countries and governments would not encourage people from the levels below national to attend and participate. Many countries when dealing on an international level want "representatives," and these are representatives of the government, or party, or elites in power. Many delegations are stacked or packed this way. There would also be a problem that if the thing were structured, somewhat as above, the Minister, or man from the national level would view himself as head, and things would end up with one person speaking for the nation, even if he didn't know what he was taking about.

The advantages are also attractive. Not only would people with similar problems and perspectives have a chance to relate on an inter-country basis, an opportunity that is rare, especially for those at the lower levels, but there would also be a chance to get more coherent relationships and exchanges within country teams.

To sketch out a possibility specifically in educational planning:

1. National Level, representative of Ministry Planning Office, or high ranking official with policy and planning responsibility.

2. Sub-national. Provincial, state or regional planner or official.

3. Institutional-University planner or research analyst. University in U.S. or other country could sponsor and this level could be pivotal group.

4. Local official. District official or school director.

5. Teacher or supervisor.

6. Learner, student or farmer or worker or community person participating in program.

It would not be too difficult to try, especially if only four or five countries were involved, and one place to begin might be in regional groupings

that already exist, e.g. Central American common market, Andean Pact, etc. There already meetings that go on below the national level, e.g. representatives of universities in different countries meet, representatives of groups dealing directly with primary groups meet--this is especially true of religious or mission groups. Also, organizations with similar purposes meet, e.g. cooperative groups, Rural Family School Movement, trade unions and syndicates. . . A natural sponsor for such a trial would be a university, particularly a large and powerful private one with international status, for it could probably bridge-through more informal old boy networks--government and private groups, groups at different levels. Some university people do know farmers and workers in the countries. It was also suggested as a general principal that informal contacts, wherever and however they exist--the old boy network if it does, should perhaps be the basis for getting a trial going, and that more formal arrangements could follow.

Failing some kind of mechanism for more effective exchange across and up and down the various levels there will always be the filtering out of direct knowledge from below, and the transmission of schemes of abstraction from above, and this problem is acute in educational planning or any other field. Something more innovative than the conventional seminars, reports, exchange of scholarly research, and international conventions of VIPs is needed.

The need for face-to-face contact and exchange between planners, practitioners, and community representatives, need not imply a neglect for more conventional exchange or transmission of knowledge through reports, books, seminars, and teaching and training. But it does say that something more innovative is required to break through the filters that are built in at various levels of the system.

APPENDICES

APPENDIX A

OTHER VARIABLES AFFECTING THE DESIGN OF APPROPRIATE NETWORK STRATEGIES

Throughout our research we have focused attention on three variables bearing on the design of knowledge networks. All three are a priori choices that we can control or feasibly negotiate with technical assistance sponsors and host country officials. These are:

(1) choice of how we define knowledge "utilization" (see Section I of this report)

(2) choice of counterparts in the network (see Section II of this report); and

(3) choice of poor communities as our principal client. (Certain problems of reaching this client are dealt with in Section III.)

It is also important to mention the other variables that probably affect the appropriate design of knowledge networks. Although they are secondary to the main concerns of this project, they might prove overwhelmingly important in actual planning situations. A brief list of these other contingencies of network design would include at least the following:

(1) Type of knowledge required. (Friedmann makes a useful distinction between the roles of processed and personal knowledge.)

(2) Different functions of knowledge. (Davis shows the need for quite different forms of knowledge transmission, depending on whether the objective is to monitor, adapt, or develop educational systems.)

(3) Readiness on the part of the client. This may be cultural, or a matter of skills that can be acquired; or this may be a function of particular historical and political circumstances. (Staff at FSU give great emphasis to this point.) The same might also apply to the environment

for participation: it took Kennedy--and the Kennedy era--to launch the Peace Corps.)

(4) Specific development priorities (education for maximum economic growth is different from education for self-reliance; planning methods and "styles" would also vary accordingly.)

(5) Relative emphasis on short vs. long-term results; getting something done vs. researching ways to do it better in future; transmission of well-tested solutions vs. learning from indigenous successes.

(6) Educational specializations--e.g., educational finance, non-formal education, and audio-visual media. (FSU, UCB, MSU, Stanford, and Harvard address different specializations; observation of their planning practices, however, has not yet revealed major systematic differences traceable to their specializations.)

(7) Open-endedness of the planning context with respect to variables not already accounted for (e.g., uniqueness of local sites; political ambiguity about priorities; turbulence in economic and social relations; rapid technological developments; crises such as natural disasters and military coups; pre-disposition to undertake risky experiments)

Many of the contextual factors, contradictions, and anomolies that affect the implementation of policies, and ultimately the policies themselves, appear not to be studied in an organized and coordinated manner, but rather tend to get documented by practitioners who have to deal with them, with little cross-fertilization of ideas. Organized study of these factors is therefore an opportunity area that we may want to investigate.

Illustrative literature:

> Curle, Adam (1969), Educational Problems of Developing Societies with Case Studies of Ghana and Pakistan (New York: Praeger).
> Looks at the problem of drawing up and implementing education plans, based on the premise that education is the key to solving LDC problems.

Gale, Lawrence (1969), "Education and Development in Latin America: with Special Reference to Colombia and some Comparison with Guyana, South America" (New York: Praeger). Surveys the commonalities and differences that define the potentialities and limits of coordination of the educational sector throughout Latin America. Might be useful for developing perspectives on the process of translating mission-wide policy statements (e.g., by USAID/Washington) into programs for specific countries.

Montgomery, Warren (1968), "The Purposes and Problems of A.I.D. Educational Assistance to Thailand" (Ann Arbor: Michigan University). Deals with the problem of program adjustment in t he light of local conditions--seldom done.

APPENDIX B

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APPENDIX C

Index of Institutions Referred to in Report

(Institutions marked with an asterisk have also been included in an appendix of case studies which will appear in our final report.)